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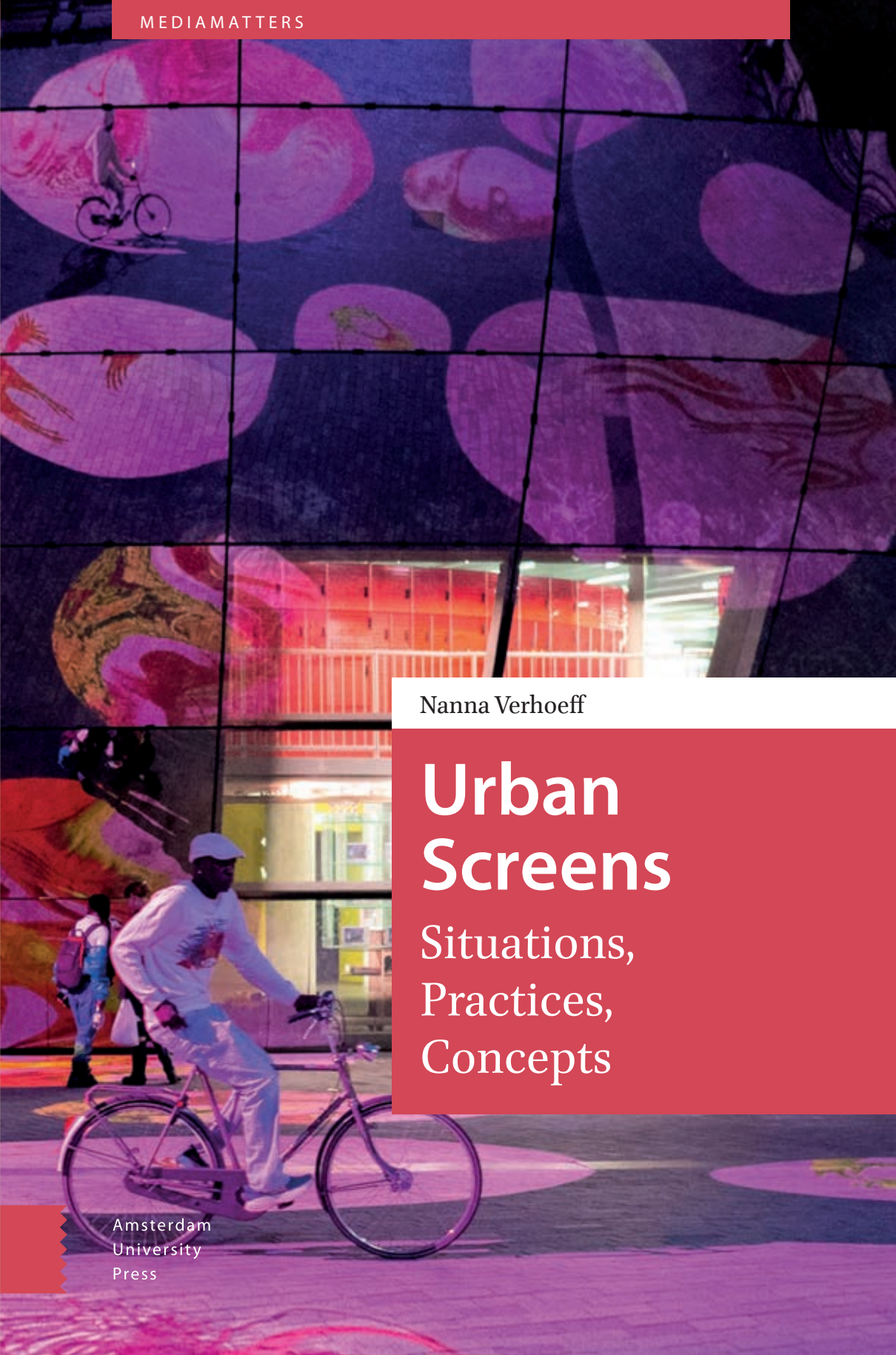

Nanna Verhoeff

Urban Screens

Situations, Practices, Concepts

Amsterdam University Press

Urban Screens

MediaMatters

MediaMatters is an international book series published by Amsterdam University Press on current debates about emerging and transforming cultural practices that engage with (new) media technologies. Contributions to the series critically analyse and theorise the materiality, spatiality, mobility and performativity of these practices in book projects that engage with today's dynamic digital media culture.

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Preface

I want to begin this book with a very brief sketch of its genealogy, combined with a statement of gratitude. This book is the result of an intellectual journey that began some years ago and has grown from my fascination with the diversity of screens and contemporary as well as historical screen cultures. In this sense, the current book is the final part of a trilogy, including my earlier monographs on early cinema (Verhoeff 2006) and mobile screens (Verhoeff 2012). What these three books share is a comparative perspective on the diversity of emerging and transforming screen practices—looking at the specificity of various technologies and devices, but always from a cultural perspective: How and where, and in what "screening situations," do we use these technologies? To what ends, or with what ambition? I want to know how these specific and situated practices invite us to think *with* these technologies about their affordances and implications, inquiring how they impact our world, our thinking, and our relating to the world around us. I recognize in these questions a theoretical call from different contemporary and historical screening situations or practices, as they point me towards a more fundamental methodological question: how do these situations and practices activate theoretical concepts in their design and working with which we can unpack, understand, and critically discuss their specificity in cultural—i.e. social, historical, material, affective, ethical, political, creative, and theoretical—terms?

Academia is a fast paced, ever-changing environment. Within the humanities, we have become increasingly attuned to the need to develop our research and teaching in various constellations of interdisciplinary, inter-institutional, inter-professional, and inter-generational collaborations. In recent years, I have worked with many colleagues, students, artists, designers, and other partners who have more than inspired me. Knowledge is always a co-production, as is creative practice. This book is firmly built on such intellectual and creative collaborations.

In the book, I mention as precisely as possible the various genealogical branches and roots of my writing, giving acknowledgement to specific dialogic partners or co-authors of previous works that this book revisits and builds on, or the contexts within which I was able to develop my thinking about, and with, the screen works that I discuss. Here, I want to state my gratitude once more for having been able to work, collaborate, and relate within such a rich environment of students, colleagues, thinkers, and makers.

I began to envision the contours of this book when, in 2020, I was appointed to the newly created chair of Screen Cultures and Society for the Faculty of Humanities at Utrecht University. Taking up this position offered a moment in which to reflect on how my teaching and research not only builds on past avenues explored, but also on new partnerships. As such, this book is inspired by earlier work, but also influenced by perspectives on the future directions and new terrains that I will discover from a comparative engagement with emerging and transforming screen cultures—plural. Urban screens, how they "work," and how the urban passer-by encounters, experiences, and responds to them provides the material on which the book focuses. In each of the chapters, a specific aspect of urban screens is unpacked, yet always foregrounding the intra-active relating between the screens—what they display, propose, or do—and the beholder or "engager" on the street. As such, it is my aim in this book to develop, propose, and demonstrate the conceptual tools that can help us investigate the relational processes between screens and their interlocutors, rather than to describe screens or screen "content" as fixed and fixating distant objects. This starting point has not only guided my reflections on specific analytical concepts to understand the performativity of screens in the urban environment, but also my reflections on the theoretical perspectives that inspire this approach. Indeed, the concepts we think with and through are themselves also always in development and are mobilized in relation to objects—here, the situations and practices in which urban screens *participate*.

Some sections in the chapters of this book revisit previously published and co-authored articles that originated in shared experiences and intellectual exchange. Where this is the case, I reference these publications and acknowledge my co-authors. As my writing is built on various intellectual partnerships—with students, colleagues, and cultural professionals of different disciplines and generations—I hope that the readership of the book will also comprise a mixture of scholars, artists, curators, designers, and—first and foremost—students interested in media, arts, and culture. The reader, I feel, is always also my partner in thinking and writing. I am deeply grateful to everyone who has made it possible for me to develop my thinking and writing in partnership and exchange with them, and for those who may engage with it through, and with, this book.

I dedicate this book to my mother, Mieke Bal. Thank you for always loving, supporting, and inspiring me.

Introducing

Abstract: This introduction discusses how the book offers a framework for analyzing a wide variety of urban screens: installations, media art, and media architecture in urban public spaces. Each chapter proposes a set of theoretical concepts to understand how such site-specific and situated screens and media surfaces reflect on their surrounding urban contexts and, by extension, on the contemporary condition of urban living. The question driving such an analytical perspective on how specific situated screens *work*, is critical as well as affirmative. How can the design—as a curation, dramaturgy, and scenography—of urban screening situations foster inclusive engaging and engaged shared socio-material public spaces that are "open" for various forms of mobility, transformation, and generativity?

Keywords: urban screens, situatedness, performativity, *hodos*, criticality, creativity

Situating the Book

Situating this book, I have to make an important proviso. The foundations of my work are based on the close analysis—I call it a *concept-driven situational analysis*—of screen works that I am able to physically and/or intellectually encounter in the environments in which I live and work. While this, of course, represents an obvious limitation, it is also a necessity, since I seek to analyze and understand in depth the situations, practices, and concepts that pertain to the ensemble of the urban culture that I know best. Recognizing both global urban screen culture, and specific usages and aesthetics of urban screens in different parts of the world, it seems best to acknowledge the Western provenance of most of my examples. This is not intended to universalize the results of the analyses of screens from the Global North, in many—yet not all—cases from Europe. Working within global, international networks of academia, arts and design, and traveling

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curatorial frameworks, I do feel the need to acknowledge the limitations of my knowledge and my cultural background, while also saluting both the geo-cultural specificity of urban screen cultures that doubtlessly differ to a smaller or greater extent within and across various global regions. However, since the "situations," as one part of my title has it, are specific in their location and cultural background, I cannot pretend to discuss the specificities of those different cultures.

By way of an introductory sketch of the overarching perspective that this book articulates, allow me to continue with two (also culturally and historically specific) anecdotes that have provided inspiration and momentum for (further) sharpening its framework.

The first was a curatorial project on urban screens and media architecture. Working together, myself, close colleagues at Utrecht University, and partners from the Amsterdam University of Applied Sciences hosted the 2020 edition of the international Media Architecture Biennale. For the organizing Media Architecture Institute and the multi-disciplinary community of scholars, designers, architects, and artists that it fosters, "media architecture" represents a broad category of urban media design that includes screens, installations, projections, and so-called media façades. The theme of the 2020/2021 edition was *Futures Implied*, centered around a set of fundamental questions about the future of the professional, educational, and scholarly field of media architecture, as well as the urban futures to which such design contributes—the futures that urban screens, or urban media arts and design, *imply*. Moreover, *Futures Implied* also refers to the idea that design is already implicated in the present, as much as it is invested in a future. As a form of *prefiguration* (van der Tuin and Verhoeff 2022, 146–8), design makes the future already actionable in the present. The reflection on this fundamental anticipatory futurity of the contemporary is therefore as relevant for today as for tomorrow.[1]

1 The Media Architecture Biennale takes place in various locations in the world. Previous editions were held, for example, in Beijing, Aarhus, and the 2023 edition in Toronto. MAB20 was organized as a collaboration between the international consortium of the Media Architecture Institute, the Amsterdam University of Applied Sciences (HvA), and Utrecht University (UU). Together with Martijn de Waal and Frank Suurenbroek (both from HvA), and Michiel de Lange, my colleague from UU, I had the privilege to be part of the executive committee for MAB20 and, as such, was a co-author of its curatorial statement. The MAB20 had to be postponed to June in 2021 and took place both on location in the Netherlands and online because of the global COVID-19 pandemic. For details of the organization, the program, and other resources, see the final report at: http://mab20.mediaarchitecture.org/reports/mab20-final-report.

The *situatedness* of urban screens and media architecture is complex, and as such connects with issues on the critical agenda of our contemporary cultural moment in public debate, creative practice, academic scholarship, and higher education. A central concern for this agenda is the impact of technology on our world—for example, from a societal perspective—on our ways of living together, communicating, thinking, and doing, as well as on the world from a planetary, ecological perspective. To quote from the curatorial statement for the event:

> As we design and adapt new technologies, in turn these technologies shape our cities. What future scenarios are implied in today's urban technologies? And how can we shape our technologies to respond to their surroundings, contributing to cities that are both socially and ecologically sustainable?

To connect these questions to a description of the field, its history, and its future, the statement continues:

> Originally, media architecture was most concerned with the integration of displays and interactive installations into architectural structures, such as media facades and urban screens. Over the years, the discipline has grown much broader, as new technologies such as digital platforms and smart city technologies have increasingly made their way into the experience, management, and design of cities.

However, these developments inevitably entail the critical examination of their presuppositions and societal consequences:

> None of these technologies brought into the city are neutral enablers, mere decorative structures or just simple marketplaces connecting demand and supply in fields as diverse as energy and transport to commerce and leisure. They are built upon numerous spoken and unspoken assumptions about urban life, each with their own implications for both social relations as well as their effect on the natural ecosystem. It is time therefore for the discipline of media architecture to address the implied futures of new technologies.

In response to these critical musings, as curators we drew up a wish list, calling on the future of the acute contemporary situation of media in public spaces, particularly the city:

> MAB20 calls for media architectures that move beyond the mere spectacular; as well as beyond the design of individualized services comforting human customers. MAB20 calls for media architectures and urban interaction that dare to take on a more-than-human approach: aiming at the well-being of the natural ecosystem as a whole; For urban media art and design that bring implicit and explicit bias within technology and culture to light, and provide the means for ongoing discussion, debate, and societal change; For digital platforms that strengthen citizen's digital rights in democratic societies.[2]

As a consequence of the above, in the agenda of *Futures Implied* we identified a set of subthemes that defined the relationship between design and the contemporary urban condition. Some of these subthemes recur and are further elaborated in this book.

The first issue is how a desired just and democratic social world can deploy media architecture in such a way as to make public spaces both more inclusive and more vibrant—a task requiring that they provide, or at the very least contribute to, a sense of place. This was formulated as the search for "The Aesthetics and Poetics of Responsive Urban Spaces" and, to this end, the curators asserted: "It [media architecture] makes places more legible and also imaginative, in ways that stimulate exploration, reflection and criticality." For the sake of our urban futures, we must realize that this call represents a challenge for the imagination that exceeds the purely technological. To become responsible for our planetary urban future, we need to take the creative potential of art, play, and other interventions—as contributions of the imagination—seriously. Moreover, sustainable cities need media architectures that embrace the well-being of the natural ecosystem. We need media architectures that enable us to "live together" with other beings in ways that respect them and allow for their differences, right to presence, and existence.

What we can draw from these critical and hopeful remarks is a perspective on screen and media technologies that endorses their task of operating as social agents. Therein, materiality, design, and deployment merge in both a presencing and futural project: as futurity is what the present always already incorporates, the futurity of design holds. In this book, I will undertake the building of an analytical framework for urban screens, much in line with

2 The curatorial statement was published online at http://mab20.mediaarchitecture.org/frontpage/theme. See also the special issue *V59 – Futures Implied* of *Volume* Magazine (de Waal et al. 2021) with an editorial on the curatorial aims by the executive committee.

the perspective on media architecture as put forward in the curatorial framework cited above. As forms of media architecture, screens co-shape and intervene in our urban environment. As media architecture, urban screens join other forms of urban spatial and material design in their offering and shaping of experimental and experiential creative zones within the urban environment.

An important factor, impactful upon the project of shaping and consolidating this book, was the COVID-19 pandemic that uprooted public life in cities across the globe from 2020 onwards. Any thinking about media and screens in public spaces became inflected by the impact on public life and the invitation to explore what we can learn from the temporary re-designing of public spaces of the (post-) pandemic city. With the ambition to sketch some insights into this constantly shifting disorderly order, considering the instability confronting both structural recurrences and the reconfigurations of permanents—both the "normal" and the "new"—some of my analyses became specifically focused on how these *prefigure* the conditions for both distance and presence, and for mobility and connection. These design interventions proposed a set of conceptual coordinates to think about, or think with, their "workings," acting as temporary urban interventions—concepts that were not only inspired by a reflection on what we see happening on the streets of our cities at a specifically challenging moment in time, but also combined this with an invitation to a more fundamental methodological reflection on the productive intersections of urban, creative, and theoretical practices—between the street, the studio, and the scholarly hubs of teaching and research.[3]

To further situate the aim of this book, I acknowledge the contemporary moment of its writing as the global pandemic has impacted, is still impacting, or will soon again impact our local conditions for urban living—at home, in shops, museums, theaters, schools, and in our workplaces, but perhaps mostly on the (accessibility of) our streets: *en route*, on the commute between these places. Streets were emptier than usual, or our passages in public spaces had stopped altogether, were halted, or had been rerouted. These years were challenging, frightening, frustrating, yet also insightful and productive in different ways, "glocally." We have been

3 Although my examples are European, taken from my own direct environment in the Netherlands, the issues broached here have much wider relevance. For a more global perspective and examples from the Global South, see the report of the UNESCO Creative Cities Network (UCCN; UNESCO 2020) at http://unesco.org/en/creative-cities.

dealing with illness and perhaps even death, with anxiety, grief, stress, and boredom—going in and out of lockdowns, working and schooling from home, in our layered, shrinking, and expanding bubbles. Yet this is but one side of the undeniably problematic situation. For, in addition, the possibilities for movement and circulation, connection and exchange have not only been diminished, but they have also been differentiated and, in some ways, multiplied, as online communication exponentially increased and intensified our connectivity from and between the different domains we inhabit.

As cities went into lockdown, images of empty streets were shared online across the world. Buildings and even the sky came to function as screens for messages and images about this special situation. During the pandemic, we experienced how our screens have become fully integrated into all aspects of our lives: at school and at work, in private and in public. The use of our personal screens made it possible to maintain contact and to shape new social spaces. The contours of what it means to be together—connected through our screens, or in person while staying socially distanced—were drawn anew.

In our efforts to stay mobile, connected, and productive, we responded to the situation from these various domains, whether or not they are all located in the same place: at home, school, work, health centers, or in other places and venues, while we negotiated our own or other people's absence and presence. In order to achieve that negotiation, we have been navigating changing circumstances and the shifting rhythms, pace, or stop-motion animation of our activities. For those of us working in academia, our workload seems to have doubled, with our productivity both skyrocketing in some areas and grinding to a halt in others. Of course, this increase or decrease depends very much on the moment or the task at hand. Some new working formats, questions, and debates may inspire us, while focus and overall physical as well as intellectual energy, however, may have also escaped us at crucial moments.

In the face of these challenges—on individual, local, and global scales, and pertaining to our bodies, minds, and hearts—questions about possibilities and impossibilities for adaptation and resilience have been loud and persistent. These questions and challenges pertain to our daily, work, and public lives. They interfere in our scholarly and didactic practices. In that practical framework, they ask how our embodied experiences impact our thinking. The overarching question that emerges, then, is: how can we best (re)design our research and teaching? This entails the following, more specific questions, which all have a practical side to them, as well

as intellectual consequences. How could—or perhaps even should—we respond to societal issues, and contribute to public debates? What are new, renewable, or remaining possibilities for scholarly exchange? How can we foster insight and inspiration from the current moment that is productive for our short-term and longer-running research agendas? And what are the methodological implications of the research questions now presenting themselves? These questions, which the book addresses, are sometimes urgent and demanding, and sometimes inspiring, as they bring together the conundrum of the present and the futurity that this present also harbors.[4]

In light of such a futurity, the perspective that we proposed as curators of the Biennale on urban screens and media architecture is one that brings together the future-orientation of creative practice and a critical engagement with both the past and the present of cultural analysis. As such, our curatorial gesture was to propose to reflect on how design proposals for our cities can offer productive forms of public engagement with already-present potentials of urban life, yet to be fostered, made resilient, but also transformative. In other words, it fostered the possibility to affirmatively work with and through various pressing and intersecting urban challenges and frictions, in order to make things better while "staying with the trouble," to quote Donna Haraway (2016). In other words, the aim here is to avoid escapist, denying, or too dismissively solutionist attitudes in response to the trouble presented by the historical moment in which we found ourselves.

However, equally important—because simultaneously and intimately connected to our personal experiences and scholarly practices—the creative field is also responding. What insights are artists, activists, designers, performers, and curators providing, with their reflections and proposals? What is their role in the temporary or perhaps longer-term reconfigurations of our homes, schools, offices, and public spaces and the connections between them? How can creative design suggest new contours for our public presence and mobility? It may be able to do this by shaping productive distance, (re)routing our passages, and reconfiguring the "ins and outs" within and between these spaces. Therefore, we must ask and examine what design principles work for and with these challenges and offer solutions in shaping responsive and situated proposals.

4 For publications that precisely address the impact of the COVID-19 pandemic on both our (media) culture and our scholarship about it, see: Keidl et al. (2020); Kopecka-Piech and Bartłomiej Łódzki (2022); and Ong and Negra (2020).

Optimist and critical thinking can go hand in hand. To address the dual role of creativity and criticality in engagements with contemporary life, in *Critical Concepts for the Creative Humanities* (2022), co-authored with Iris van der Tuin, we sketch the conceptual terrain of the *creative humanities*. Taking shape at the productive meeting point of arts, design, and other creative practices on the one hand, and of the theory and philosophy of the humanities on the other, we can discern a shared interest in a generative reflexivity for the present/future. This approach is particularly inspired by critical perspectives and interdisciplinary orientations of new materialism and media and performance theory. It encounters creative practices, in the broadest sense of the word, as thinking practices and vice versa: scholarship as and in creative practice. This implies an engagement with contemporary culture and ecology that embraces the uncertainty of the position and moment of being "in between," as articulated in the introduction to that book:

> The *creative* aspect in creative humanities takes shape in the (literally) productive connection between making practices and thinking practices: making as/through thinking and thinking as/through making. These generative practices are emphatically experimental and comfortable with knowledge production in uncertainty, multiplicity, and friction (van der Tuin and Verhoeff 2022, 2, emphasis in text).

In the current work, I want to bring into connection the contemporary (albeit temporary) redesign of urban public spaces on a street level with artistic work that responds to such new frameworks, guidelines, and challenges, and with possibilities for being present, mobile, and connected in our cities. Avoiding any attempt at fixating what is by definition in movement, and in between and across these every-day and artistic encounters, I propose a set of conceptual coordinates that together sketch a perspective, not only on the current, but also fundamentally on the *unfinished* nature of cities and urban living. This implies that pedestrian interventions—both in the sense of "everyday" and "street-level" as per its Latin etymological root of "pedester," meaning "going by foot"—and artistic interventions, including reflections by artists on such interventions, go together. Both are inspiring examples of the "futures implied," in a phenomenological as well as a methodological sense. The encounter this spectrum of interventions yields, offers a productive ground for distilling a method that brings together engaged criticality and productive creativity—a creative humanities engagement with what we may call the *hodos* (road, street, journey, or way) of urban living.

Screens on Streets

Concisely, this book is about "screens on streets"—in the double sense of the word preposition "on"—and proposes concepts for an analytical approach to understand the forms of spectatorship that they shape, and the actions and processes of meaning-making that they afford on the street, in the public space, and also *about* this space. Hence, my aim is to *situate*—that is, to historize, localize, and compare—urban screens, using this denominator as a categorial bracket that encompasses various screens, projections, installations, forms of media architecture, and screen practices. These practices range from artistic and activist expressions, to entertainment, information, commercial, and other types of public messages. Moreover, their diversity also attests to the fact that they are part of a wider and longer history of screens and other cultural interfaces (Manovich 2001). An inclusive, historical, and comparative perspective serves to find specificity in their differences—differences that become visible against the background of their similarity. These specificities are significant for our understanding of how they *work*. To be specific: to understand how they impact the spaces that surround them, and our experiences and practices within these spaces.

To emphasize their situatedness, I use the term "urban." This is not to exclude other possible locations, but rather—as I will argue throughout the book—to approach such screens as *urban interfaces*. To call urban screens urban interfaces is to conceptualize their status, not only as material objects within urban spaces, but also as mediating frameworks that co-produce these spaces. As such, "urban screens" (like "urban interfaces") are approached as *object-concepts*. The object-concept of urban screens (or "urban interfaces," as I will argue in chapter 1) engages with the specificity of urban public space itself, as well as with critical perspectives on the impact of mediating technologies on political and discursive structures of such a social and cultural domain.

I propose that many of the more experimental and artistic urban screens projects that we can encounter in the city suggest a specific perspective on public engagement within and with the city. We can recognize not only proposals for taking up the emancipatory and engaging affordances that they offer, but sometimes also how their design invites a relational criticality to the public character of the street. Such a relational and critical attitude can open up the possibly of a frictional engagement with and within our direct social environments. That kind of engagement with criticality is different from a more distant and external form of social critique, also allowing for ambivalence and inquisitive attitudes. When such engaged

spectatorial positionings are made possible, creative practices on the level of the street—the *hodos*—can offer a productive perspective on current societal frictions and urban transformations, for example resulting in impactful processes of digitization, algorithmization, and datafication.

"Street level" is the concept I use here as a qualification of "public space." The notion of public space has a long history, with social and political changes at every major cultural development. It is from such a historicizing perspective that I qualify public space as the space where social encounters take place and contemporary culture takes shape. This is the realm where both sociality and culture are expressed as well as contested, and where possibilities and limitations, affordances and restrictions, to such exchanges and expressions—including frictions and contestations—are at work. The intersections of the notion of urban publicness, of contemporary culture, and of spatiality, I define here as the "street level" of public space.

Speaking of the "street" as a qualifier of public space, emphasizes the situatedness of public space as a realm within which art and other cultural expressions take place. However, reflections on art in public space are not always approaching publicness via its intersection with the spatial concept of "space," but primarily with the discursive Habermasian framework of "public sphere." An ontological understanding of the relationship between art and publicness, can be recognized in the words of visual theorist W. J. T. Mitchell (1992, 4), who wrote in the introduction to a volume on the subject called *Art and the Public Sphere* that "either there is no such thing as public art, or all art is public." Earlier, Mitchell (1990) refered to Jürgen Habermas' notion of public sphere as an ideal discursive space:

> The very notion of public art as we receive it is inseparable from what Jürgen Habermas has called 'the liberal model of the public sphere', a dimension distinct from the economic, the private, and the political. This ideal real realm provides the space in which disinterested citizens may contemplate a transparent emblem of their own inclusiveness and solidarity, and deliberate on the general good, free of coercion, violence, or private interests (1990, 886).

In relation to such perspectives on publicness yet making it also specific as a perspective on situational performative practices, in this book I speak about "public spaces" specifically in the plural. Moreover, in emphasizing the socio-political and spatio-material characteristics of public spaces as the situational framework for discrete objects and practices, I qualify these

spaces as the "street-level" situatedness of contemporary culture. But there is more at stake in using this concept.[5]

The street level at which this study situates the screen objects and practices also implies thinking through the characteristics and logics of mobility, transformation, and intersection. Through the conceptual lens of the *interface* and notions of *interfacing*, I propose a new perspective on urban screens as producing dispositifs that construct and position us in relation to direct, distant, or historically layered surroundings. As such, we can understand the situatedness of the "urban" of urban interfaces, not only descriptively as a location-based specificity, but also more fundamentally (and politically) as offering strategies for an engaged form of relating to, reflecting on, and positioning ourselves within, the contemporary urban condition.[6]

This engaging-through-situating ideally yields reflection, not only on the situation itself (as if one is not fundamentally part of it), but also on one's own position in the midst and the thick of our place, space, and time—on our presence and role within contemporary digitized, datafied, and algorithmic urban culture(s). The cultural object—the artefact, text, installation, or whatever we delineate as our "object"—reflects not only on the conditions within which it is embedded and the materials it works with, but also on its own potential as part of, and beyond, this condition to situate us. As such, through its situatedness in the public space, the object positions its "public" as collaborators, invited to be part of a reflexive process that also includes the researcher.

As interventions, we work from an inherently temporary situatedness within the mediatized infrastructures of our public space. "Temporary" means time-based, or temporal, and is thus inherently dynamic. Only then can we recognize the experimental, and hence also inherently temporary strategies deployed in experimental urban media projects. As Dave Colangelo (2020, 94–95) and Scott McQuire (2008, 114) suggest, we can understand such urban screen projects as creating an urban "perceptual laboratory" as they work to shift, defamiliarize, and surprise the urban spectator with "special effects." With such sensory strategies, this perceptual laboratory also examines the working of the project itself, as it makes "perceivable"

5 The canonical text on the public sphere is Jurgen Habermas (1989). See also Habermas's short encyclopedia article "The Public Sphere" and its introduction by Hohendahl and Russian (1974).

6 About media art setting up "urban appointments" as encounters *with* the city, *within* the city, see Brian Massumi (2020).

and thereby also debatable its experimental workings. Indeed, by exploring and experimenting with alternatives, for example by repurposing, rescaling, repositioning, or reterritorializing the technological assemblages that shape our habitats and habits, we can work towards their transformation.

It is this inherently relational, positional, and thereby also essentially political potential of creative practices that we, as citizens and also as scholars, can embrace. With "political" I refer to what Chantal Mouffe (2013) recognizes as the ever-present possibility of antagonism—or what she terms "agonisms"—in all relations or forms of relationality. Alternatively, in his description of political art, William Kentridge refers to this as the art of "ambiguity, contradiction, uncompleted gestures and uncertain endings" (Christov-Bakargiev 1998, 56). In other words, an object's or a scholar's creative "productivity" should not be seen as simply mirroring quantification in a neoliberal key. Rather, creativity implies a *making* that brings about change and that in its process transcends the conditions of its own possibility. Thus, as Kentridge here suggests, creativity necessarily implies uncertainty. In addition, *making* implies a being-in-touch with materials and social and artistic forms, always with an eye for questioning what is known and exclusionary, and creating—hopefully—what is not yet, but can possibly become more inclusive. This includes activities on street level that also occur as acts of—or counteracts to—contestation, friction, or violence. Mitchell offers a useful analysis of art as acts of violence in public space when he writes:

> We may distinguish three basic forms of violence in the images of public art, each of which may, in various ways, interact with the other: (1) the image as an *act* of *object* of violence, itself doing violence to beholders, or 'suffering violence as the target of vandalism, disfigurement, or demolition; (2) the image as a *weapon* of violence, a device for attack, coercion, incitement, or more subtle 'dislocations' of public spaces; (3) the image as a *representation* of violence, whether a realistic imitation of a violent act, or a monument, trophy, memorial, or other trace of past violence (1990, 37–38).

It is especially relevant for my purpose in this book to understand urban screens—and by extension, all art and creative practices—to be situated on the street level of public spaces which has socio-cultural and affective effects. Moreover, with the inquiry into the potential effectivity of screens *in* public spaces, the aim of the proposed concepts and ideas is to enable makers, scholars, and students to analytically, but also prefiguratively

work from a critical engagement towards more "open"—i.e. inclusive and generative—public spaces. Therefore, the approach I propose to creative and experimental urban screen practices examines how they invite us to be comfortable with uncertainty, multiplicity, and also frictions in the production of knowledge that they support.

Through their engagement with contemporary societal or ecological issues artistic and activist urban media projects can foster public debate, but in various ways also offer conceptual foci. These issues may pertain debates or frictions, for example around the pervasive presence and proliferation of media technologies in public spaces or worrying patterns of exclusion or social or ecological injustice. They can make proposals on the level of issues or agenda-settings for public engagement and debate, such as the wavering trust in the age of hyper-connectivity, or tensions between visibility and invisibility in the datafied and smart city. Questions they raise can be about how to design for a more-than-human city, how to adopt a planetary perspective in response to ecological threats, or how to design for equitable urban futures. Yet, with their proposals or questions from such an engaged *contemporaneity*, they also solicit a conceptual vocabulary by revisiting and re-articulating already existing ideas and concepts such as those of process or transformation, of friction or encounter, or of relationality or participation.

Indeed, concepts, as theoretical terms with precedent—always inherently from other fields, perspectives, and times—necessarily migrate, change, and travel, to invoke Mieke Bal's terminology (2002). Yet, as such, they also connect, synchronically and diachronically, and are inherently generative—they perform and create. Emphasizing this historical and also creative dynamic of relational transformation inherent in concepts, we can say that now, as before, they can help us to keep becoming specific about *what is going on*. The next section of this introduction, therefore, is devoted to a core concept for this methodological perspective on conceptualizing itself—one that both concerns travel and is itself traveling.

Hodos: Conceptualizing Street-Level Thinking, Doing, and Making

Ancient Greek terminology was—and frequently continues to be—deployed as providing concepts for specific domains within urban societies and ecologies. Think of *demos* (the public), *oikos* (home), *agora* (market), *polis* (city), or *gaia* (earth). In line with such invocations, I propose to adopt *hodos* to denote the street or "street level" of urban living. Etymologically, *hodos* (ὁδός) means threshold, road, or street, but importantly also "journey"

or "way"– in the combination of a "way to get somewhere" and a "way of thinking." This double meaning also becomes clear in the compound word *methodos* (μέθοδος), which connects "*meta*" (pursuit) with "*hodos*" (way) as the "way towards." Hodos as a concept, therefore, not only refers to the street as a location, or a level on which we locate "the public space," but also, and more specifically, to the situatedness of urban experiences, relations, and practices that emerge from and in this location, as we traverse public space, *along the way*. Hodos—between locus and trajectory, between "street" and "way"—articulates a performative perspective on the city as a scenographic grid on which we move, act, connect, or navigate (Verhoeff 2012). So much more than simply a word, by also harboring such a performative perspective, this approach to the creative humanities takes on (or takes off from) the concept of hodos to connect the street with method.

At this point, a few words about this shift from word to concept to method are in order. In practice, methods are perhaps *applied* in creative acts that respond to a question or need. However, before such applications, methods are already *implied*—hidden in the concepts with which we make sense of the world, our direct surroundings, or the tasks at hand, and realizing them in our thoughts and acts. In the act of mobilizing concepts in response to questions, whether concrete or abstract, their methodological and critical potential becomes actualized. In the glossary mentioned above, we refer to this as the "methodologicity" of concepts:

> As proposals to think with, theoretical concepts are mini-theories that *articulate*—that is, give expression to and (hence) actualize—and *activate* "structures of feeling" [...] and constructions of thought. As our partners in thinking and making, they can be the tools or instruments that provide perspectives on objects (for example, things, events, phenomena) and our relating with them by bringing in and out of focus aspects, processes, and implications. [...] The precise unfolding of this process in analysis or creation *mobilizes* (or articulates and activates) a concept toward an *argument*. Or, to flip this definition, conceptual arguments build on the situated activation of a concept in relation with an object (thing, event, phenomenon) and a subject who actively draws (out) this relating. This is how the methodologicity of concepts—what they do and how we work with concepts—harbors their *criticality*. (van der Tuin and Verhoeff 2022, 6–7, emphasis in text)

What, then, is the methodological heart of hodos as a concept, and its potential for criticality?

When we take the street as the *situation* in which things happen—where we do not just happen to be, but more importantly, where we move, act, and connect—the street becomes very much the domain in which urban public life takes shape. This we can call the flow of its *site-specificity*. The phenomenological and epistemological underpinning of the concept suggests how this is both *situational* (of experiences) and *situated* (of knowledge). I propose that a perspective on the hodos—or urban living at a "street level"—unites these three aspects in a reflection on how site-specific phenomena bring forth situations in which the subject, in relation to her surroundings, can perceive, think about, and act upon her surroundings, and on her ambulant, mobile position within it. Position and mobility go hand in hand.

Such a situated and performative perspective on hodos is particularly relevant when we think of how interventions work—whether they are practical and pedestrian, such as, for example, the signage during COVID-19 on the pavement for social distancing, or more artistic and activist in nature. It helps us think how these interventions work with, and respond to, the street level of urban living, and about whether or not the latter addresses larger societal, ecological, or health-related challenges and questions. As interventions, working from an inherently *temporary*—that is, a time-based, impermanent, and thus mobile and dynamic—situatedness within the mediatized infrastructures of our public space, we can recognize experimental and hence also obviously provisional strategies deployed in experimental artistic projects. Such projects work to make visible and thereby debatable—for example, by exploring alternatives, or by repurposing, rescaling, repositioning, or reterritorializing—the technological assemblages that shape our habitats and habits. In other interventions that are more practical and mundane, we may recognize similar strategies, albeit serving a different purpose.

This view of interventions of all kinds connects hodos to method (*methodos*) at the situated street level of the urban intervention. Urban interventions—as temporary and experimental, in the widest sense and in various ways—offer singular and specific perspectives on the city from such a situated perspective. That perspective harbors a transformative potential, both from a creative and a critical stance. As mundane and sometimes regulatory practices—for example, the use of chalk, tape, and paint—point to a future implied, the artistic work points back to, and reflects on, such practices. With such a firmly situated, "hodological" experimental engagement with (and in) the contours—as figurative demarcations and performative incentives—of the public space for our experiences and actions in it, critical artistic and/or activist work is radically different from

any sort of external, dismissive form of critique. With inquisitive—that is, searching and analytical—responses to the challenges and questions of urban publicness in our time, we can notice urban interventions on the level of the street. We can consider these not only descriptively, as positions or locations, but also fundamentally, as strategies for a perhaps more productive form of relating to, and reflecting on, the city's "futures implied." This relating-through-situating ideally does not yield merely a reflection on the situation, as if one were not fundamentally part of it. More importantly, it offers reflection on its (and our) own position in the layered center of our place, space, and time—in other words, our street-level presence in contemporary cities.

The Urban Screen Dispositif

Screens in the city—often connected with location-based, sensing, and other digital technologies—provide interfaces that intervene temporarily yet fundamentally in our material and social environments. Screens in general, but perhaps urban screens most spectacularly, construct temporary, mobile, and mediating architectures for emergent cartographies of dynamic spatial positioning, extension, and connectivity. Indeed, the dispositif of urban screens is spatially layered, at once comprising the site-specificity of the screen (the inner circle), as well as the surrounding public spaces (the outer circle). This poses the question of how urban screens situate us as both spectators in relation to the screen, and navigators within, and inhabitants of, this expanded, connected terrain. Moreover, it raises the question of how the presence of screens reconfigures urban public space itself. This calls special attention to the layered dispositif of urban screens as both mediating interfaces and socio-material interventions. In other words, the spectatorial/architectural situation within which screens, spectators, and the layered hosting spaces within which urban screen practices takes shape, mutually transform each other.

As Anne Friedberg (2006) suggests in her seminal work on the screen, *The Virtual Window*, the dispositif of screens impacts on the space in which it functions. The result is an "architecture of spectatorship" (50). Friedberg proposes a perspective on the screen as a tension between the material reality of the built space and the dematerialized imaginary of the images on screen. This paradox, of materiality and immateriality, Friedberg brings into alignment with her earlier observations about the mobility of the image and the immobility of the cinematic and televisual spectator. Both

are constitutive of the virtual mobility that the spectator experiences when watching moving images on screen while, for example, seated in a cinema. In other words, this architectural conception of the screen already implies a paradoxical mobility. In the case of mobile spectators—the navigators in the streets—I want to adopt Friedberg's perspective on the twin paradoxes of mobility/immobility and materiality/virtuality to investigate a mobility that is perhaps more fundamental in the case of interactive urban screens. When Friedberg quotes architect Auguste Perret—"Mobile or immobile, everything that occupies space belongs to the domain of architecture"—she already suggests that not only is spectatorship itself inherently (if only paradoxically) mobile, but the architecture of its dispositif can be mobile as well (Friedberg 2006, 149).[7]

In his genealogy of the media city, Scott McQuire (2008) has shown that its history is intertwined with the development of modern media technologies, in the most current phase marked by the convergence of screens and other visual displays, and pervasive digital communication technologies. Following such a historical perspective, I am particularly interested in the contemporary influence of mobile and location-based media technologies on the connection between the structures and design of urban spaces, the site-specificity of screens within these spaces, and the mobility that urban culture implies. From this perspective, the essential properties of these technologies matter less than the specificities of the cultural practices they facilitate. The question then becomes: how do these media technologies offer affordances for a dynamic interplay between screen, subject, and public space, and as such operate as urban interfaces?

We can think of movement and temporality in techno-material structures of media *in* and *as* architecture in many different forms. Think of the array of commercial, casual, and playful media forms that we also encounter in today's cities, but also of recalcitrant art projects, ambitious visual spectacles, and social neighborhood rehabilitation projects. What we call media architecture ranges from urban screens and media facades to projections that overlay material surfaces with playfully moving light, kinetic surfaces that turn buildings into moving structures, or even small-scale site-specific performances and temporary installations that turn the urban environment into a realm of scenography.

My interest in the current drive for innovation is both theoretical and critical. Ambitions to develop screen applications as new platforms for urban

7 This quote is from Auguste Perret (1952). About virtual mobility, see also Friedberg's earlier work from 1994.

publics are abundant. We can find examples in the way museums try to engage new publics within or outside the walls of their institutions, or in current smart-city projects and rhetoric built on ideals for civic participation. These ambitions are often based on ideals of interactivity and connectivity. Those aspects are perhaps the two main promises of digital culture. They distinguish the media architecture of screens from building structures and surfaces of stone and wood.

Our fascination with technology is historically embedded. It is coupled with an equally historical social ideal of participation in a strong mix of innovation and creativity. Yet, however enticing this may be, this ideal also asks for, or rather demands, an analytical grasp of *how* these works of techno-spatial design activate such an interactive and connective potential. Ultimately, in the context of the city as a cultural and social environment, I seek to understand how they contribute to our sense of *presence*. This is important because I see presence as central in the crossing of urban infrastructures, techno-based interfaces, and the possibilities for people to make interventions. For this, I look at the way in which the techno-spatial design of the screen is performative: how it shapes the way we act. Hence, it is also transformative. Architecture and spatial design inscribe space and thereby transform it. This is how, in hodological terms, the design of the dispositif is itself a method.[8]

In this sense, in the dispositif of urban screens, the concepts of interface and intervention coalesce. Together, they define the situated role and functioning of the dispositif of urban screens in the media city. Here, the recurring preposition "inter-" is centrally important for both, as "inter-" means both connection and reciprocity. The architecture of the urban screen dispositif comprises the assemblages of technologies and materials that structure spectatorship and forms of mobility, and offer the potential for connecting and relating. As urban interface, this situation produces the positions and connections *within and from* this dispositif in relation to the wider urban context. As interventions, what is brought about within and from that situation also changes the surrounding space in which it is embedded. Historically connected to the political movement in art and performance that aimed to radically change public space of the late 1960s

8 The performativity of architecture and what has been termed performative architecture have been taken up in architecture theory as well as in urban and spatial design. For this understanding of architecture, see for example Kolarevic Branco and Ali Malkawi (2005) and Sam Spurr (2007). In her work on nomadic theatre, Liesbeth Groot Nibbelink (2019) theoretically expands the notion of performative architecture from the perspective of staging and scenography.

and 1970s, today's urban interventions can be thought of as temporary public happenings or "public interactives" (Balsamo 2011). As such, they function as sites for experimentation and interaction that afford forms of affective and/or critical engagement. This is the transformative potential of doing that is at the heart of interfacing—the possibility for, and solicitation (albeit not a guarantee) of, critical participation. I think the relationship between these spheres is important when we speak of media architecture because, while we are surrounded by materials, technologies, and structures, it is the performativity of our interfacing with and within that space that matters.[9]

For such a perspective on the performativity of material—and in various ways generative—creative design, I build on my situational analysis of the spatial and time-based logic of mobile screens and urban navigational practices. Here, I align this logic with the transformative (and, as I will argue below, intra-active) affordances of spatial design and architecture. This establishes a context in which mobility and connectivity help produce a sense of presence due to the inherent performativity present in infrastructure, interface, and intervention. Within this context, we can look at the specificity of temporary and mobile infrastructures of location-based, but often also migrating, traveling installations. Thus, we can examine how these installations are designed as public interventions with innovative and transformative ambitions. In the five chapters of this book, I zoom in on projects that use screens in urban spaces specifically designed to connect different spaces. In the shaping of such meeting places, they comprise a form of fluid architecture. Moreover, by constructing temporary infrastructures, they demonstrate a cartographic logic. I see this logic as inherent in location-based media technologies and mobile practices and, in line with the wider argument of this book, this is a logic that exemplifies the currently pervasive trope of mobility and navigation in urban spaces.

If architecture is both the process and product of the planning, design, and construction of the built environment, or urban space, then conceptually, the notion of media architecture can raise some questions. The problem is that there are no fixed material structures that result from such (media) architectural acts. However, rather than a problem, this turns out to be

9 Anne Balsamo (2011) defines public interactives as an emergent form of interactive screens and other media forms in the public space, designed to engage people in conversations with digital media for the purposes of information exchange, education, entertainment, and cultural memory. For a fuller discussion of the meanings of "inter-," see Mieke Bal's (2013b) essay on what she calls "inter-ships."

a positive asset when we consider that precisely the distinction between process and product is dissolved in media use. Hence, it is a paradox rather than a contradiction. Paradoxes are productive structures of thinking; they raise questions and question thought. They are only apparently contradictory, while in fact they point toward the essence of *inter*section: in this case, the intersection of space and time—of structure and movement.[10]

For example, light projections and video mapping, sensing technologies, kinetic or light-emitting facades extend and expand buildings, not only in temporal and spatial terms, but also by augmenting the haptic and relational qualities of their materiality. These works transform and remake the buildings upon which they "work," even if the materiality of the structure remains unchanged. Thereby, such technologies fundamentally intervene in a conception of perception as first and foremost an act of the eye. Indeed, these works emphasize how architecture in its performativity makes us look back at a building, while in fact the building solicits that looking back. Moreover, media architecture has a fundamentally haptic quality. This quality makes looking only with the eyes impossible, for it entices us to (wish to) actually feel the surfaces and the space itself. It does this by "addressing the human body and its dimensional relationships," as Matthew Claudel (2014) of MIT's SENSEable Cities Lab suggests.

Also, the extension of materiality and structure performed through projections of light and movement can de-familiarize the public space and appear to temporarily overrule the stability of architectural structures. However, paradoxically, as co-founder of design studio URBANSCREEN Thorsten Bauer (2012) points out, these projections need the stable structure beneath them to have this effect. Bauer (2012) speaks of an "after image" that spectators may have of the original structure (60). This is an extension of structure performed through light only, but with an impact that exceeds the façade alone. They de-familiarize public spaces and appear to overrule the materiality and fixity of architectural structures.[11]

However, these projects also demonstrate the opposite. As soon as lighting technologies are used to transform the visual appearance of a building, light also becomes part of its architecture. Belgian artist Ann Veronica Janssens consistently explores the materiality of light in her work. She sometimes

10 This also brings us back to Anne Friedberg's discussion of the twin paradoxes of mobility/immobility and materiality/immateriality that characterize the specificity of screen-based dispositifs—a point she argues in both of her books (1994; 2006).

11 The concept of *afterimage* has been discussed by Mary Ann Doane following Jonathan Crary's popular study on vision and visual culture. See Crary (1990) and Doane (2002).

uses very simple, sometimes very complex technologies to make her point that light is material—for example, filling chambers with colored mist. What such light projects demonstrate—and, indeed, their predecessors have demonstrated all along—is that what we see is not what *is,* but what *appears*. Solid as the building may be, our relationship to it changes. These examples attest to an expanding field that includes difference in the status of materiality, of "structure" and process as the product of design. For example, as discussed in my earlier book on screens and mobility (Verhoeff 2012, 110–11), Janssens shows how a rigid building can become liquid architecture as a result of the visual effects of solar mirrors that capture natural light. Such examples of light design blur the boundaries between medium and architecture. Effectively, by becoming part of a building's structure and façade, light shows its material hand.[12]

The Subject of Urban Interfaces

In the first chapter, I provide a deeper situational analysis of the concept of urban interfaces. Such interfaces make connections—to other places, other realities, and especially, other people. Recurring metaphors of "windows," "portals," and "bridges" to *elsewhere* (and sometimes also *elsewhen*), foreground the underlying performative concept of the architectural. In my discussion of urban interfaces, my perspective on architecture as material design draws on this interplay of product and process. This is inherent in design as the interlocutor between technology and practice. It is design we hold in our hands and design within which we move. It becomes impossible to think of practices of mobile technologies without including the architectural aspect of design. Both are practices of space making and embedded within connections between infrastructures, interfaces, and interventions

Central here is the space-making, moving, acting, thinking, perceiving, and experiencing subject—in other words, people. This centrality calls for a rethinking of terminology. In media theory we tend to call subjects spectators or users. These are problematic terms, as the former suggests passivity and the latter consumption and instrumentalism. Moreover, both imply the fixity of the object, and the former also of the subject. This

12 About Janssens' work, and in particular her use of light, see Bal (2013a). In a different, yet related vein, Jenna Ng in her book on the *post-screen*, speaks of "leaking" effects of screen media, when the virtual of the screen/image creates a "spillover, or 'leakage,' of the virtual into the actual" (2021, 79).

subject has also been called "participant" in more interactive or collaborative endeavors. A partnership is implied yet problematic, because of the inherent inequality it conceals. For this reason, attempting to convey the particularly active relationship with the interfaces used, I have proposed to use the term "engager" (Verhoeff 2012, 56) to underscore the true nature of the relationship. Spectators who engage with urban screens are indeed active: they are (co-)performers and, in the context of mobility and mobile practices in public spaces, they are navigators. They move around at will, albeit within the limits and constraints of the infrastructure. Yet, because obvious power structures exist within any infrastructure—just think of traffic lights and the penalties imposed upon those who fail to obey them, surveillance cameras, and so on—we must acknowledge that there is also regulation at work.

To be clear, searching for the right term is not a futile academic exercise. It demonstrates the implications of the choice for certain concepts over others. Concepts are already mini-theories, implying presuppositions that guide further thinking. More importantly than the introduction of a new term, we must become precise about the spectatorial position and agency of those who see, engage, or activate the urban screen. For now, I start from the idea that the notion of the urban public comprises these aspects of spectatorial perspectives, forms of agency and participatory possibilities, navigational mobility, and performative potentialities. Moreover, taking into consideration this public—the people who see, act, encounter, perform, and move—helps us focus on the intersection between architecture and cartography as the mobility of structure and design in architecture, interwoven with the mobility of navigation in spatial practice.

An approach to urban screens as urban interfaces asks questions about the way in which the principles of presence, extension, and connection structure and intervene in existing organizations of space. We encounter these forms of structuring in projects that have both theoretical and socio-political implications. Such implications, as well as the temporality implied in media technologies and their inherent mobility underscore the performativity of the design of media installations and architecture. Between architecture and interface, and as a temporary object positioned somewhat between interface and intervention, the design that precedes it is actually performed in and through its situated performance. Object and practice—entity and event—cannot be clearly distinguished in any rigorous way. This is a primary point this book is making.

Moreover, the object-in-process functions in a world pervaded by media technologies and algorithmic systems. If we live in what can be called an

"algorithmic condition" (Colman et al. 2018; Uricchio 2011), algorithms and mediating interfaces impact on the very coordinates of our living, acting, and thinking. "Algorithms," theorist Johanna Drucker (2013) has claimed,

> are instructions for processes, for performances, whose outcomes may usually be predictable, but of course, are as open to error and random uncertainties in their execution as there are too uncertain outcomes in their use at the higher level of their operation and use. (11)

In the wake of this insight, Drucker (2013) suggests we examine the sense-based consequences of digital technologies:

> The many dimensions of performative materiality, then, touch on each layer of digital media—in an analysis of the co-dependencies and contingencies of the material substrate, in a description of the production of display from code through processing as a performative act, in the engagement of users with the generative experience of viewing, and in the mutability and reinscribability of files in the mutable substrate of digital technology. While such a description sounds like a characterization of the essential qualities of digital media, it is meant as a description of the ways these qualities are always operating within contingent fields, flows, and relations that reconstitute them. (13)

What form of theorization can do justice to the impact of technology on the dynamic layers of autonomy and entanglement of which we are also already a part?

Thinking with and through this entanglement, the concepts of *diffraction* and *intra-action* from quantum physics have been introduced into the humanities by physicist and philosopher Karen Barad (2007). These concepts allow us to become more precise about Drucker's (2013) proposal for interface theory, in her call for the following shift, which is key to my approach in the following chapters:

> We can shift from an entity-based to an event-based conception of media and demonstrate the radically constitutive, co-dependent relations of complexity we overlook when we take a web of contingencies for a static, fixed, object of intellectual thought. (30)

Drucker's performative-materialist perspective on interfaces—and by extension, on algorithmic culture in a wider sense—can be brought in

conversation with Barad's conceptualization of diffraction and intra-action. The first refers to the quantum-physical phenomenon of patterns emerging from entanglements in the natural world. The phenomenon has also been recognized in ecologies that are usually deemed mediated, such as the milieu or environment predicated on the entanglement of object and agency-of-observation. The latter is a tangle of subject and medium, or measuring device. Moreover, diffraction is also recognized in thinking (diffractive reading) and can be traced analytically. In relation to a material-performative perspective on interfacing, diffraction has the potential of making Drucker's proposal more specific.[13]

For Drucker (2011), "[c]odependence and contingency, the performative experience of knowing produced in a relationship between environment and subject, are the defining terms of interpretative interface" (18). Co-dependence suggests two entities being dependent on one another. Such a relationship suggests that already existing entities enter a process of exchange. We usually call such a relationship *interactive*. In the context of the screen cultures under scrutiny here, however, the term has its limitations, as it presupposes that something occurs between entities already pre-existing their encounter. Barad (2007), however, proposes an alternative to such an entity logic, which enables us to become precise about the event-based emergence at the heart of this relationship:

> [R]elations are not secondarily derived from independently existing relata; rather, the mutual ontological dependence of relata—the relation—is the ontological primitive. [...] relata only exist *within* phenomena as a result of specific intra-actions (i.e., there are no independent relata, only relata-within-relations). The term "intra-action" signifies *the mutual constitution of relata within phenomena* (in contrast to "interaction," which assumes the prior existence of distinct entities). In particular, the different agencies remain entangled (429, n. 14, emphasis in text).

When speaking about an interface "in use," or about interfac*ing*, a performative event and/or experience is assumed which, according to Drucker (2013), starts off in the middle: producing a subject, selected content, and reflection thereon. As she asserts:

13 In this vein, theorist of digital design and electronic arts Luke Hespanhol (2023) has reflected on the insight Barad's concepts can give for a relational approach to what he calls human-computer intra-action.

> Performative materiality and interpretative interface should embody emergent qualities. Their form would be co-dependent with use, rather than structured to constrain or model specific behaviors or tasks. They should have the potential to be inflected—by subject positions, point of view, and acts of interpretation (Drucker 2013, 37).

Emergent qualities are thus not so much *co-dependent* on their use. Rather, qualities come about *intra-actively* in situations of use and, additionally, forms remain dynamic and are not stabilized in an end result.

Indeed, we can understand the examples of urban screens, installations, and various forms of media architecture as urban interfacing situations that produce provisional and temporary *articulations* for, and of, the contemporary cultural moment. In this respect and capacity they demonstrate, as well as experiment with, the possibilities for a design of and for interfacing subjects or "techno-bodies" that are steeped into, and engage with, various forms of ontological dynamics. Moreover, they test our own assumptions, concepts, and methods for understanding, and also propose ideas with and about their own design principles in relation to the current historical situation. This triple act of design as situated articulation demonstrates, tests, proposes, and ultimately both situates and mobilizes our thinking.[14]

One look at the table of contents of this book already clarifies what this shift from object logic to event logic entails in analytical practice. The insistent use of the progressive verbs instead of nouns is meant to keep us alert to these implications of the proposed shift. As a consequence of an event logic, the examples or "cases" I invoke to articulate the theorizations proposed, ask for a response from us as researchers of and in this moment. When taking them seriously as articulations, *here* and *now*, we find that the first thing they ask from us is a critical positioning of their status between object, practice, and concept. The algorithmic condition requires an analytical approach that brings together interface theory and new materialist conceptualizations of diffraction and intra-activity.[15]

14 As guest professors of the chair Architecture Theory and Philosophy of Technics at the Technical University Vienna (TU Wien) in Austria in the Summer semester of 2021, with Iris van der Tuin, I co-taught the studio course "New Materialist Articulations" together with architectural theorist Vera Bühlmann. My thinking through of a comparative approach to screens has benefited greatly from our discussions with Vera about objects as articulations.

15 For more about interface theory, see Ash (2015); Dieter and Gauthier (2019); Drucker (2011; 2013; 2020); Galloway (2012); Hookway (2014); and Verhoeff et al. (2019). About new materialism, see Colman and van der Tuin (2024).

With this perspective, I propose we can follow up on Drucker's (2013, 30) call for "an event-based conception of media" that is open enough to accommodate complexity, dynamics, and contingencies. I therefore propose to move from static entity logic to dynamic event logic, and in the wake of this move, from individualist or population-based concepts of techno-bodies fixed in interactive "positions" to an event-based concept of "positionality" that is emergent within such encounters.[16]

"As the Case May Be"

These shifts and reconceptualizations have both theoretical and analytical consequences for the status and function of the examples presented in the chapters, and their specifying implications and weight for the line of the argument. Usually, such examples would be called "cases," and their analysis "case studies." In the early years of this century, the influential cultural theorist Lauren Berlant (2007) brought the concept and practice of the case study up for critical scrutiny in two volumes of the journal *Critical Inquiry*. She criticized the generalizations that case studies easily provoke, leading to theoretical generalization and speculation. In her introduction to the first of two volumes of *Critical Inquiry* devoted to the case study, she wrote that the genre is "a problem-event that has animated some kind of judgment" (Berlant 2007a, 663). In the introduction to the second volume (Berlant 2007b, 1–4), she elaborates that typically, when something becomes a *case of something*, this becoming a case is itself an event. That event verifies something in a system, or series. This has consequences for such a system or series, which is why the "becoming a case of" constitutes an event. When certain symptoms are named, this event can lead to a diagnosis.[17]

Heeding Berlant's incisive critique, instead of the term "case study," which has been excessively used as exemplarity and comprehensiveness, and marred by generalization, I prefer to use the alternative, equally over-extended yet perhaps more specific term "theoretical object." This is more congenial to the event logic I endorse in this study. As art theorist Hubert Damisch, who proposed the concept, explains in an interview, a theoretical object

16 This argument for a robust yet open approach to interface design and analysis is made in more detail in Verhoeff and van der Tuin (2020).

17 This is a paraphrasis of Berlant by Mieke Bal (2010, 8) in the early pages of her first of three books on political art. About Berlant's reflections on the case in relation to event logics in approaches to media and interface design, see Verhoeff and van der Tuin (2020).

> obliges you to do theory but also furnishes you with the means of doing it. Thus, if you agree to accept it on theoretical terms, it will produce effects around itself … [and] forces us to ask ourselves what theory is. It is posed in theoretical terms; it produces theory; and it necessitates a reflection on theory (Bois et al. 1988, 8).

From an object's capacity to motivate, entice, and even compel thought, we can attribute to the object a theorization of its own status. Alternatively, it can occasion a reframing of a cluster or series of objects, activities, or phenomena. Each new "case" may trigger a solidifying of the cluster or series, or transform them. They may also be explained through the new case.

For such a comparative perspective, attuned to the specificity that (also) emerges from the situations that comprise their working, I therefore speak of situated *articulations*. Considering screen works—screens at work—as situated and self-reflexive articulations, we can unpack how they both demonstrate and interrogate the way this working works. Approaching them as theoretical objects, this combination of demonstration (doing) and interrogation (questioning) can be taken as proposals (conceptualizations) of their working. In the dynamic between the object as/at work, its viewers, and the time in which these come together, a compelling collective thought process emerges. The metaphoric buzz and the metonymic shifts, and the narrative activity compelled by the montage that interfacing also is and produces, are the sites of these thought processes, and it is this triple theoretical activity that Damisch (Bois et al. 1988, 8) mentions.[18]

It is this activity of articulation "through" the artworks that, I speculate, Damisch had in mind when he laid out the multiple relations between the artwork as theoretical object and the activity of theorizing that it solicits, stimulates, compels, and enables. Like all theoretical objects, it empowers the viewer—an empowerment that is the other side of the coin of the impetus to theorize. As Damisch suggests concerning the theoretical object, it "[…] obliges you to do theory but also furnishes you with the means of doing it" (Bois et al. 1988, 8). At this point, it seems safe to claim that theoretical objects are by definition critical-political in this aspect of empowering the agency of the viewer that they also require. This relationality, this making-social of

18 As Mieke Bal writes: "Damisch's concept of the theoretical object sometimes seems to suggest these are objects around which theories have been produced. At other times, as in the interview quoted here, he attributes to the artwork the capacity to motivate, entice, and even compel thought. This is the meaning of the concept in which I am most strongly interested" (Bal 2010, 8).

what matters to all, is the precise political contribution urban screens can make. In this respect they articulate the concept of political art.

This conception of the event-based relationship between theoretical objects and theorization makes the use of the progressive verbs in the titles of my chapters a logical element of the concept-driven situational analysis of urban screens this book proposes. In the first chapter, this is clarified through the shift from interface to interfacing. The urban interfacing screens that are my primary theoretical objects are considered event-based processes and actions rather than things. Their primary feature, their presence, in the present and functioning in the present tense, solicit a kind of performative cartography. As installations, they become active participants in the urban situation on street level, and there propose and solicit responses that can be seen as "thinking with" the engagers in urban space. This turns their status as interfaces into an activity of interfacing. Three kinds of activities/processes follow from this. The first of these is *reflecting*, in the different meanings of that verb, including mirroring as well as intellectual thinking. The second is indispensable, in that connecting is their primary task as inter-face, for which their intra-active status produces the events and therein the entities or positions that connect. Third, projecting is also a polysemic verb, which connects the imaginative projection of thoughts, ideas, and imaginings onto what we see, thus deploying our imagination for vision, to the technological element of projection of moving images onto assumedly static material urban surface elements such as buildings, statues, walls, and fences. The turning back and forth between these activities requires a technical set-up we can call consoles.

In the second chapter, I discuss an aspect that connects human activity, design, and architectural space together. This is comparable to the museal practice of making objects into an ensemble we call an exhibition. Foregrounding such an analogy suggests the use of the verb "curating" for the arrangements of screens in the environment. This verb entails thinking about the various aspects of the activity. One of these is the spatial setting up of the elements of installations, in relation to the spaces and their uses. This implies a particular arrangement that in cinema studies has been called the spectatorial *dispositif* (Baudry 1986; Kessler 2018). An important aspect of this activity is the critical perspective that the curators-designers-arrangers bring to bear on habitual forms of regulation and control. To this effect, the interfacing tends to be a valuable tool, or rather an activity to stimulate such criticality. The result is a shift from activist—focused on particular societal or political issues—to *activating*, which compels a deeper reflection and may transform ideas and sensations.

In the third chapter, I bring forward a by now perhaps historical case of mobile screens for augmented reality (AR). As an interface design strategy, AR is deployed by institutions and individual design companies to enable a stitching together of views of the present and past. Here, the interfering of different realities stimulates the imagination as an active participant in reflecting. This is just one instance of what has become a larger realm of *crossing* of different potentials. The forms of crossing I consider in this chapter are examples of projects that bring heritage and art into a larger domain, where a more elitist concept of heritage or art is less relevant than the "moving-and-shaking" capacities of urban interfacing projects designed to interfere in, and make interventions for, the public domain. There, despite the inevitable regulations and control, people are relatively freer in that they can choose where they go and, importantly, how much time, energy, and concentration they wish to spend on the screens that intervene in the urban architecture they traverse.

This leads to the following issue: for people to become engaged in, bound to the life of the urban environment, they need to deploy their senses. In addition to the smells, from the fragrant to the noxious, and sounds and noise on the streets, vision is likely to be the most actively solicited sense organ. What we see will make us respond to where we are. This can be called an embodied "site-responsivity." However, for this to be invoked in the context of screen relatings, a set-up or dispositif is necessary that includes and organizes the dynamic and mobile aspects of what is or becomes visible. This is a data dramaturgy that designs how surfaces and screens reflect a mobility that interacts with the mobility of the present and passing strollers, workers, shoppers, and *flâneurs*. In this sense, the urban screens this book considers and theorizes are different from, but perhaps also a model for, what happens in museum exhibitions. I hope to make the curatorial aspect discussed in the second chapter into a "theoretical object" or model thereof, helping us to better understand the processes through which the senses are constantly being bound and mobilized.

Finally, all this is only possible on the basis of perceptible forms I call *figurings*. This concept is meant to avoid the traps of realism—the binary oppositions within which the idea of the "figure" tends to be locked up—and instead considers how figures as spatial forms or scenographic gestures do what screens do; how they organize, position, and perform. I introduce the spatial-temporal concept of "inter-mediacy," which incorporates media in its rejection of static existence. Through that concept, it becomes more appealing to unpack the idea of figuring in acts rather than things. The gestures discussed are easy to recognize, but their consequences differ.

Plotting, *pointing*, and *posting*, for example, all contribute to figuring in ways that can dispense with the traditional idea of "the figure." Close attention to forms as part of scenographic gestures rather than as things will help us to understand what matters most in the practices of situating urban screens: their performative, mobilizing, and transformative force.

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1. Interfacing

Abstract: In this chapter, urban screens are approached as urban interfaces. This does justice to the social ("inter-") and dynamic ("-ing") aspects of *interfacing*—both in time (historically, temporarily, and generatively) and in place (site-specific, situated, and situating). It unites their architectural materiality with their performative mediality. With interfacing as a concept, we can theorize not only how both presence and mobility are conditions for intra-active, relational and generative forms of access, participation, and exchange. It specifically inquires how they are always limited, frictional, or contested. Their very possibilities raise questions about their spatiotemporal materiality (what they are) and their performative mediality (what they do). As such, the "urban interface" is both an object and a concept, or an *object-concept*.

Keywords: object-concept, interface/interfacing, presence, performative cartography, performative architecture

Cartographies of Presence

So what are urban screens? What do the commercial screens in shopping malls, artistic or activist light projections on large buildings, or playful interactive installations on the pavements of our cities have in common? Further still, and as will be addressed in this chapter: how might skateboards and pin art boards be relevant to screen theory? Or more critically, what is the performative role that various digital screens and media architecture (can) play in contemporary media cities. (McQuire 2008), smart cities (Kitchin 2022), in relation to visions and ambitions of open access, open data, civic participation, and public engagement? For the sake of such comparative questions regarding their shared characteristics—and from there to also get to the heart of their significant differences—I argue for a consideration of the performative potential of urban screens as *interfaces* that allow for various forms of *interfacing*. However, before I continue with developing

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this conceptual positioning, I will first consider some aspects that are specific to our presence and mobility within the urban situation—or, the soma-technical presence in which our bodies are fundamentally bound up with media technologies. As media technologies have increasingly and profoundly intervened in our cities, providing interfaces for these highly mediatized spaces, the various screen-based interfaces we now use (co-) produce emergent, performative cartographies of our movements through such environments. These cartographies take shape within the complex mobile, mediated, and architectural assemblages of the city. Here, we can locate a counterpoint between the temporal and temporary nature of mobility on the one hand, and the location-bound situatedness of our presence within these spaces on the other. This points to a paradox of presence.[1]

As productive structures of thought, paradoxes raise questions, in particular questioning thought itself and the pseudo-certainties it produces. However, such paradoxes are only apparently contradictory, and in fact point to the essence of intersection—a *crossing* of sorts—as we will see in chapter 3. In the current context, this entails the intersection of punctuated presence (Verhoeff 2020) and situatedness, and of transitory and transitional mobility. This paradox plays out via the interfaces we use to move and communicate. Moreover, whether mobile and portable or architectural and fixed, screen-based technologies simultaneously multiply mobilities and perform situated presence. This, as media theorist Anna McCarthy has already pointed out (2001), is what creates the ambivalence of ambient screen media. In her analysis of what she calls nomadic theater, performance studies scholar Liesbeth Groot Nibbelink (2019) has borrowed the notion of nomadic deterritorialization from Gilles Deleuze to explain the double-sidedness of mobile presence in ambulatory performances in urban spaces. Geographer Nigel Thrift (2011) also speaks of "a kind of nomadism which no longer privileges fixed territory as necessary to produce effects, but which does not therefore think that the attachments of territory are somehow unimportant" (19). I want to suggest that this duality is paradoxical in multiple ways because urban presence is simultaneously emergent and shifting, as well as confirmed and contested.

These intersections and contradictions are the product of the technologies that at once makes us mobile, connected, and co-present, as Larissa Hjorth (2017) has -argued. Both (ambulant) mobility and (location-bound) situatedness are produced with, at, and beyond the screen. This coincidence of mobility and presence raises my interest in exploring the processes of

1 On this paradox, see Verhoeff, Cooley, and Zwicker (2017).

interfacing by means of media technologies, specifically with and within urban public environments. One way to understand the double-sidedness of site-specific presence and mobility that pertains both to the urban situation and the operation of interfacing is via a performative form of cartography. Cartography, as the logic, description, and inscription of spatial relations, enables us to conceptualize a layered mobility of time, space, and subject. Moreover, we can understand this conceptual framework as performative. The cartographies produced by urban travelers and the interfaces that they use are emergent and dynamic. When both spatial contours and space-producing subjects are mobile, we can speak of a multiplied mobility—a mobility of, and with, our screens. This multiplication I have analyzed elsewhere as produced by the dispositif of the (digital) media at hand and in hand, and as performed in practice as cartography; hence, my earlier proposal for the concept of *performative cartography* for such techno-practices (Verhoeff 2012). Urban navigation constitutes an ambulant presence, a fluid connectivity, and an inherent multiplicity of connections between locations and other subjects, making the figure of the techno-navigator fundamentally different from the Benjaminian solitary and introvert flâneur (Benjamin 1999; Buck-Morse 1991). The urban cartographies afforded and produced by urban interfacing screens, then, lie at the heart of this dynamic and layered process of navigation and encounter.[2]

Yet, what kind of cartographies are being created? How do these techno-social and soma-technical transactions shape the social spaces we call the city? How do our techno-practices impact our experience of the environments we inhabit? To fully grasp this multiplication of mobility and the complexity of mobility, presence, and connectivity as specific to the urban situation, as mentioned in the introduction, in this book, I adopt a comparative perspective on urban screens, screen-based installations, and media architecture as urban interfaces. This includes a wide range of mobile and networked technologies, different screen forms and formats, installations, sensory interfaces, screen-less projections, and media façades—materials, forms, and practices that take place in public spaces. They deploy interactive technologies for responsive and intra-active forms of relating between subjects and their immediate—and sometimes more remote—surroundings. As such, they become platforms for a co-creation of space that position us within that space. As machines for various forms of processing, positioning, and mediating, they enable us to experience their

2 In chapter 2, the flâneur will return in reference to the navigational experience of the city as archive.

affordances as well as their limitations as a subjective *presence-effect*. As laboratories of urban curation, they experiment with their affordances and limitations for mobility, connection, and presence, and they demonstrate the specificity of how they operate. These emergent cartographies of presence are central to the analytical inquiry of this study.

Urban Installations

By way of introduction to the following section of this chapter, I briefly demonstrate this analytical approach, taking the installation *Sonic Skate Plaza* as an articulation of these ideas about cartographies of presence and site-specific, architectural screen-based installations as urban interfaces.

In a series of installations called the *Sonic Skate Project*, media designer Pablo Serret de Ena worked with cartography in dynamic visualizations of navigation (fig. 1.1). The installations comprised a large screen that maps the skaters' movements on the square in front of it in real-time using abstract colorful visualizations. Accompanying this, he designed a piece of musical architecture—a "skated orchestra," to use his term.[3]

For the 2013 iteration of *Sonic Skate Plaza*, sensors were integrated into the surfaces and "urban furniture" at the Plaza de las Letras in Madrid. The movement of skateboarders activated these sensors, which created cartographic sound pieces—an auditory equivalent of visualization, or *sonification* (Bijsterveld 2019; Salter et al. 2008; Vickers 2012). The sound—or rather, the data mediated with sound—was simultaneously also visualized as colored, animated maps on a large LED display mounted on the façade of an adjacent building (see fig. 1). The installation thus provided a double interface for the representation of the data generated by movement, based on sound and vision. It simultaneously offered both an experimental and playful urban playground for participants, and an audiovisual spectacle for the urban public. Called an urban intervention by the artist, it changed the usual material surfaces of the city space into playful instruments for sound and vision. As such, projects like this foreground the lighthearted affordances of urban space for performative practices.[4]

3 For more on the project and the artist's reflections, see http://pabloserretdeena.com/sonic-skate-project and Pop et al. (2016, 357–59).

4 An earlier project that works with ludic auditory presence is the *Piano Staircase* (2009), an initiative by Volkswagen that changed the steps of the staircase next to the escalator at Stockholm Odenplan metro station into piano keys, motivating people to walk up the stairs and in that movement make music. There were more of such musical staircase projects. See Peeters

Fig. 1.1. *Sonic Skate Plaza* (Pablo Serret de Ena, 2013) in Madrid. Photograph: Pablo Serret de Ena.

Adriana de Souza e Silva and Larissa Hjorth (2009) have discussed urban play and mobile gaming from a historical perspective, associating the user of contemporary wireless technologies with the historical figures of the *flâneur* roaming the city, the Situationists' *drifter* on a dérive, and the more recent *traceur*—the practitioner of the urban sport *parkour*.[5] The urban subculture of skateboarding, much like the urban sport of freerunning or parkour, is already a form of space-hacking in the sense that the surfaces and materials of the streets are used for play and performance in a fundamentally different way from their everyday conventional and highly regulated use. Liesbeth Groot Nibbelink (2019) explains how these urban sports can be considered as forms of performative architecture. In line with architectural theorists Bernard Tschumi (1996), Sam Spurr (2007), and Iain Borden (2001), Groot Nibbelink points out the fundamental connection between the material and designed architectural space and the way in which we produce and perform these spaces in movements with and against these architectural surfaces.

Sonic Skate Plaza does just that and, as such, simultaneously explores and maps the sensory dimensions of urban architecture. The interfaces of

et al. (2013) for an evaluation of these "motivational" urban interfaces, there called persuasive systems" due to their ability to trigger intrinsic motivation and participatory engagement, and to sustain people's engagement in the longer term.

5 Above, I refered to Walter Benjamin's writing on the flâneur (1999). About the dérive, see Guy Debord ([1958] 20). Liesbeth Groot Nibbelink (2019, 62–66 and 78–79) has brought these urban figures and practices—including pervasive gaming—in relation to what she terms "nomadic theatre."

sensors, sounds, and screen produce a multi-sensory spectacle. The result is architectural in a performative sense: it *produces* architecture. Moreover, in this collaboration between (performative) architecture and (performative) cartography, the transmutation of visual and sonic performances into one another makes the work fundamentally experimental as well as experiential. *Sonic Skate Plaza* demonstrates how its design aims to offer a playful zone of connective creativity. It produces and enables the experience of an emergent and multi-sensory cartography of urban presence: site-specific, connected (and connect*ing*), and dynamic. As such, much in line with Scott McQuire's (2008, 114) notion of the perceptual laboratory, this urban installation offers a public location-based laboratory for the playful and sensory investigation of, and experimentation with, the agential affordances of its media technologies.

This is an instance of an urban installation that can therefore also be called media architecture. Architecture itself can be seen as an interface—and interface as architecture, for that matter—including the possibility to offer a critical analysis of it:

> As technology is about to take the next step and turn ubiquitous, the problems and prospects of computer interfaces will become relevant to the whole built environment. However, architecture has always had its human interface: building façades have communicated their function, their social prestige, their history, and their aesthetics. (Teräväinen 2014, 7)

I propose to follow this perspective on architecture as a medium, rather than on media embedded within architecture. In the following section, we examine how urban screens as media architecture can work to reflect, to connect, and to project.

Object-Concepts

What binds cases of urban screens together as a provisional category is their status as object-concepts: objects of analysis that mobilize conceptual specifications. The concept of interface discussed here is connected to a set of other object-concepts that share overlapping traits. This is, in fact, a primary point of comparison, as the similarity that we find through comparison helps us to understand difference, and hence the specificity of the objects we study. We can discern understandings of the interface as a material object through its metaphorical relationship with other objects, such as a membrane or skin, surface, or zone of simultaneous separation and contact. In a related

yet slightly different vein, media theorist Marianne van den Boomen (2009) has examined how digital interfaces—via the Graphical User Interface, or GUI—are often operated by means of what she calls *material metaphors*. Her examples are on-screen icons of, for example, mailboxes, via which we operate the email software on our computers. The image of the mailbox, according to Van den Boomen (2009), can be seen as situated between a Peircean sign (an icon) and a Heideggerian operating tool. She therefore calls such material metaphors *sign-tools* (van den Boomen 2009, 42).

Developed in connection with digital communication technologies, the conceptualization of the "interface" is steeped within frameworks of older technologies of vision, most notably that of the object-concept of the screen. As such, the screen and the interface are fundamentally entangled as conceptual twins. Indeed, as Shannon Mattern (2014) has pointed out, the urban interface is most often imagined as a flat display or screen. It is not a coincidence, but significant that these metaphorical objects—membrane, skin, mirror, or the architectural surface, window, or aperture—are recurring in the terminology central to our conception of both interface and screen.[6]

In her work on media installation art, Kate Mondloch (2010) phrases this double function of object and concept succinctly: "Screens themselves have the curious status of functioning simultaneously as immaterial thresholds onto another space and time and as solid material entities. The screen's objecthood, however, is typically overlooked in daily life" (4). In other words, via the quintessential and ubiquitous example of these overlapping and sometimes paradoxical qualities of the visual interface, the screen can be considered a material element of media architecture and a metaphor, as well as a metonym, for the larger and more abstract interfacing quality of urban screen as/and media architecture. Consequently, interfacing can become a model for investigating a specific spectatorial engagement with, and the generative potential of, urban screens positioned somewhere between surface and situation.

In view of these starting points, I here propose my consideration of urban screens and media architecture lies between material surfaces and communicative and performative situations. For this, we can examine the interfacing aspect of the screen as a model to think with in relation to various site-specific installations and other examples of media architecture. Hence, the use of the term object-concept is fitting. Not only are screens in their wide diversity the most exemplary and visible instances of what we

6 For example, see Bolter and Gromala (2003); Bolter and Grusin (2000); Bruno (2014); Friedberg (2006); Manovich (2001).

can now call urban interfaces, but also, through the example of the screen and a theoretical approach to the interfacing property of urban screens, installations, and media architecture, I argue that we can analyze how, as interfaces, screens contribute to the social fabric of contemporary urban life.

However, when we consider its status as between material object and concept, the *screen* is perhaps too general a term that already harbors various conceptualizations. Traditionally conceived of as a framed surface on which to project selected and composed images—or, from a realist perspective, a transparent window from which we can view the world—augmented digital screens come to us already replete with images. Moreover, in the course of watching them, these images continuously change and transform under the influence of the actions we often call interactions—be they human-technology interactions or mediations between technologies behind the flows of data pushing and pulsating on our screens.[7]

Below I explore the differentiated functions and manifestations of interfacing by analyzing a set of metaphors for, or meanings of, the screen that foreground its object-concept status as interface: the screen as mirror, as interlocutor, and as a surface for display, and, as we will see, in particular situations. The digital screen requires a reconsideration of the formalist model of the picture frame, the realist model of the window, and the post-structuralist (Lacan-inspired) model of the mirror, as Kate Mondloch (2010, IV) summarizes. Thus far, these models have reigned supreme in the "study" of the cinematic, electronic, and televisual screens. In my earlier book on screens and mobility, and what I have called a "visual regime of navigation" (Verhoeff 2012), I have analyzed the diversity of digital screens—whether fixed and architectural, or small and mobile, as a (portable) gadget and/or a digital skin or site of touch. I deployed these manifestations and the comparison between them to investigate the mobile and haptic engagements afforded and invited by digital technologies and how this impacts screen spectatorship. From such a comparative approach and the question of the specificity of what we may call urban spectatorship, I look at some examples, each innovative, experimental, and emphatically self-reflexive in their use of (media) technologies in their cartographic and architectural working and design. I also probe how they operate as mirrors, as interlocutors, as surfaces

7 While interaction is a common enough word to use in relation to digital technologies, as I addressed in the introduction of this book, I make a distinction between "interaction" as a qualifier of responsive technologies, as they are also sometimes called, or the description of actions that engage with such technologies, and the concept of "intra-action" (Barad 2007) for thinking through the mutually constitutive processes that involve various relata—produced in this very relating, whether human or more than human.

of display, and how, in this variety of operations, they demonstrate how urban screens work as consoles for interfacing in specific screening situations.

Interface / Screen

Before continuing with these analytical cases, let us return to the twin concepts of interface and screen, and how the first is conceptualized by means of the latter. We speak of interfaces easily, apropos of so-called interactive, digital media technologies. Steven Johnson (1997)—early in thinking about the impact of digital technologies on what he terms our "interface culture"—summarizes the interface as follows:

> In its simplest sense, the word [interface] refers to software that shapes the interaction between user and computer. The interface serves as a kind of translator, mediating between the two parties, making one sensible to the other. In other words, the relationship governed by the interface is a semantic one, characterized by meaning and expression rather than physical force. (14)

This is close, if not identical to the essence of mediation in general. In her rich study on surfaces and the materiality of media, Giuliana Bruno (2014) reminds us of the etymological root of the word "medium," which

> refers to a condition of "betweenness" and a quality of "becoming" as a connective, pervasive, or enveloping substance. As an intertwining matter through which impressions are conveyed to the senses, a medium is a living environment of expression, transmission, and storage. (4)

Following these ideas concerning the mediality of surfaces and/as interfaces (whether as translation, expression, transmission, or storage) and the materiality of media technologies (whether software, surfaces, substance, or matter), I propose to situate the term "interface" between an active verb-concept (interfacing) and material manifestations (interfaces), or objects. "Interface" as a noun begets a remarkable concreteness in its use. Indicative of the ubiquity of the digital in our visual and material culture, we speak of mobile interfaces, architectural interfaces, digital interfaces, or haptic interfaces. We speak in those terms when we indicate the material technologies that, in a stricter sense, *produce* the interface between technology—whether digital, analogue, or material—and subject.

Following Branden Hookway's (2014) theory of interfaces, we must consider that interfacing technologies—the screens, vehicles, terminals, algorithms, and other sensory meeting points and communication technologies that connect (with) us—are not so much technological objects as they are encounters and relationships with and through technology. Hence, they are social, cultural, and historical. These encounters are mutually constitutive: the subject, as both *actant* (Greimas 1966) and user, is not only produced *at* the interface, but is also active as co-producer of this subjectivity. In her discussion of some perspectives in interface theory, Shannon Mattern (2016) summarizes Hookway:

> In [our working through interfaces in order to relate to technology], the interface structures the user's agency and identity and constructs him or her as a "subject," which is different from a mere "user," in that the subject's identity shifts in response to contextual variations and is informed by historical, cultural and political forces. (51)

This working through—or at—the interface encapsulates us in a self-affirming and (literally) creative process.

This generativity is also forwarded by Alexander Galloway (2012) when he states that an interface *is* not something; rather, it *does* something. This is perhaps where he speaks of the interface effect—a set of processes rather than a singular and fixed object. His focus shifts the attention from media as (fixed) *objects* to on-going *practices* of mediation:

> Interfaces are not simply objects or boundary points. They are autonomous zones of activity. Interfaces are not things, but rather processes that effect a result of whatever kind. For this reason, I will be speaking not so much about particular interface objects (screens, keyboards), but *interface effects*. And in speaking about them I will not be satisfied just to say an interface is defined in such and such a way, but to show how it exists that way for specific social and historical reasons. Interfaces themselves are effects, in that they bring about transformations in material states. (vii, emphasis in original)

Here we can recognize an intersection of a spatial or cartographic ("zones of activity") and a performative conception of the interface ("processes that effect"). Moreover, Galloway underscores the material and inherently social and historical nature of interfaces and of interfacing (Galloway 2012).

Branden Hookway (2014) also emphasizes that interfaces inherently concern interfacing. In his approach to interfacing as process, he stresses

that interface is a form of relation. In his words, interfacing is essentially about the duality of relationality: "[…] the interface is that form of relation which is defined by the simultaneity and inseparability of its processes of separation and augmentation, of maintaining distinction while at the same time eliding it […]" (5). This double logic of the interface—the distance implied with "separation" and "augmentation"—is operative at the threshold of materiality or technology, which Hookway also describes in spatial, even cartographic terms: "The interface is a liminal or threshold condition that both delimits the space for a kind of inhabitation and opens up otherwise unavailable phenomena, conditions, situation, and territories for exploration, use, participation, and exploitation" (5). While not conceived of as a material object, the interface does "take place": it has spatial and temporal qualities, which we recognize in Galloway's words above as "zones of activity." Moreover, Hookway's conception is architectural as the interface "delimits the space for a kind of inhabitation" (Hookway 2014).

We can recognize the spatial thinking intersecting with the emphasis on (time-based) practice and process in the way in which Galloway (2012) highlights both as the essential layeredness of the interface:

> While readily evident in things like screens and surfaces, the interface is ultimately something beyond the screen. It has only a superficial relationship to the surfaces of digital devices, those skins that beg to be touched. Rather, the interface is a general technique of mediation evident at all levels; indeed, it facilitates the way of thinking that tends to pitch things in terms of "levels" or "layers" in the first place. […] Hence the interface is above all an allegorical device that will help us gain some perspective on culture in the age of information. (54)

This layeredness implies both access and separation, and the self-referentiality of specific interfaces, apparent here in urban screens—both architectural, and as mediating surfaces. By means of allegory, Galloway (2012) then underscores the fundamental role these processes and practices of "interfacing" play in our culture. In this vein, philosopher Jos de Mul (2009) adds a fundamental aspect of interfacing that leads to a critical perspective from which to evaluate actual instances of interfaces: "Media are interfaces that mediate not only between us and our world (designation), but also between us and our fellow man (communication), and between us and ourselves (self-understanding)" (95).

From this viewpoint interfaces operate as a means to communicate, but also to self-reflect—on ourselves and our relation to the world around us.

This idea points towards the fundamental role of interfaces and processes of interfacing in the construction of the cultural fabric of our cities. Moreover, it suggests the way in which we navigate our cities and our world via interfaces: by communicating with, and relating to our environment, we position ourselves in relation to the world and to others, and in this process, we construct our conception of where and who we are.

Reflecting

To begin with the component "face" of the word—the "interface"—I want to start with a moving façade that we can consider as something between a traditional screen and a moving, three-dimensional, kinetic surface. To frame this example as a screen is, therefore, already a conceptual move, as is the comparison to the screen in its functioning as a mirror.

MegaFaces—winning the Media Architecture Biennial awards in the category for Trends & Prototypes in 2014—was a temporary façade designed by Asif Kahn and engineered by iArt, for the pavilion of the Russian telecom network MegaFon, set up during the 2014 Winter Olympic and Paralympic Games in Sochi (Fig, 1.2). This cross-platform work comprised a façade with 11,000 moving so-called actuators, each equipped with an LED light. Like the children's pin-point impression toy called a "pin art board" or "pinscreen," the mirror images were given 3D shapes on the façade. In small, individual 3D photo booths, set up on location and throughout the country, participants could upload their mirror images. Captured by camera, translated to code, and uploaded to a database comprised of thousands of faces, the selfie images were displayed, large-scale, via the façade/screen, creating a private-yet-public and individual-yet-anonymous, delayed, and (literally) projected mirror image.

This system demonstrates a directionality of the image as "information" that is perhaps reminiscent of, yet also somewhat exceeds, the viewing model of the mirror. The mirror as interface already has two sides: It reflects, but also transforms the *self* into an *other*. As the installation includes the capture and transmission of the mirror image, the reflection self becomes a projection of the selfie. Second, by virtue of its sheer size and its positioning in this specific public space, it blows up the individual and private mirror image to the scale of a public monument.

Designer Asif Kahn articulated on his website this ambition with the work as the desire to construct an "inclusive monument to people, regardless of their status as athletes or spectators, their age, nationality, sexuality or

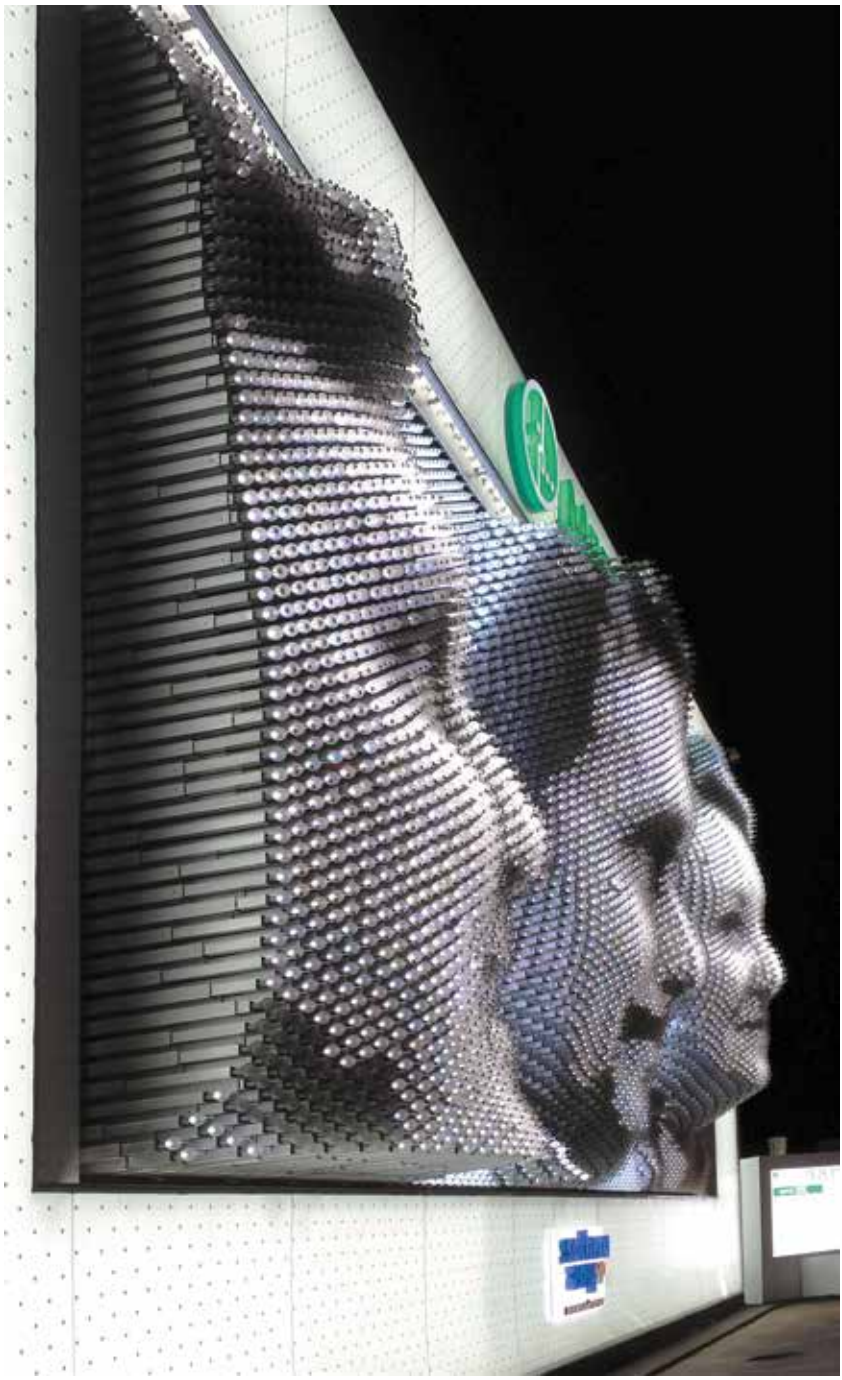

Fig. 1.2. *MegaFaces* (Asif Kahn, 2014). Photograph: https://awards.mediaarchitecture.org/mab/projects.

gender."[8] This wording speaks to a participatory ideal of inclusion that is in tension with, and even problematic in light of, the façade as large-scale monument. Inherently, due to its non-human scale and spectatorial arrangement or dispositif, in the process of making a monument, these "people" become a de-individualized part of a large dataset that is not so much accessed as it is displayed. Moreover, the data translation and processing involved, and the delay in presentation, working towards a distancing effect within the exchange between the subject and her image—not only in space, but also in time—feature strongly here. Such a delayed and extended publicness reframes the mirror's intimate self-portrait as a display of the self-as-other, beyond the reach of the subject to communicate with.[9]

As an exemplary spectatorial arrangement or dispositif of screen-based visuality, the interfacing quality of the mirror is the possibility to enact different versions of the self—to be in touch, so to speak, with the self as other. In this case, however, the allusion to the mirror also demonstrates the discrepancies that always already exist in the mirror. Like a pseudo-mirror—similar, but not quite the same as the model—this work can indeed be better understood as a mega-mirror. Through its excess, it demonstrates to what extent the mirror is not a reflection making a duplication, but an estrangement of the self. In line with psychoanalyst Jacques Lacan's view of the mirror, this work, then, puts a critical gloss on our common conception of the mirror as a tool for self-exploration, demonstrating that what we see in the mirror is our self-image as other—as seen by others.[10]

This gloss has particular relevance in the present cultural moment. Perhaps more than a monument for the people, the screen-façade of *MegaFaces* is a monument for the flawed communication of the mirror image as self-portrait in the selfie culture of today. As the designer points out on his webpage for *MegaFaces*, "the 'Emoticons', 'Selfies', 'Facebook', 'FaceTime' and the like have become universal tools for communicating and expressing emotion and affect, and the face persists as the prevalent shorthand in these new mediums."[11] This particular, albeit now somewhat ironic monument to today's new media's uses of the face of the mirror image as selfie demonstrates some crucial paradoxes of the contemporary ideals

8 For this description, see the artist's website at http://asif-khan.com/project/sochi-winter-olympics-2014.

9 About the monumental status of "massive" urban screens and media architecture, see also Colangelo (2020). In chapter 5, I discuss more examples of "monumentality"—also literally, as the use of existing monuments as screens.

10 Jacques Lacan's (1966) famous essay on the mirror stage remains crucial for this discussion.

11 http://asif-khan.com/project/sochi-winter-olympics-2014.

Fig. 1.3. A selfie pillar in Rotterdam by company Plustouch (2017). Photograph: https://www.plustouch.nl/koopgoot-rotterdam.

and pitfalls of digital communication: to be disconnected in connection; to lose privacy and ownership of one's self-image by ubiquitous forms of surveillance; to have unprecedented access to, but little control over, all kinds of data; to have technologies and platforms for individual expression and visibility, yet be anonymous and de-individualized on the global scale of our public culture; and to lose agency in the midst of the proliferation of interactive technologies and participatory platforms.

As a second reflection, in order to analyze the performativity in encounters with (mobile) media architecture, I turn now to some very different examples—some firmly embedded in commercial infrastructures and some mobile, playful, and artistic. For a characterization of the functioning of screens, the distinction between commercial and artistic is irrelevant. For the first category, we can take the phenomenon of the selfie pillar—a camera-screen combination or terminal that allows people to take and send selfies from a specific location. This turns the old-fashioned photo booth into a selfie machine for narrowcasting. I use here an example from Rotterdam by the media company Plustouch (fig. 1.3.) as typical of many variations. Like other instances, it uses the emblematic micro-architecture of fixed yet dynamic advertising pillars in public space, monotonously showing rotating commercial images. In this case, however, instead of using the screen as a display window for advertising, an added camera and Internet connection allows the passing public to use the screen as a mirror, to take selfies, and to send or upload them to a website.

A reflexive example that uses the same format, but lets the screen literally "speak back," is the project that was launched in the context of a public

Fig. 1.4. Speaking billboard. Image: https://www.hartvannederland.nl/nieuws/politiek/he-jij-daar-ben-je-ook-kaal-van-onder-mannen-nageroepen-op-straat-in-utrecht.

campaign in the city of Utrecht (the Netherlands) against street harassment. As opposed to the standard billboard that calls for money to be spent, or even selfies to be sent, this one literally calls out to, specifically, male-passing passers-by with obscene slurs, with the intention to "turn the tables," start conversations, and thus contribute to changing behavior on the street (fig. 1.4). Admittedly, this example is not entirely unproblematic, as in "turning tables" it also fixates positions and relations.

For a case of the more playful and temporary second category, we can look to *The Bridge*—a project using the traveling urban screens of Dutch-based mobile media platform Dropstuff. *The Bridge* can be seen as a smaller-scale, traveling version of the longer-running project *Large Screens and the Transnational Public Sphere,* comprising a *live* connection between large screens set up in Melbourne and Seoul during three urban media events over a period of five years between 2008 and 2013.[12] Traveling around in Europe, *The Bridge* was installed at events—temporary public spaces—such as festivals, and on public squares in, among others, Amsterdam, Paris, Venice, and Antwerp. *The Bridge* was given a name that metaphorically

12 For more about this project, see Papastergiadis et al. (2013, 325–41). A historical and by now "classical" echo we can recognize is the much smaller-scale example of the *Hole in the Earth* installation from 2001 by Maki Ueda and V2, connecting Shanghai and Rotterdam. See http://v2.nl/archive/works/hole-in-the-earth for more about that by now classic work.

Fig. 1.5. Bi-locational ballet at the opening of Dropstuff's *The Bridge*, connecting Stockholm (Sweden) with The Hague (the Netherlands). Photograph: Dropstuff, https://dropstuff.nl/en/project/the-bridge-nederland-zweden-2014.

invokes the architectural symbol for the connections made between two locations. This brings *The Bridge* in comparative connection with other metaphorically architectural object-concepts of the *portal*—a format that is also discussed in chapters 3 and 4—a recent example of which is the New York City-Dublin Portal (2024).[13]

For the opening, *The Bridge* was set up between Stockholm and Amsterdam for the occasion of the 400th anniversary of diplomatic relations between Sweden and the Netherlands in 2014 (fig. 1.5). At this event, the installation presented a *pas-de-deux*, a duet between two dancers in both countries, connected on screen. This coordination between the far-removed screens occurs with different forms and aesthetics, through video streams, animated game spaces, or abstract, colorful visualizations. While the setup employed by Dropstuff, using mobile infrastructure, establishes a temporary architecture based on connection in a different way from the selfie pillar, there are some striking similarities as well.

While obviously developed with different ambitions and based on a different framework, both projects work with location-based technologies. Both

13 This project has attracted a lot of attention, not least because of its cancellation due to what has been deemed "inappropriate behavior"; see https://www.nytimes.com/2024/05/16/nyregion/new-york-dublin-portal-closed.html.

function in an urban and mobile framework, and both play with presence, connection, and extension. They do this via online as well as offline localities. In media theorist Eric Gordon's (2008) terms, we can perhaps see them as "network localities," or as interfaces between "internet" and "outernet," of which curator and theorist Susa Pop (2012, 42) speaks in reference to such media architectural projects. Both, albeit playfully, are premised on—and as such investigate the logic of—media or screen-based communication, in particular through the complexity of location. To investigate this complexity, let us consider the aspects of presence, extension, and connection.

The presence of the public—here, the shopping public—is a pre-condition if the selfie pillar is to make any sense at all. An interactive technology needs encounters between the interface and its other face; here, that of the individual within that public. In a truly McLuhanian (1964) fashion—"the medium is the message"—the snapshots taken by the present user flaunt this presence with an additional pre-scripted message: "greetings from Rotterdam." This is an emblematic, postcard-like statement of "I am here" that becomes "I was here" when sent. Banal as this message sounds, it is a statement of deixis, albeit of a very specific kind.

As I have explained in my work on mobile screens and screen-based navigation, the linguistic term deixis explains how language and other semiotic utterances are heavily context-dependent (Verhoeff 2012, 55). In fact, as French linguist Émile Benveniste (1971) proposed, deixis and not reference is the essence of language, and this is also the case for other utterances such as images. Deictic words, or shifters, function as mobile focal points, often within an oppositional structure such as "here," implicitly opposed to "there." Deixis indicates the relative meaning of the utterance, tied to the situation of utterance—an "I" in the here-and-now. They have no fixed referential meaning. Rather, they are semantically liquid, albeit not empty. Deixis establishes the point of origin, or deictic center, of the utterance: the "I" who speaks, as well as its point of arrival, the "you" who is spoken to. In this sense—symptomatically indicated by such words as "origin" and "arrival"—deixis concerns travel. It establishes the performative aspect of navigation. Indeed, deixis frames the statement in temporal (e.g. "now") and spatial ("here") terms.

The deictic essence of cartographic logic that we know from public maps—the signage of "you are here," intended to assist you in reading the map—is now conceived in the past tense and in the first person. Or is it? A selfie turns the first person (an "I") into a second ("you" in the mirror) and consecutively a third in fixating the picture of a "he," "she," or "they." This conflation of identities constitutes a de facto assault on communication. By

means of conflation, the act makes the usual turn-taking in communicative exchange impossible. There is no position available for a second person who can become a first when it is, or should be, her turn to speak back. However, through fixating the image of "I," the selfie also becomes a static product. Much like people virtually waving goodbye to one another by using a screen at the airport, it signals the paradox of absence—or rather, of *non*-presence.

Moreover, while the selfie seems emphatically in the present tense, this is only momentary and marked thereafter as past when one takes and uploads the image. This, too, makes communication impossible. In real-life navigation, instead, presence is emphatically in the present tense. This is how we can understand such logics of presence and direction as bound together. Presence, subjective in essence, is bound to a location. Yet, in the act of marking presence, this presence becomes void of subjectivity. Thus, if we generalize from this pillar to all selfies, the communication of selfies goes as follows: "I" becomes a "you" during the process of looking in the mirror; once uploaded, the images present a third person, becoming a "she," "he," or "they" to an "other." This other is the interlocutor at a distance. Of course, commercially, the pillar is intended to engage people in the shopping center while advertising its attraction. It also demonstrates the capitalist logic of making the self into a commodity. Yet, it goes even further than this. Regardless of its almost literal "pedestrian" banality, the selfie pillar presents a theory of the elusive presence of the subject in the selfie. This, as addressed in the introductory chapter, we can call its hodological quality, or its street-level working, borrowing from the Greek word "*hodos*" in its double meaning of both "street" and "way"—or, as I suggest, method. Thus, it plays with, and flaunts rather than critiques, the contemporary embrace of these processes in allegedly participatory forms. Elusive as it is, as a location-based medium this micro-architecture affirms what is essentially the logic of the medium at stake.[14]

Seen from the perspective of the selfie pillar, *The Bridge* appears more layered. Through life transmission, the motion-capture Kinect camera confirms one person's presence in an environment in which she is not present. To be precise, the camera registers the movement of the person in one space, on one screen, who is then represented on a screen as an animation

14 For a very different interface for the selfie as a cultural and also urban phenomenon, see the *Selfiecity* project, led by Lev Manovich: https://selfiecity.net. This large-scale research project combines reflections on the selfie as a visual form with methods of big data analysis. On this project and other methodologies within the digital humanities, see Alise Tifentale and Lev Manovich (2015, 109–22).

or photographic similarity in another space. With the added process of digital coding, the principle of the tele-visual regime of representation is changed from photographic capture to animation.

Nevertheless, one's presence in one location influences movements in the other; one's presence, albeit virtual, makes things happen elsewhere. There is a paradox here as well. On the one hand, this presence is extended, while on the other hand, it is denied. The "I" and "you" meet on the screen, both as a third person. Your wave is a representation of a wave. Actually, you stand in for that other place. You are, as such, a representation of "there." In addition to the mirror image, and essentially different from the cinematic image, as avatars on screen, the image is this extension of "you," who walks over that metaphoric bridge and back. It brings into presence, yet also emphatically denies that presence. Presence is qualified by the potential of turning subject positions, traditionally expressed as grammatical persons, around and conflating them, as well as casting presence into the past. Interfaces position as central the connection between technology and subjects in inter-action. In this sense, interfacing is an affirmation and simultaneous creation of both subjectivity and presence, even if this process is fleeting and paradoxical. This presence is where the transformative performativity of these screens culminates as an intervention in the social domain.

This intervention is important because presence is a condition from which we make connections. Yet, as these two cases make clear, presence becomes highly complex in the process of mediation. Location-based media technologies are founded on a structure in which a presence is mapped in relation to a destination, no matter how abstract this destination may be: another location, an interlocutor in communication terms, information, or data. This is why the concept of navigation is relevant. The logic that underlies navigational practices makes presence inherently temporary, mobile, and transitory. In the selfie pillar the whole triple act of posing, shooting, and posting reveals this mobility. The image of one's presence can be transported digitally to online platforms of exchange. A selfie, indeed, is perhaps always already shared, made for connection with others, albeit in a somewhat marred form of communication.

Connecting

The Bridge with its metaphoric name foregrounds building connectivity. With the different forms of screen content, it makes for a playful investigation of what connectivity can be. Communication occurs between subjects

in different locations in different representational forms. I mentioned video streams, animated game spaces, or abstract, colorful visualizations. Additionally, as communication between subjects, locations and regimes of representation, the project has also been embraced for celebrating diplomacy on the occasion of the quadricentennial of Dutch-Swedish relations: an institutionalized and political form of connecting—that primary feature of interfacing.

Yet, connection is never non-committal. To what purpose, or with what result, do we connect? When does connecting entail a form of relating? Critical questions we may ask at this point, when so many projects, technologies, and forms of design are being created to engage with the affordances of connection, could be: This is all great, but to what end? Who benefits? What is being exchanged? What is the transformative power? Finally, what is the surplus value of what is created in this process of connecting? The goal of the selfie pillar (fig. 1.3) seems straightforward: a playful gimmick for the shopping center to entertain and perhaps attract more shoppers. Yet in this act, the character of the space has also been transformed into a space where one can do things, rather than just walk through. The one-way connection, however, loses this playful, agential affordance and transforms this into a one-directional bulletin posted on different social media websites. We can even see this typical dispositif of one-directionality commented on in the second "pillar" project mentioned (fig. 1.4), which reverses the gaze (and voice) in this shift of dispositif from a screen for advertising, to a reflexive mirror, to a form of surveillance that catcalls passers-by.

At first sight, the connections afforded by *The Bridge* seem to allow for more two-way communications. However, it strikes me that here, too, the playful engagement with the digital screen and location-based interactive technologies is more self-affirming of presence than constituting a "true" bi-directional *inter*-facing connection. The title itself contributes to obscuring this architectural "deficiency." Indeed, a cartography of connections does not guarantee exchange, much less transformation. Worse still, connection can become a hollowed-out extension of presence. This amounts to an extension of the first person into all persons—quite a self-centered worldview or, at the very least, experience.

As stated earlier, location-based subjectivity calls forth a second person, who is the surrounding space transforming constantly under the influence of the subject's displacements through her mobility. Presence and connection, inherent in media processes, are location-based. This logical necessity is, however, slightly undermined, or at least challenged by projects such as *The Bridge*, where the subject becomes an avatar on screen. Perhaps I can

say that these projects, and others of its kind, *make* place. In this sense, they are architectural, but they do not necessarily *take* place. Although they are temporary and thus constitute events, their acts of (performative) place-making makes them architectural. The locations themselves where the screens are positioned seem clear, with their extensions to other cities or to online spaces.

Those extensions, however, immediately question the stability of location. Not only its identity can change, as in *The Bridge*; as in the selfie pillar, the nature of the location itself also changes. Without moving an inch, the surrounding space transforms from a regular shopping center into a place of fun, experiment, and as we have seen, a reconsideration of what the self really is. From the vantage point of *The Bridge*, the surroundings also become both part of the screen space and, in the playful encounters, meeting places.

This is more easily achieved for projects installed on squares and other heavily used public places. The social ambitions of these projects make use of, and reflect on, the specificity of urban spaces as potentially social spaces, albeit a sociality that needs to be animated to really occur. In cartographic terms, then, an extension can be seen as another place, an elsewhere, connected to a here, thus establishing a bi-locality. In terms of mobility, this elsewhere can become a destination as we upload our selfie to a website, or when we cross the bridge to go to another square in a different city. In this conception, extension covers, but does not replace location. Hence, if the building of connection is an intervention in the social domain, it remains to be assessed, piece by piece, what the meaning or impact of this connection can be. After considering the "face" of interface via the intimate individuality and frontality of the mirror in a shift to a public projection of self via the façade, the case that follows is an example that shows us the ambition of using screens for dialogue and exchange, foregrounding the "inter-" of interface.

Connectivity, a hallmark of digital and networked culture, both sparks and results from the ideal of communication, or the dialogic exchange of information (de Vries 2012). While more defined in communicative terms than accessibility, as a more one-sided form of retrieval and a form of ownership, connectivity is not necessarily dialogic. The interlocutor—the "you" that together with the "I" is included in the "we"—is not so much already present as it is constructed at the interface, or via the screen, in the present (and presence) of the encounter. This is the deictic nature of dialogue. In film theory, the linguistic concept of deixis—or the relative positing of the speaker (the "I"), addressee (the "you"), and the third instance, of which is

spoken (he, she, or they)—has played an important role in describing filmic enunciation and spectatorial address.[15]

I have elsewhere discussed this principle of connections and encounter in the context of digital screens set up in public spaces (Verhoeff 2015). Some instances of mobile media architecture are screens that are temporarily set up in public spaces, or temporary uses of more permanent screens. These screens, albeit in different ways, all worked for viewers in different cities to "connect" on screen, by waving or joining in virtual game spaces via avatars that are controlled by motion sensors or Kinect cameras. These dispositifs or techno-material and spectatorial arrangements comprise a set of screens, cameras, motion sensors, and Internet connectivity. Whether individually controlled or in larger public setups, these setups construct virtual bridges between two geographically separated locations. Inspired perhaps by earlier projects, such as the 2009–2013 project *Large Screens and the Transnational Public Sphere*, which established a connection between large screens in Melbourne and Seoul (Papastergiadis et al. 2013), *The Bridge* was developed as a traveling screen-based connection between different cities in Europe. On the screens of *The Bridge*, local publics could play different games by sharing game space on screen or witness each other on location via a video stream.

In my discussion of this and other related projects that also work with connected screens, I want to raise the question of connectivity: are people connecting in a dialogic exchange or more distantly observing the other when sharing screen space? Moreover, if they are in a dialogic exchange, what does this connection produce? What struck me, looking at the playful engagements with the games on screen, is that what the encounter of the spectator-participant seemed to allow, first and foremost, was an encounter with the self on screen, whether this self takes the form of a photographic likeness or a responsive avatar, as is the case in video games. When looking at strangers looking back at us, and acknowledging our presence by waving, our presence within our direct environment is marked. Somewhat between mirror image and the image of another, the participants play with their presence in front of the screen. The bi-locality of the dispositif that comprises a connection between two locations does not necessarily lead to a bi-directional, dialogic exchange. More precisely, this exchange, in its fleeting, playful form, is perhaps not so very different from the mirroring effect of our first example, *MegaFaces*, in how the responsiveness of the

15 For a discussion of the relevance of the concept of deixis in film theory, see also Hesselberth (2014).

Fig. 1.6. Occupy the Screen, Esplanade Square for the European Capital of Culture, Riga 2014. Image: Paul Sermon and Charlotte Gould.

installation invites a marking of presence. Perhaps in such a setup, as a shared surface, the screen visually absorbs the two other locations in the triangulation of their connection.

A project that creatively exploited this space between the screen as mirror and the screen as interlocutor, between one- and two-directionality, was *Occupy the Screen*, developed by Brighton-based Paul Sermon and Charlotte Gould. It was curated as part of the 2014 Urban Reflections program, organized by the international urban media art curatorial platform Connecting Cities and involving audiences in both Riga and Berlin (fig.1.6). In 2015, a new version of the installation was commissioned by the Public Art Lab, called *Peoples Screen* for the Guangzhou International Festival of Light in China. For this iteration, the project was extensively reworked to converge scenes from the cities of Guangzhou and Perth, in a connection between the Guangzhou festival and the Northbridge Piazza public video screen in Perth, Australia. It made use of existing public urban screens that, as the artist himself stated, people can "approach on their own terms," without a scripted narrative or game design.[16]

16 For a presentation of the installation, see http://www.paulsermon.org/occupy and see Pop et al. (2016, 247–49) for a description of the various iterations of his project.

A camera and chroma key technique was used to produce a collage effect background reminiscent of game aesthetics, a middle ground (audience in location A), and foreground (audience in location B). One could see people playfully engaging with the screen within the space they occupied in front of the screen, and in response to their representation and that of others, elsewhere, in the virtual space in front of them. The merging of spaces on the screen simultaneously expands and shrinks one's direct urban surroundings: extending it in connection with an elsewhere, but also by merging this into a fictitious screenspace, cutting this off from continuity with the immediately connecting urban space. After the mirror's transformation of self into other, this is perhaps another paradox of interfacing: that in connection there is always also a loss, much as in expansion there is also always separation.

Appropriately, *Occupy the Screen* works with reflection as an object-concept: with the urban screen as both a reflecting mirror of the city and its inhabitants, and as the site of reflection on, and not just of, our presence. Moreover, the spatial extensions offered by location-based and connected technologies make it possible to produce a paradoxical, ambivalent presence of neither "here" nor "there," but "on screen." This spatial presence adds perhaps a shared third realm of screen presence as a result of the doubling of space on both "sides" of the screen, in cities X and Y.

Kate Mondloch (2007) finds the doubling of space characteristic of digital screen installations. She points out how such installations propose "that viewers be both 'here' (embodied subjects in the material exhibition space) and 'there' (observers looking onto screen spaces) now" (24). In both locations, the viewer is present "before" and "on" the screen. Yet, this screen space is shared by spectators on both sides. The spectator-participant is invited to use the typically "neglected space" between the spectator and the surface of the projection as a space in which to interact: responsive actions that are performed in front of, and in connection with, the screen (Mondloch 2007, 27).

As Mondloch (2007) suggests, "on screen visual information in a media installation may be less important than the manipulations of the conventional spatial dynamics associated with screen spectatorship" (28). In the case of this project, these manipulations bring historical antecedents of early cinema spectatorship together with digital gaming, and with screen-based forms of telepresence we know from webcams and other video connections. As such, and like the other experimental urban interventions, *Occupy the Screen* experiments with, and in this way critiques, its own properties as a medium for simultaneous performative relating and representation. The result is a playful, embodied, and reflexive form of connectivity that both produces and explores a shared screen space.

Urban Consoles

From our comparative approach to the category of urban screens that include the eye-catching projects using larger—massive, as Dave Colangelo (2020) would call them –architectural surfaces of display, we can see how many of the screen projects that are analyzed in this book use various material or technological extensions to the screen that open up the terrain in front of and behind the screen, in the different meanings of those words: opening up the playful, interactive, and scopic terrain surrounding the screen, as well as offering connections with other spatiotemporal, material realms or data. Such screen installations may include interfaces for input and interaction, and for calling up, manipulating, and engaging with urban data visualizations of various kinds, whether in the form of recognizable images or more abstract, colorful lighting or sound effects. In such installations, the screen is part of a larger assemblage that includes both interfacing points of access and input (e.g. by means of buttons, video, sound-controlled, haptic, or gestural interfaces), and surface(s) for the display of such data spectacles. In this chapter, the possibility for input and engagement is discussed as the potential for interfacing with, and by means of, screens. In the next chapter, I explore further how the working of urban screens as consoles for such interfacing can be understood as a form of curation.

Connecting both, I close this chapter with a case that will also be discussed in the next chapter—here as a device for interfacing, there for curating. The connection between interfacing and curating, I propose, is how urban screen installations can work as *consoles* for a multiplicity of urban data. The then new *Deep City* (2015) project offered spectators a site via which to engage with the temporally and historically layering of the city. The installation itself was layered in the sense that it was both (relatively) permanent and (highly) temporary. It was permanent, as far as buildings ever are permanent, because of the fact that it used the pre-existing interactive LED façade of the Ars Electronica Center (fig. 1.7). At the same time, it was temporary in the way that it was one of several changing projects designed to make use of the façade during the event of the Ars Electronica festival with the curatorial title of "Post City: Habitats for the 21st Century." Second, on another level, the project addressed the historical layering of urban space by thematizing the fluctuations of data from the city. We can recognize a connecting of contemporary questions about ecological sustainability and concerns about climate change with those around the presence and impact of algorithms in the datafied city. The installation was developed

Fig. 1.7. Setup of the installation *Deep City*. Image: Ursula Feuersinger.

by Ursula Feuersinger, who articulated her ambition to visualize and bring to the surface otherwise hidden layers of big data about the cities of Linz, Vienna, Berlin, and New York. The installation aimed to engage spectators as active and critical participants in the interfacing process.[17]

The installation of *Deep City* included the larger building façade, a display monitor, and a connected terminal with a wheel and a small cube by means of which participants could browse and select datasets and thereby give some input on what was shown (and when) on the building's façade. It invited distant urban observers (Crary 1990) to become more attentive (Crary 1999) and perhaps critical engagers by transforming them into participants who can playfully browse and combine datasets from different cities and, rather like video DJs, compose a colorful show of lights on the building's façade. In the very act of making visible by selecting data to become information that may generate some form of knowledge, and translating this into colorful lights that generate experiences, however, data becomes a spectacle for observers and participants alike. This makes the otherwise distracted observer into a more attentive and engaged—perhaps even critical—spectator.

In his analysis of Lozano Hemmer's urban installation *Body Movies*, Scott McQuire (2008) describes a similar shift, which he registers in the public present at the night-time event. He interprets the attention focused onto the building in its illuminated state as comparable to our usual, every-day, distracted relation to architecture. This is the result of the openness, or "incomprehensibility," of the interface, which invites engaged and playful experimentation by the participants:

17 *Deep City* will be discussed in greater detail in the next chapter. A project that also works with the input and display of urban data is *In the Air Tonight* (Public Visualization Studio), which is discussed in chapter 5 on sensing screens.

> Here it is worth recalling Benjamin's argument that the radical impact of cinema in the context of the modern city depended—like architecture—on the fact that it was consumed in a "distracted" state. Since the film image acted at the margins of conscious perception, it was able to circumvent the habitual defense shield each city dweller erected so as to protect themselves from the excessive sensory demands of urban life. *Body Movies* occupies a similar liminal terrain. Passers-by aren't sure what to make of it; the interface is striking but not immediately comprehensible. Habit is suspended in favour of experimentation. Unexpected conjunctions emerge. (McQuire 2008, 153–4)

McQuire (2008) values the affective experiences brought about by these installations/events that as such can function as tactical urban interventions by setting up—i.e. designing—"unexpected" encounters in public space.

While the experimental and by necessity temporary nature of these works may invite playful engagement and connection, its visual spectacle also positions the public in a more distant spectatorship. In this way access in the form of visual display both reveals and problematizes the possibilities for, and limitations of, open access to big data for exploration, examination, and analysis. In this sense, the work made a good case for the 2015 program of *Visible Cities*, curated by the Connecting Cities Network for which *Deep Cities* was developed in a research residency. The questions central in the *Visible Cities* theme advocated a role of façades and screens as "blackboards" and "visualization zones" for information:

> How can we make social, environmental and intercultural processes visible and use the screens as black boards and visualization zones? What is the impact on the society, when invisible structures that underlie our daily life get visualised? What is the potential to create public awareness?[18]

However, the impact of visualization—its participatory potential to create awareness or lead to action and even insight—is not straightforward. On closer inspection, we can see how, as an experimental project, *Deep City* questioned the impact of visibility by addressing what it also exemplified. Indeed, what was put on display was perhaps visible, but not always legible, and hence not always *actionable*.[19]

18 See http://connectingcities.net/city-vision/visible-city-2015.

19 About the connection between the situatedness of data and the type of actionable knowledge this may produce, see the various contributions to the collection edited by Karin van Es and

The algorithms that order, select, and process the social and personal data below the surface translate this data as input for its "visualization zone" at the surface. This process of algorithmic curation and translation is not necessarily aimed at legibility and comprehensibility. Perhaps more fundamentally, as a screen, this façade articulates the differences between input and output—between observation and interpretation. As such, *Deep City* suggests not only the layers of information that are present yet also hidden in cities, but also the layers behind, in front of, and beyond the surfaces of the interface.

Like other projects developed for interactive displays and façades that have the ambition to allow for more democratic and dynamic access to what "lies beneath" or behind the surfaces of the city, *Deep City* aims to provide a point of access, however visual and spectacular in form, to these dimensions. Rather than functioning only as a flat surface of display, the installation in fact comprises three screens (fig. 1.7) that together function as a console for different forms of input and output from the city. We have explored how media architecture as a framework for different architectural interfaces, via the model of the screen as point of connection and exchange, and as a site of display for data, brings to the fore the diverse forms and functions that we can recognize in how building façades work to mediate. In the words of media architecture designer and theorist Matthias Hank Haeusler (2017):

> When equipping building skins with screens and digital technologies one can argue that a building equals an autonomous system, able to sense and collect data, to process these data into information and lastly to communicate these informations to other buildings or humans to generate new knowledge about the building itself or the urban context. (33)

Digital and augmented, then, we can consider these interfacing "skins" of buildings as urban consoles—an object-concept in its own right, as I have argued in relation to the digital, mobile screen. Like a game console that we use for different games, making use of the affordances of the device in distinct ways, urban screens—or all the city's surfaces, for that matter—are also, by definition, objects that have a range of different uses. Indeed, as we have seen, as "a material site for interfacing, the screen can be multiplied by combining different interfaces" (Verhoeff 2012, 92). Rather than an interface as a singular object, the digital screen is a console for multiple interfacing practices: "Theoretically, it encourages the exploration of its possibilities

myself (van Es and Verhoeff 2023).

as console, a polymorphous 'screenic' platform for a variety of applications and practices" (Verhoeff 2012, 96).

This notion of the screen as a console puts a specific spin on my proposal to develop our thinking through the relations between object-concepts. The notion of the console also opens up the status of the object itself, as a fixed and singular entity. It demonstrates the versatility and multiplicity of urban screens as devices for—or rather, emerging in—various practices of interfacing. Moreover, it underscores how, rather than focusing on singular uses of screens and screens installations, it is in considering and comparing more diverse practices of *interfacing* that we can gain insights into their specificity.

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2. Curating

Abstract: C*urating* is a lens for analyzing how situated, interactive urban screens and installations offer sites of reflection on the impact of digitization, algorithmization, and datafication of public spaces in our cities. It raises questions about how the screens and installations discussed allow for experimentation and participatory engagement with the presence and emergence of various forms of data in, and about, the city as a living and emergent archive that can be accessed by means of various interfacing technologies. Curating as conceptual lens thus invites us to examine how this interfacing raises self-reflexive and critical questions about the way citizens have access to, and knowledge about, the complex processes of digitization, algorithmization, and datafication of urban life.

Keywords: experimenting, urban laboratories, urban archive, urban data, criticality, performative archaeology

Designing Experimentation

Saving Face (Studio Lancel/Maat) is the theoretical object—or object "to think with"—that starts this chapter. This installation has known several iterations over the years (figs. 2.1 and 2.2).[1] Like the installation *Deep City*—introduced in the previous chapter—the setup of *Saving Face* works as an *urban console*. The setup comprises a booth with a smaller digital screen, a webcam paired with facial recognition software, and a large screen for public display. The installation invites participants to touch and trace their faces, and to contribute their image to a larger database with the help

1 The installation was initially developed in 2012 by Studio Lancel/Maat, but knows various iterations—or orchestrations, as the artists themselves call it. For more about *Saving Face*, see also Lancel, Brazier, and Maat (2020) and Lancel (2023). I am grateful for the inspiring conversations with Karen Lancel about the project. With Clancy Wilmott I have published an earlier version of the analysis and discussion of the work upon which this chapter builds (see Verhoeff and Wilmott 2016).

Verhoeff, N., *Urban Screens: Situations, Practices, Concepts*. Amsterdam: Amsterdam University Press, 2025
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Fig. 2.1: *Saving Face* installation during the 2013 Connecting Cities event at Bauhaus Dessau. See https://www.connectingcities.net. Photograph: Ruthe Zuntz.

of facial recognition software. While archiving this imagery, seemingly instantaneously the large screen displays a composite image of live tracings and earlier recordings of previous participants. The console-to-screen installation produces a connected, layered, and scaled dispositif between the small screen of the booth and the larger public screen, thus combining elements of gestural performance, video recording, algorithmic processes, and display technologies while structuring their interrelations in the process. Like *Deep Space* and other installations of urban media art, *Saving Face* is creative and critical in the sense that it produces that which it subsequently analyzes. This experimental and performative potential is the "message," in McLuhanian terms. Or, from such a performative perspective on interactive installations, one could say: the medium is the method.[2]

As a playful yet critical artwork that seems to be designed to work and experiment with its own interfacing affordances, it speaks to contemporary debates about the intricacies of situated, digital, and networked technologies in the public space. From this connection, a situated artwork such as *Saving Face* raises questions about the algorithmization and datafication

2 I have invoked McLuhan's (1964) famous dictum in the title of the earlier essay "The Medium is the Method: Locative Media for Digital Archives" (Verhoeff 2013) on the performative nature of interactive technologies and the agency involved in using interfaces for navigation.

Fig. 2.2: *Saving Face* installation, both inside and also street-facing at Museum BCAC in Beijing, 2016. See https://lancelmaat.nl/work/saving-face. Photograph: Karen Lancel and Hermen Maat.

of urban spaces, and the potential of creative and critical interface design. In this chapter, I propose the concept of *curating* for understanding how such designs work.

I propose three arguments centered on the connection between interface design and urban curation, experimentally explored in urban screen installations. First, I propose that the analysis of urban media projects, installations, and location-based mobile screen projects bring different conceptual and theoretical tools to debates about the specificities and impact of the digitization, algorithmization, and datafication of public spaces in our cities. Urban screens and screen-based installations such as *Saving Face* offer site-specific and participatory frameworks that propose a context for reflecting on how the presence and movements of people in public produce data and images that circulate across various platforms, and how the encounters, activities, and gestures such urban interfacing represents also contribute to the city's living and layered archive.[3]

Second, contemporary concerns (or ideals) about the algorithmization and datafication of public spaces and the smart city are reflected in urban media art projects, as they offer playful or artistic "testing sites" for the

3 For a perspective on the datafication, not just of smart cities, but more broadly, of urban culture, see Van Es and Schaefer (2017) and Verhoeff and Van Es (2023).

limitations and frictions of technologies, including experimentation with their possibilities for engaging embodied experiences and creative thinking. This takes place at the point of a temporary reflexive impasse wherein the artwork occupies a material as well as a theoretical space. This is what I called *articulation* in the introduction: the situated triple act of demonstrating, interrogating, and proposing. In this way, as theoretical objects—or objects to "think with"—installations such as *Saving Face* can be analyzed as laboratories (Colangelo 2020; McQuire 2008) for an embodied criticality, since its interface design proposes a form of collective and participatory curation of the living urban archive of data.

Third, as such, with its interrogation of the curatorial impetus of its interface design, works such as *Saving Face* invite reflection on the cultural implications of algorithmic and interactive urban technologies, bringing together the relation between the material workings of such mediating technologies and discursive ideals of networked connectivity. By allowing participants to experiment with their own technological affordances (Gibson 1979), such installations critically expose their operation in the very act of working with them—i.e., designing and demonstrating their interfacing potential, specifically as curatorial devices. As such, artistic interfacing installations such as *Saving Face* also address questions of subjectivity and visibility, and individual positionality and agency within an urban connected and participatory ecosystem.

Un-Blackboxing

The value of analyzing self-reflexive media art projects in more detail is particularly relevant in the face of the usual blackboxing of pervasive yet invisible networked, algorithmic, and datafied systems in our cities. As urban geographers and early critics of the smart city Rob Kitchin and Martin Dodge (2011) have argued, the counter-valent nature of code space is directly linked to urban systems, embedded within the built environment, regulating the flows and rhythms of the city. Furthermore, the proprietary status of many of these algorithms, and the way in which they are shrouded with a peculiar curtain of governmentality (Rouvroy and Stiegler 2016) mean that they are often treated with (perhaps, rightful) suspicion because they are impossible to unpack without prior access to behind-the-scenes information. This limits the way in which we can understand these spaces. For example, such blackboxing means that, for the most part, the algorithms and geotracking software that govern space are both protected (copyrighted) and hidden away from scrutiny and criticism. However, rather than attempting

to disentangle what may well be an impossibly complicated web, it may instead be possible for artists and critics to grapple with the realities of code spaces by using (small-scale) media projects that reconstruct such urban dispositifs and take them as examples to think *with*.

As urban interfaces, installations such as *Saving Face* challenge us to understand and theorize particular sets of technological, material, and spatial relations at the intersection of algorithmic programmability, networked environments, and interface design. In fact, it is precisely because of the complexity of such systems that urban media art projects—which critically but also productively and creatively embrace those technologies—can help us think through the frictions and concerns that also surround this intersection. They inquire into the power and politics involved in urban datafication with the power of algorithms and database-logics, and pervasive geo-locative surveillance that shapes the grid for urban living. These powerful algorithmic technologies also inspire critical responses in various forms of interface design with the ambition, not only to access site-specific data (whether commercial messages, entertainment, or information), but also with more tactical ambitions for critical forms of civic engagement.[4]

In this chapter, I further develop the theoretical underpinnings for an analytical approach to understanding how urban screens offer sites for interfacing with and within the layered urban archive. Specifically, the chapter proposes some conceptual tools that can be used to reach a critical perspective on the use of algorithmic and location-based technologies for the curation of urban data. For such a critical view, both here and in the following chapters, I analyze and compare the design principles of urban installations that activate and provide access to data collections—whether such projects are initiated by museal or archival institutions, or are developed as interventionist art projects with ambitions for civic engagement and participation. These urban projects explicitly work with, and reflect on, the affordances as well as the limitations of networked and geo-locative technologies and the (cultural) interfaces that we use to connect to, reconstruct, or perform the urban archive. Hence, instead of articulating a review or appreciation of their aesthetic, innovative, or effective qualities, I approach them as interlocutors that raise questions and offer proposals in a joint inquiry into contemporary urban techno-culture. Moreover, in the face of fast-paced technological innovation and transition, it is necessary to develop theoretical concepts that may help us to analyze the diversity and fugitivity of urban screens in order to better grasp their cultural and historical specificity.

4 About tactical media, see Dieter (2011) and Kluitenberg (2011).

Understanding the urban screen media central in this chapter as curatorial devices, I propose the notion of *performative archeology* to examine the way in which they offer possibilities to interface with various databases and collections, thereby also contributing to an expanding urban archive. In line with a performative perspective on interfacing, and in conjunction with a *cartographic* and *architectural* understanding of this performativity in urban contexts (as developed in chapter 1), such a notion of performative archaeology can perhaps make specific how interfacing with and in the city as archive is an act of *presentifying*, *positioning*, and *relating*. All three unbox the otherwise blackboxed archive.

Curatorial Dispositifs

The concept of dispositif is useful for analyzing the subject effects and spatiotemporal arrangements that encapsulate geo-locative and techno-material elements, the subject (i.e. spectator, engager, or participant), and content (i.e. sounds, images, or data, in the widest sense of the word). It is particularly useful as a heuristic device that is scalable for the comparative analysis of composite devices, systems, or installations (van den Boomen 2014). Moreover, it allows us to historicize and situate, synchronically or diachronically, their specificities in terms of similarities and differences.

The concept of dispositif is wide-ranging and far-reaching, and has a genealogy of its own as a travelling concept (Bal 2002). Michel de Certeau (1984) offered a critique of Foucault's famous "panoptic" conception of the dispositif as a formation for surveillance and control, and has inspired an approach to dispositif that opens up "possibilities of contact, participation, play, as well as bodily and sensual experiences," as paraphrased by media historian and theorist Frank Kessler (2007, section 2.5). This reconsideration of dispositif as a networked arrangement that allows for various forms of agency and performativity is particularly useful for an analytical approach to *situated* interactive interfaces. Screen-based media dispositifs can thus be understood as the arrangements that establish relations and processes between, and organize spatial and temporal settings of, technologies and practices that produce subject positions, and shared experiences and meanings.[5]

5 In that section (2007, section 2.5), Kessler is referring there specifically to a special issue of *Hermès* (No. 25, 1999) on "Le dispositif: Entre usage et concept." Inspired by similar questions, STS or ANT approaches to networked technologies also focus on processes in which human and

We can take the dispositif of the urban screen installations under discussion here, with *Saving Face* as a primary theoretical object, as working with and through a logic of layers. The pervasive, evocative, yet sometimes uncritically invoked metaphor of *layering* is perhaps appropriate in this age of the datafication of space by means of mobile and location-based screen technologies to describe the experience of using these technologies. However, it needs to be specified in analytical terms if it is to also become a critical concept for investigating how technologically driven design in urban spaces curates these socio-cultural environments. Layering, as posited here, can be understood as the design, organization, and/or production of spatiotemporal relations. Specifically, the notion of layering can render the analysis of hybrid compositions of images and complex spatiotemporal constructions as produced in acts of interfacing more specific.[6]

Moreover, the concept of the *curatorial* puts a specific spin on that of dispositif; one that begs for an analysis of this layering and enables us to analytically tease out the relationship established by the installation as an urban interface and the larger urban dispositif that encapsulates the work. Dispositifs, or any kind of spatiotemporal spectatorial and participatory arrangement, require a form of curatorial design. Here, the curatorial is understood as a broader conceptual framework enabling the programming of, and providing access to, data within various cultural spaces—whether geographical, virtual, social, or conceptual—than the narrower sense of curation as the professional practice of the care for collections and design of exhibitions in, for example, museums or archives. It constructs a reflexive positioning of elements, is constituted in its operation (in the vein of curatorial machines), and is embodied in the experience of the possibilities of contact, and of playful and participatory engagement invoked by this design. It is this coming together of perception, thought, and experience that is at stake in curatorial design: an embedded and embodied criticality below the surface.

To gain a fuller understanding of the curatorial as derived from the word curation used for museums and other exhibition practices, we may bring together the related term "to expose," which includes the meaning of "laying bare" with the French verb "*exposer*"—to display, as well as to argue

non-human actors operate. Similar to such network-based thinking, and more recently also including non- or more-than-human perspectives, dispositif analyses of screening situations are more concerned with questions of subjectivity, discourse, and power.

6 As I have argued elsewhere, the notion of *layering* can be productive for the analysis of hybrid compositions of interfaces, images, spatial movements, and patterns of navigation resulting from acts of interfacing (Verhoeff 2012, 157–63).

(Bal 1996, 8). The authors of the 2012 MIT collection *Digital_Humanities* define curation in analytical and rhetorical terms in the context of digital networked culture as "the selection and organization of materials in an interpretive framework, argument, or exhibit" (Burdick et al. 2012, 17). It is this specific combination of selection and presentation, analysis and argument, that we can recognize as curatorial principles across disciplines, media, and in different institutional contexts or social situations. Perhaps, with the mediatization, algorithmization, and datafication of the city, we speak, more and more, of curatorial practices beyond institutional walls—or, of the institutional invasion of the public space, to flip the perspective. Thus, the city itself can be conceptualized as a curatorial space.

Whatever the medium, the platform, or institutional context, curation can be understood as *care*, not so much for the curated "object," but (also) the constellation of elements—their selection and organization, and their interpretative framework. Indeed, as Burdick et al. (2012) argue: "Rather than being viewed as autonomous or self-evident, artifacts can be seen [as] being shaped by and shaping complex networks of influence, production, dissemination, and reception, animated by multilayered debates and historical forces." (18)

To curate, then, is "to filter, organize, craft, and, ultimately, care for a story composed out of—even rescued from—the infinite array of potential tales, relics, voices" (Burdick et al. 2012, 34). Or, as artist and author Marc James Léger (2013) concisely summarizes it, curation is "a practice that creates a space for discourse and critique" (12). When we speak of interactive and networked installations or systems, the discursive and framing aspect of curation as space-making, as well as a discursive and critical endeavor, is part of the design of creative engagement between artifact and public. Thus, the performative potential of media-based dispositifs necessarily involves curatorial design.

Conversely, a similarity with media has inspired work on museums and exhibition practices as well. For example, Frank den Oudsten, Herman Kossmann, and Suzanne Mulder (2012) have a symmetrically opposite perspective and argue for an understanding of museum exhibitions as media in a McLuhanian sense, including their essential "transforming potential." They point out how the "open, associative nature of the format" fits the cultural moment (33). They consider an exhibition to be "an interface with a critical function, directing the view and transforming the message into a manifest interpretation" (32–33). For an interest in interactive mobile or location-based media, the analogy with exhibitions as spatial media through a concept of interfacing is particularly relevant for the development of a critical approach to these practices (den Oudsten, Kossmann, and Mulder 2012).

In this comparison between museum and other exhibitions, we can include audio tours or, as we will consider in more detail in the next chapter, augmented reality (AR) as mobile forms of exhibiting. However, exhibitions are already inherently mobile if we consider their unavoidable performativity. The spectator-participant is, after all, mobile within its dispositif. The tour, then, is merely a geographically wider net to capture what is at stake in such genres of exhibition.

A necessary step in this comparison of curating museum exhibitions and curating in and of media projects in the public space is to discern the distinction between curation by the project itself—the curatorial at work, so to speak—and the institutionally-embedded practice of curation of these projects within, for example, a collection, a museum, or an archive. Taking the curatorial as a heuristic concept, we can move beyond the technical principles of exhibiting and programming practices in institutional contexts and instead focus our analysis on the underlying curatorial logic of the interfacing of screens in installations, or other urban media projects in the broadest sense. This can contribute to a conceptualization of curation that brings together the multiple levels upon which the curatorial logic works.

Criticality

Within a culture that so privileges innovation, urban interfaces are much like laboratories for experimentation. An experimental system, a laboratory can be conceived of as "a heterogeneous constellation of theories, objects, instruments, and practices redefining each other constantly and whereby this redefining is the result of a play with possibilities and, ultimately, a form of problematization" (Keilbach and Strauff 2012, 83). Moreover, as Scott McQuire (2008) argues, the "media city" can be understood as a perceptual laboratory:

> Electrification underwrites the distinct patterns of dispersion and concentration which not only shape both production and social life, but also effectively transforms the modern industrial city into a perceptual laboratory, the site for the construction of new and often unexpected "special effects." (114)

Combining the spectacular with the experimental, these urban interfaces explore and question their own possibilities. While we creatively invest in these projects and herald them as playful and participatory interfaces

for civic engagement and learning, we need to develop tools for analysis, comparison, and criticism.[7]

However, traditional evaluative criticism struggles to understand qualities that are also, precisely, inherent vulnerabilities of urban interfaces. In the context of meaning and sustainability, our thinking about innovative and experimental interfaces must consider the fact that such interfaces are inherently short-lived, that they enable but also require participatory engagement, and that they have a transformative potential that may or may not be effectively deployed. Therefore, I suggest we start with the specificity of urban, site-specific media projects, considering them as dispositifs, in the sense of spatiotemporal situations or assemblages that bind together the image, the interface, and the interfacing subject.

I make a distinction here between the *interface* such as the device, installation, or screen as the site of input and output (when we speak of what we see and use) and the *apparatus* when we refer to the wider machinic assemblage of which it is part, and which also comprises, for example, software, network protocols, GPS, and online connectivity. We can also speak of *dispositif* when we are concerned with the arrangement—the relational and situational system—of interface and subject. This entails a perspective on the performativity of urban interfaces characterized by connectivity, participation, and navigation, and brings to the fore the transformative and thus inherently critical potential of urban interfacing. This transformative potential is the locus of experience and meaning and, hence, of the cultural significance of design.

Central to this argument is my understanding of what constitutes a critical approach, and how curatorial ambitions of criticality and care can be analyzed in the context of these urban projects. This concern is augmented by often uncritical interpretations of criticality that do not allow us to theorize and reconceptualize its foundations. Central, then, in this context, is to consider the specificity of arrangements or assemblages—the design of elements and setups that includes a participatory subject—and a critical perspective on how this subject is encapsulated and constructed by this design.

Many use the term *critical* often, but the question is, what do they mean by it? We can wonder how it works and what it does, however, in the case of performative, interactive, participatory urban media interventions, it is

7 Eric Gordon and Jessica Baldwin-Philippi (2014) underscore this criticality in their proposal that civic learning can be considered "a form of engagement that combines participation with the act of reflection" (760).

perhaps more productive to approach criticality as embedded and embodied. For Irit Rogoff (2006), criticality refers to a performative function of critique that is experienced in the act of encounter, and which "takes places" at the interface

> [...] in a reflective shift from the analytical to the *performativ*e function of observation and of *participation* we can agree that meaning is not excavated for but that it "Takes Place" in the present. The latter exemplifies not just the dynamics of learning from, of looking at and of interacting with, works of art in exhibitions and in public spaces, but echoes also the modes by which we have inhabited the critical and the theoretical over the recent past. It seems to me that within the space of a relatively short period we have been able to move from *criticism* to *critique* to what I am calling at present *criticality*. (2, emphasis added)

It is there, beyond the regime of representation and in the realm of performativity that, according to Rogoff (2006), active and critical participants are produced.

Indeed, interactive media design often explicitly addresses the connection between thinking and doing. By bringing together the creative and critical, experimental, philosophical, and socio-political underpinnings of design, this reflection emphasizes how interface design works with a layering of urban space. This layering, which allows for a participatory and critical engagement with and within urban spaces, is designed, curated, and yields curating effects. With this conception in mind, it is possible to approach urban interfaces or screens as curatorial devices: techno-social assemblages that are designed to practice—i.e. produce and perform—curation. The verb "practice" is understood here to indicate process, rather than product. These assemblages filter, select, order, arrange content, and position the public as the participating spectator in this meaning-making process.

Urban Curating

Let me now sketch two compound aspects that we can develop in the analysis of such curatorial acts. This entails 1) the earlier coupled analytical and argumentative or rhetorical aspect of curatorial design (curatorial vision); and 2) the overarching mission of care and critical potential (curatorial criticality). I do so by looking at the way *Saving Face* demonstrates, questions, and critiques these aspects in a self-reflexive gesture. It is a laboratory for

"hodological" experimenting. As explained in the introduction, the Greek word "hodos" means "street," but also "way" and as such is the root of the word "method." In this case, we can argue that the work takes place on the street and is also "about" the street—or more specifically, about a street-level sociality that comes with presence, visibility, and trust. Indeed, the work thematizes the way in which its design establishes new connections, allows for kinds of interaction, and encourages forms of haptic and participatory engagement. It asks for a critical-analytical perspective on its status, namely, to make visible and to question the project as a form of design that makes statements about its own inherent critical potential: its criticality. This potential is inherent to the extent that criticality stems from the reciprocity of analysis and argument.

Saving Face explicitly addresses three aspects of the layered and location-based interface that are brought together within a dispositif of urban curation: the participatory agency of the individual in the act of interfacing; the installation as public event; and questioning the traceability of the image in the composite networked collection or database. Therein lies its performativity. A significant feature of *Saving Face* is the centrality of the face in this layering. As the central image on the urban screen, in the intimate act of stroking one's own face, one thereby conjures up the screen image as a networked composition—a collage including the faces of other, earlier participants. The title of the work with the double entendre of recording one's face and thus make it endure, and not losing face in front of (or facing) a public, brings to the fore questions of individuality and public identity. The face, as a quintessentially communicative element in interaction, provokes us to probe the notion of interface as central to curatorial design.

The interface of the installation works with the principle of touch and a haptic and material form of looking as a gesture of tracing and saving the image, and, as such, seems to comment on several issues at stake in my argument. As an art project it puts technology and connectivity between the hand, the screen, and the archive, database, or network center stage. It is an act of interfacing *par excellence* that demonstrates its functioning via its technological arrangement and the requirement of the users touch to activate it. Moreover, it is an *urban* interface. On the one hand, the project reminds its participants that they are being seen; that to be in urban public spaces means to be visible. On the other hand, it endeavors to intervene in how visibility operates and how visibility—the public face—signifies.

The gesture of touching one's own face in order to visualize one's "self" in its relation to others points to the processual character of navigational gestures in the context of location-aware technologies. In this way, it harks

back to a long history in which photography (art) and policing (governance) have mutually informed one another. The artists themselves address this connection:

> In the smart digital public domain, we are increasingly faced with the paradox of "the higher surveillance, the lower trust." Saving Face is a response on increasingly trusting each other based on bio-metric control and surveillance technologies, connected to AI algorithms and social media. The artists deconstruct bio-metric control technologies to create and share a poetic "meeting-through-touching" ritual and dialogue. Participants are invited to caress their own faces, to connect with others worldwide; to endlessly meet, caress, mirror and merge.[8]

As they suggest above, *Saving Face* counters the anonymity, alienation, and subsequent decline of trust we frequently experience in digitized public places. It gives significance to the creative activity of touch and gesture that is perhaps routine, every-day, and presumably inconsequential. Thus, by returning the face to the inter-face, the project addresses questions of presence, visibility, trust, and perhaps also the individual accountability of "being in public."

In this way, the work is positioned as personal, yet also combines the private intimacy of touching one's own face—a gestural selfie—with a highly public and collaborative yet very fugitive visibility on screen. In this sense, it is akin to, but also different from, the monumental project *MegaFaces* discussed in the previous chapter. Because of the difference in scale and "publicness"—the changing face of a collective collage versus the direct display of individual faces—and the technological difference between haptic input and kinetic output, they are comparable and yet in some ways diametrically opposite installations.[9]

The morphing face displayed on screen is the result of tracking and tracing, by multiple interactive acts, multiple participants across multiple moments. As a changing facial composition, the image also speaks symbolically to the diversity, fragmentation, and temporal layering of the situation. The generative and performative nature of the gesture leaves—albeit untraceable –traces. As an iconic image representing multiple—first fragmented, then reassembled—faces, it says: "we were here," rather than who we are. The

8 See https://www.lancelmaat.nl/work/saving-face.

9 With Heidi Rae Cooley I have discussed the haptic interface of *Saving Face* in our article on the navigational gesture (see Verhoeff and Cooley 2014).

image on screen thus testifies to past presence and past gestures: the image's morphing evolution invites further interaction and gesturing. At the same time, each live update of this visualization keeps a record of—or tracks—the past and future traces that can be uploaded in a Flickr stream. The installation thereby bears witness to, and renders visible, the algorithmic layering of the semiotic process of the navigational gesture: a tracing of the act of tracing.

The way in which the urban public situation is a layer of the design that entails curating, becomes clear when we consider how this installation—like so many location-based media or artworks—also travels. Its location specificity is, perhaps paradoxically, inherently also flexible. Elsewhere, I have suggested how, from a situational perspective, we can speak of an "ambulant locatedness" in the case of mobile screen media (Verhoeff 2012, 150). In the case of site-specific installations such as *Saving Face*, we can call this a *migratory locatedness*. Indeed, each installation entails some degree of curatorial re-design, as public spaces inevitably differ. *Saving Face* has been through various iterations—or *orchestrations* (Lancel, Brazier, and Maat 2020)—in different cultural, geographical, and institutional environments. One such iteration was *Master Touch*, a specific setup in the then newly re-opened Rijksmuseum in Amsterdam for a special midnight opening during the 2013 Museum Night event. There, the images of participants merged with faces of paintings. It is productive here to take a moment to consider the similarities and differences between the two installations—one set up outside in a public space, and the other within a museum space. If we depart from an analysis of dispositif, this comparison between both works hinges not only on the level of the specificity of the spatial and institutional context (street, or *hodos*, as proposed in the introduction, versus museum), but also on the level of its working with networked connectivity (urban database versus museum collection), the latter comprising a dataset of images from the museum collection rather than the faces of other participants from other locations or other moments.

The design of the interface can be considered a form of curation-at-work, as it makes visible the layers of curation as a process. It reflects on the layering of the cultural dispositif that comprises the in-situ installation, the local urban- and public context, and the spatiotemporal inter-local network in which it is embedded. On this level, curating entails the design of the possible interaction with technology: to generate images, to contribute them to a collection, to create compositions, and to disseminate them to an engaged local public. It is, so to speak, a curation of curation—an embodied self-reflexivity. By *working* with these principles, the installation demonstrates its principles. This reveals the critical potential inherent in the curatorial.

Interfacing Urban Data

Current calls for open science and open data claim that data is a public property and seek to democratize the production of information and knowledge. The access and reusability of public information, it is argued, allows for the public scrutiny of institutions, and stimulates informed and active citizen participation. The challenge facing this movement is that data must not only be rendered *accessible*, but also *understandable*. Data visualizations are commonly used to make sense of data and communicate that sense (Kitchin 2014, 106). Urban dashboards, for instance, "render a city's infrastructures visible and make tangible, or in some way comprehensible, various hard-to-grasp aspects of urban quality-of-life" (Mattern 2015). Conversely, art projects experiment even more explicitly and reflexively, sometimes critically, with the possibilities for visualizing and layering data within (and "onto") the physical environment from which they emanate, with the aim to create awareness and activate citizen participation around urban challenges.[10]

In the following, let me take up these authors' suggestion to reflect on how these experimentations raise questions about the possibilities for interfacing with pervasive and emerging urban data. From the perspective that the city is a continuously expanding and living archive comprising various forms of data that are situated and both historical and emergent, they investigate the possibilities of accessing, activating, and mobilizing this urban archive. This conception of the city as a spatially and historically distributed, layered, and emergent archive overwrites a more conventional idea of an archive as a demarcated heterotopic and institutional repository of the past, re-evaluating it as situated and both present and future oriented. From such a performative and navigation-based understanding of the city as archive, we can argue that urban interfaces as curatorial devices are simultaneously architectural and cartographic, but also archaeological. Working together, these qualities can be recognized in how urban interfaces design and structure space, organize various forms of mobility, and in various ways make the city accessible as a navigable, location-based, and emergent archive in the very process of establishing situated, dynamic relations between subject, place, and time.[11]

Yet, thinking of the modern city as a navigable archive is nothing new. Walter Benjamin's flâneur walked the streets, without a fixed, geographical

10 On this awareness-creating ambition of media art in public spaces, see Brynskov, Galsgaard, and Halskov (2015); Vande Moere and Hill (2012); Wiethoff and Hussmann (2017).

11 On the archive in creative use and as artistic medium, see Van Alphen (2023).

destination, navigating without a fixed endpoint, yet with a purpose: to understand the metropolis on its own terms, collecting both *from* and *towards* an ongoing (forever "unfinished") urban archive.[12] Usually, this is understood in terms of "pastness" and memory. Mike Featherstone (2006) invokes the fragmented and inherently fugitive nature of Benjamin's city as archive:

> For Benjamin the city was an archive, an archive already in ruins, in which the minutiae of everyday life (the decorations on buildings, ironwork, street signs, advertising bills, posters, window displays, etc.) all have the capacity to speak. Yet these fragments could only speak the language of broken, incomplete allegories, *summoning up half-formed memories which appeared vividly as in a lightening flash and then were gone*. (594–95, emphasis added)

Todd Presner, David Shepard, and Yoh Kawano (2014) call the Benjaminian flâneur a "time traveller" (23). In their words, in the city's streets,

> [...] the past is always there—quiet, muted, faded, hidden—and it is the task of the flâneur to enable it to speak, to make it come alive and come to light, and thereby resonate with the present. In this sense, the past must be conjured, awakened, and cared for. (Presner, Shepard, and Kawano 2014, 23)

This figure—or rather, the navigator as conjurer of the past, "summoning up" memories (as Featherstone phrased it in the quote above)—is, however, not only of other times, but emphatically also takes place in the present and points towards a future. As navigable and layered, this archive-city is ever expanding—both geographically and historically—in a synchronic and diachronic layering. Presner, Shepard, and Kawano (2014) speak of *HyperCities* and what they call "thick mapping" as a model via which to think of the city as a multitude of expanding and changing (rhizomatic) configurations of past, present, and future. In the following chapter, the possible intersections between these layers from a navigational perspective are discussed through the concept of *crossing*.

Vyjayanthi Rao (2009), inspired by Georg Simmel's ([1903] 2002) seminal writing on the city in "The Metropolis and Mental Life," also tackles the

12 On Benjamin's invocation of the flâneur, see Buck-Morse (1991) and Friedberg (1994). See also chapter 1 for reference to the flâneur and the navigational gaze.

implications of approaching the contemporary city as an ever-expanding archive. From Simmel's understanding of the metropolis as *medium*, Rao points out how the archive is emergent and orders "stimuli upon which future transactions are imagined and made present rather than a given notion of the past that has been deemed significant and marked for preservation" (374). This is particularly relevant in the case of current urban culture with the ubiquitous presence of ephemeral, invisible, and continuous flows of all forms of (digital) data. This connectivity between the present and past—conjured up, curated, and activated—is very much where the *futurity* of the urban archive lies (Rao 2009).

Indeed, projects of location-based data visualization—from *Saving Face* to, for example, the installation of *Deep City*—remind us of the emergent and situated character of data itself as being produced by our activities in the world. As Boyd and Crawford (2012) suggest, this entails "massive quantities of information produced by and about people, things, and their interactions" (663). This is where the project of data visualization meets the performative potential of location-based, interactive media: making urban, public data public in public spaces. In the media city (McQuire 2008), we produce data continuously, captured and stored in ever-expanding datasets. As a spatial archive, the city is indeed best conceived as simultaneously emergent and living, layered and permanently in flux.

When we think of the archive as a continuous effort to collect, order, and preserve with the goal of making (future) access and visibility possible, we are reminded that the archive is very much *of* and *about* the present, as well as about presence—a presence that is by definition fugitive, and which brings together both its historicity and futurity. A perspective of the city as archive suggests that the city is both a navigable and fundamentally layered space. Moreover, it suggests that our "being in the city" is constitutive of an (ongoing) act of *presentifying*—of ourselves within and in relation to these layers.[13]

To investigate how this relationship between past and future is rendered knowable—or *sensible,* as discussed in chapter 4—by situated (urban) interfaces that visualize urban data, let us think through the metaphor of layers and the question of how interfaces make them navigable. As I suggested above, the process of interfacing with data we recognize as characterized

13 Others also call this "presencing." As pointed out in the previous chapter, Brendan Hookway (2014, 8) emphasizes presencing as the working of interfaces. In the introduction, in line with Joanna Drucker's (2013) take on interfaces as performative materiality, I proposed to understand this via the event-logic in Karen Barad's (2007) conceptualization of *intra-action*.

by architectural, cartographic, and archaeological principles. Let me now discuss these each in turn with the help of the project of *Deep City* as our theoretical object.

Architectural Visualization

In the previous chapter I already introduced the urban data visualization experiment *Deep City*, presented at the Ars Electronica festival in Linz and developed for the 2015 program of *Visible Cities* curated for the Connecting Cities network by Ursula Feuersinger. The four sides of the Ars Electronica Center were used to visualize the tension between inhabitants, activities, and resources in Linz, Vienna, Berlin, and New York. These findings were based on the following eight statistical datasets grouped in pairs: Growth/Diversity, Green Spaces/Bike Paths, Water Usage/Waste, and Density/Noise Exposure. They were gathered in a console in front of the building that visitors could navigate using a wheel for scrolling through datasets, and a cube that allows for switching between cities (see fig. 1.7 in the previous chapter).[14]

Data art is said to be about making the invisible visible (Grugier 2016) and indeed, on the project's website, Feuersinger articulates the ambition to "visualize" and "bring to the surface hidden layers of data" about remote urban spaces.[15] Here, however, urban data is displayed on media architecture in the urban context. As already pointed out in the previous chapter, the curators of *Visible Cities* advocate a role for architectural façades and urban screens as what they call "visualization zones" for various sources of information about urban processes. *Deep City* uses the building façade as a re-writable surface or visualization zone for the display of urban data from various sources.[16]

14 In our e-mail correspondence (June 2016), the artist explained to me that she tried to find the latest, correct, and comparable data for the topics and cities, which proved difficult and not always successful. However, it was always her primary ambition to create playful and engaging public experiences rather than scientifically sound visualizations. I presented my analysis of the work during the conference *Visualizing the Street* at Amsterdam University in 2016 and developed my argument with Karin van Es in "Situated Installations for Urban Data Visualization: Interfacing the Archive-City" (Verhoeff and van Es 2018).

15 For an interview with the artist, see https://ars.electronica.art/futurelab/en/projects-connecting-cities.

16 They continue: "How can we make social, environmental and intercultural processes visible and use the screens as black boards [sic] and visualization zones? What is the impact on the society, when invisible structures that underlie our daily life get visualized? What is the potential to create public awareness?" See: http://www.connectingcities.net/city-vision/visible-city-2015.

Yet, and perhaps more importantly than only demonstrating such architectural layering, the project reveals historical (data-based) layering as characteristic of the urban condition—the (invisible) layering of urban space by the data we generate by living in it. Difficult, perhaps impossible, to be archived itself for its layered temporality, this installation visualizes and thereby performs the curatorial impetus of urban media technologies. According to the artist, the project "investigates the collective information that defines the city's present and potential future through a data visualization experiment." She proposes the metaphor of archaeology for the endeavor of visualizing the urban archive. I quote the rest of her words here at some length:

> Just as a city's history can be uncovered by an *archeological* dig, the collective information that defines its present and potential future can be represented as a digital cross-section, emerging from underneath its concrete, *visible structures*. The Ars Electronica Center façade will put these underground samples on display: Observers of the project transform into *participants* by *physically extracting* hidden artefacts from the deep, bringing them to the surface, and examining them. The resulting layers of visualized data emphasize various political, sociological, cultural, or even personal characteristics of an urban space, encouraging the inhabitants of that space to critically engage with their surroundings.[17] (emphasis added)

In these ambitious terms, the underlying premise seems to be that interactive, visual technologies enable a form of (physical) contact with data. However, perhaps more pertinent to our inquiry here, these words also suggest that this form of contact is essential to the act of visualization itself.

Cartographic Navigation

Data mapping—the process of visually representing data—is an inherently political process and involves questions about who has the power to select

17 From the announcement of Ars Electronica's Future Lab, 2015, available at https://ars.electronica.art/futurelab/en/projects-connecting-cities. See also the project page of the 2015 curatorial framework of "Post City: Habitats for the 21st Century" of the festival at https://webarchive.ars.electronica.art/festival/2015/postcity/en.html, including a video impression of the project.

how to map, what dimensions to include, and through what interface to give users access (Manovich 2002). The cartographic principle of interactive installations—discussed in depth in the previous chapter—is integral to this, due to the way in which it structures spatial relationships and navigation for the engaging subject (Verhoeff, Cooley, and Zwicker 2016). My analytical perspective on this cartographic principle of interactive installations is focused on this organization as a curatorial scripting of the subject's engagement with data. This is first and foremost a matter of providing access to that data and shaping agency in obtaining and engaging in this access.

In his work on interfaces, Daniel Chamberlain (2011) reminds us of urban historian Norman Klein's critical reading of exhaustively planned physical environments as scripted spaces. Chamberlain adopts Klein's terminology for his analysis of media interfaces, establishing what he refers to as interactive scripted spaces. These provide users with predetermined parameters of access to data, to "frame the contemporary cultural and economic implications of emergent media technologies" (Chamberlain 2011, 239). Christian Ulrik Andersen and Søren Pold (2011) use the term "scripted space" in their work as well, albeit more explicitly in reference to ubiquitous computing in urban spaces:

> Besides being a continuation of the ways urban space has been planned, scripted space also has a more contemporary dimension which is linked to the computer. Scripted space has a non-visual, coded, encrypted side to it and suggests that there are computed transactions and control structures behind the facade, surface, or interface of the city. (112)

The perhaps restricting cartographic principle of the interface—or here, the installation—in its structuring and delimiting of access and agency works towards both a form of mapping, and a scripting of the terrain of navigation.

We can recognize scripting at work in the installation of *Deep City* in the way the interface distributes agency in the urban archive. The artist as curator has compiled and organized the data to be used as input for the visualization, selecting from attributes of the city that have been captured into datasets. Moreover, she paired datasets with the intent of contrasting their elements. Unlike projects that use (or approximate) real-time data streaming, in this case the datasets are fixed, stored "in" the apparatus. The material and spatial arrangement comprises a separate yet connected terminal or console, by means of which the participants can browse and select datasets and can have some input in what is shown on the façade. The console incorporates two interactive elements for participants: a wheel

that facilitates browsing through color-coded topological layers, and a 3D-printed cube to switch between the content of different cities. They can "engage" by playful, exploratory browsing, combining and comparing datasets from different cities, and thereby composing a colorful show of lights on the building's façade.

As such, it invites local urbanites as passing and distant observers to become more attentive to their surroundings—and for those within reach of the installation's console, to even become active engagers. Here we encounter the urban archaeologists on their dig, or the urban archivists in their collections. Strictly speaking, browsing the data through turning a wheel (see Fig 6. in the previous chapter) does not make the interactors co-*creators* of the visualization. At most, they can select input for the algorithms that select and process the social and personal data "below the surface" (as Feuersinger phrased it) and translate these datasets as input for the project's "visualization zone" at the surface. However, as we could also argue in Baradian terms—upon which I expand in chapter 4—they are part of the intra-active process that produces the spectacle, and thereby also fulfil their own position and role. The console here acts somewhat like a blackbox, obscuring parts of the processes between input and output from participants. Nonetheless, part of its operation at the surface produces the spectacle and, retro-actively, the subject position of participant/spectator. For the city dwellers that do not take part in the action—which takes place, almost literally, "behind the wheel" to produce the view—this all remains a distant spectacle.

However, the installation does suggest that you can, in principle, become a co-*performer* in the *act* of visualization. Even if just playful, temporary, or literally "eventful," the project taps into current debates about what Rob Kitchin (2014) has called the "data revolution": the changing landscape of ownership of, and shared access to, data; new forms of participatory engagement; and smart technologies, increasingly embedded in the materials, design, and infrastructures of our cities. Indeed, the rhetoric of big data, individual agency, and civic participation contained in the act of self-presentation emphasizes how this curatorial project is a sign—a Foucauldian *monument*—of its time.

Performative Archaeology

During an interview held with the 2015 Ars Electronica Futurelab resident artists, Feuersinger disclosed that one of the main aims of *Deep City* was to

make people aware of their direct connection to the city and its data. There, she reflects on the affective dimension of the installation and how the data was presented as more than simply "cold, impersonal numbers." Its goal, as Tanyoung Kim and Carl DiSalvo (2010) would suggest, was *artistic* rather than *pragmatic*, raising awareness of the city as a data archive rather than simply providing access to its information. Indeed, to answer the question posed by Lev Manovich (2002), who critically asks how data visualization art can aim "to represent the personal subjective experience of a person living in a data society," for me, *Deep City* suggests that visualization is more about *performativity* and less about *representation*.[18]

In the very act of making visible, data become (part of) a spectacle. As such, the question is whether observers can actually *read* this spectacle they conjure up by flipping a switch or turning a wheel. In addressing this question, it becomes relevant to recall the important yet easily overlooked distinction between data and information, the former being the meaning derived from the latter in a given context (Whitelaw 2008). The spectator at the console can browse the data to perform *data-as-information.* What is put on display may be visible but does not necessarily yield actionable information. However, it potentially triggers an affective response and arouses curiosity, or awareness of the (big) data that, while usually invisible, pervades the city. More fundamentally, this façade as screen demonstrates the differences and tensions between "input" and "output," and between "observation" and "knowledge."

The fact that this project invites individual playful interactions, yet as a "visualization zone" for data also becomes a fugitive, distant spectacle, raises inevitable questions regarding the curating potential of urban interfaces. In this instance, access, in the form of visual display, both reveals and problematizes the possibilities for, and limitations of, shared and open access to big data for exploration, examination, and analysis. The impact of visualization—its potential both to create awareness and (subsequently) to meet the ideals of civic participation—is far from straightforward. Indeed, upon closer inspection we can see how, as an experimental project, *Deep City* affirms and questions the impact of visibility. As we have seen above, its most urgent questions are directed at *agency*, *comprehensibility*, and *actionability*.

Perhaps *Deep City* does not so much provide access to (in the words of the artist) the "layers of visualized data" that are "hidden" in cities, but more importantly demonstrates the fact that such data can be made visible, and

18 See the interview with all three artists at http://www.aec.at/aeblog/en/2015/03/26/die-sichtbarmachung-des-unsichtbaren.

that *Deep City* can connect that data to—i.e. make navigable for—city dwellers. In other words, it visualizes (the act of) visualization. As such it *does* what it says—which is the classical definition of performativity as proposed by J. L. Austin (1975) in his seminal work *How to Do Things with Words*—and here we can add: *and other media*. Following that logic, however, it also implies that the work does *not* do what the artist proposed when we equate *access* to *actionability*. As also addressed in the previous chapter, the work exposes the *fact* of data rather than the *meaning* of data.[19]

Triangulation

These architectural, cartographic, and archival principles of curating—all three in an emphatically performative gesture—not only make visible, but also put "into place" the digital data that surrounds us and sets the parameters via which the urban spectator can engage with it. As such, installations, as interfaces to urban data, not only visualize, but also situate both the data and the urban subject. We may utilize this perspective to distinguish different relationships between data, subject, and city as constructed by other artistic and creative projects, employing data visualization that aims to raise awareness around local urban issues. Such projects all foreground, albeit in different ways, the triangulation that lies at the heart of the relationship between data, subject, and city. The varieties of triangulation produced by these different interfaces—or better still, acts of interfacing—demonstrate, not only the city as archive, but also, and perhaps more importantly, how we are positioned and navigate within our own complex urban environments.[20]

Deep City is a good example of what Vande Moere and Hill (2012) discuss as situated visualizations. It demonstrates how data made visible within a given environment directly reflects that environment. Vande Moere and Hill (2012) contrast *physical* and *situated* visualizations to projects where screens, websites, or smartphone apps are used to interface to datasets in a virtual elsewhere (29). For me, the interest lies not in the potentially persuasive power of this relationship (as is their primary concern), but

19 This actionability is how citizens are made to feel a sense of responsibility towards place, encouraging "place-making" (Vande Moere and Hill 2012, 27).

20 The undoubted messiness of the "sea of data" makes us navigators, assisted by the curators. It asks data visualization to make sense of the abundance and potential illegibility of data—to makes sense and "clear paths"—and perhaps even protect, or, as Shannon Mattern (2015) suggests in the case of urban dashboards, to keep out the "dirt."

rather in the questions raised by these configurations about access to the layers of data that constitute the urban archive.

The relationship that is established between data, city, and public in *Saving Face* and *Deep City,* as well as the other cases explored in this book, all hinge upon the triangulation at the heart of the performative architectural, cartographic, and archaeological principles of interfacing. Albeit in various ways and to different degrees, they all demonstrate how data visualization enacts forms of interfacing that, beside communicating data from and about "here" and "there," are also about the "now" of subjects in relation to this data as they extract, sense, translate, connect, make present, produce relations, make visible, and perhaps more pertinently, *perform*.

Online, the designer of *Deep City* frames her project as a material and physical endeavor of accessing and visualizing the archive-city. Her description bristles with words that suggest the work is "an archaeological dig," "uncovering," "extracting," "underneath," "from the deep," "bringing them to the surface, and examining them."[21] There, the archaeological metaphor that brings in the time-space dynamic meets the architectural—the spatial and material design of the building-as-blackboard for the installation—and the cartographic in the way it proposes a mapping of the city's spatiotemporal layering. In this collaboration of the architectural and the cartographic, *Deep City* visualizes the city as a living archive of today. It stages its excavations *live*, in and about the present. This infuses archaeology with the contemporary, thus studying the coexistence of times between past and present that is so characteristic of curating. In this metaphor, the spatial *comparant* (or vehicle) of "depth" is not equal to the usual temporal *comparé* (tenor) of "long ago," but instead shifts to a new *comparé* of "visibility." "Depth" suggests that what is deep is invisible, while what is brought to the surface becomes visible. Performative archaeology visualizes this act.[22]

I gratefully take up the artist's metaphor but wish to make explicit how this seemingly small shift in fact signals a complete change of paradigm. Under the same *comparant*, the older idea of a layered past is pushed out, and the discourse smuggles in a new metaphor, which is spatial, situated in the present, and brought in connection to the future. It is, in other words, that which is embedded in what "emerges." To understand this, we need to recall an argument made elsewhere concerning navigation as performative

21 See the report on the artist residencies at https://ars.electronica.art/futurelab/en/projects-connecting-cities.

22 For the analysis of metaphors and their impact on our thinking and experiencing, see Lakoff and Johnson (1980).

cartography. Navigation, as an act of making visible, is a future-oriented self-affirmation in the present. Thus, it construes subjects that are deictically engaged with their surroundings, which are *in transition*. Importantly, in view of the shift in the archaeological metaphor's compared, this means that the movement (the "digging") goes from the evolving present towards the future destination. The digital traces of the city's past are connected to the present: they inform and intensify the present. The *Connecting Cities* website reflects on the installation in a similar manner in that it is said to be about "investigating the collective information that defines a city's present and *future*" (emphasis added).[23]

However, in the understanding of the city as defined by this "collective information," as Donna Haraway (1988) reminds us, knowledge production is indeed always situated and partial. Indeed, I am not commenting on their epistemological value, but rather on the discursive gesture and affective quality of contemporary urban visualizations as performative archaeology. If we consider the city as an archive, our activities within it actively contribute to the expansion of this archive in continuity from present to past. Moreover, since the present is necessarily fleeting and is always "on the move," this archiving of the present is always already just one step away from the future. Therefore, navigation allows us to think of the archive as constituted within an emergent, future-oriented present. It is thus (a)live, rather than a storage site of everything past. In this sense, the navigation of the archive is constitutive of the subject in relation to the world around her in an ongoing act of relative positioning in time as the terrain between past and present shifts. This is what distinguishes curating from archiving in the traditional sense.

The paradigm shift to performative archaeology implies a re-thinking of the present as the moment the archive is activated—when it becomes visible (and potentially legible)—but also as fundamentally unstable because it is emergent and inherently future-oriented. If the archive-city is constituted, seen, and read in the present, the present is also the moment of the archive's ongoing transformation. Perhaps we should stop considering the archaeological metaphor as a metaphor, so that it can become more humbly yet also more clearly the handmaiden—or rather, the teacher—of our understanding (and analysis) of time and space, layered within different configurations. Whereas the architectural principle of interfacing refers to materiality, structure, and surfaces, and the cartographic to the spatial relations it affords, it is the archaeological principle of interfacing that fuels temporal relations, produced and performed *in* visualization.

23 http://www.aec.at/postcity/en/deep-city.

Curatorial Care

As reflections on the city as mediated archive, the liveness of the installations *Saving Face* and *Deep City* confirm the "present tense" of the urban archive. Our intra-active engagements confirm our presence: our connected and moving being in the "here" and "now" in the streets of our cities. Yet, beside this self-confirming gesture, what becomes of the curatorial ambition of "care," enclosed in its semantic roots in the Latin "*curare*"? This may seem like a detour from the concept of the curatorial and of software, code, and the built environment, but in fact, care is indispensable in all times and places if life is to be sustained, including the life of the social ensembles we call cultures. Care, however, is necessary in many other respects, not just in the sense of sustainability. The need to care for objects includes what is usually called conservation in the context of collections, but also the quality of their presentation. It includes the interrelations among and between objects, and the enhanced meanings that may be generated in their dialogue. Moreover, care is needed for the objects' dialogue with the public, including yet not limited to physical interactivity. All this may seem to suggest we must "hold the objects' hand" in an affective relationship. However, rather than simply acting as chaperone, curation can also be thought of as the design of a laboratory. Then, it is not so much in relation to this more nostalgic notion of care as in conservation, but rather as care for the arrangement of possibilities and experimentation.

The implications of the model of curating as an analytical framing concept and frame for the features, potential, and consequences for a broader notion of cultural curating are many. With this notion of curating, we can reflect on urban media by questioning what we may take as the consequences of the performativity of dispositifs of networked and location-based interactive technologies. Or, in other words, a curatorial perspective raises the question of care and criticality in such design. The curation of (and by) screens in urban spaces exerts the agency and creativity that connects the making with the dissemination of images. The agency is, then, thought of in terms of affordances and responsibilities; the creativity as productive, personal, and critical, making, contributing, and assessing.[24]

This idea is also a proposal to think of design in terms of care. In what way can we embrace and make use of those technologies that potentially change,

24 Others have made a plea for the connection between critique and analysis, and the making of images. Laura Marks (2002), for example, has developed a notion of haptic visuality to conceptualize a more intimate form of critique, while Sarah Kember and Joanna Zylinska (2012) speak of media production and enactment, and plea for a form of *doing* media studies—a creative mediation—that is critique "accompanied by the work of participation and invention" (xvii).

or have changed, the status of, and the encounter with, the image? Our key word *care* can be seen to be embodied, or practiced, in the installation *Saving Face*. There, the central and intimate act of stroking one's own face becomes a contribution to a shared collage—a composite image. This gesture is literally as well as figuratively care-full: the visibility of the subject being on a public screen, adding to the community, underscores the personal and hence responsible nature of the act of participating. One becomes visually part of the image, adding one's face to the otherwise anonymous image.

Networked culture and technological innovation demand change in the principles and the philosophy of the design of public engagement. New platforms beyond the confines of institutions provide new curatorial spaces, and technologies offer new tools for public interventions. Moreover, curation in and of urban space necessarily involves multiple levels of (spatiotemporal) design: of the dispositif of the location-based project, of the urban dispositif, as well as the more distributed and inter-local networked dispositif. The principles of current networked urban culture and our fast-changing media technologies not only demand critical thinking about—or better still, within—design, but also offer the tools to change practices of engaging publics. Indeed, transformation and change require and enable a fundamentally critical stance: not a critique outside of it, but a criticality embedded/embodied within design. Changing technologies demand critical reflection on design, but perhaps more urgently a criticality within design—a design of the interaction with technology that allows for a closer experience of the processes of its framing as a curating, poetic act.

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3. Crossing

Abstract: More than a fixed category, "XR" can refer to the continuum between augmented (AR) and virtual reality (VR), and the hybrid genres of mixed or extended reality (MR). *Crossing* asks how the intersection of realities is not a specific moment or a a clear point of transition. Rather, it exposes a continued interference, resulting of an intra-active relating between co-constitutive entities or "realities." Thinking with crossing, we can explore the processes and experiences of this emergence this relating of relata, rather than pinpointing borders between the one and the other. This chapter examines how this performative and relational perspective allows to become specific about the intricacies of being, connecting, and acting by means of urban environmental, immersive, and mobile technologies.

Keywords: AR/VR/MR, archival laboratories, diffraction, interference, relationality, Artivism

Principles of Crossing

Building on the approach to urban screens as urban interfaces with curatorial effects developed in previous chapters, here it is my aim to examine how *mobile* urban screen projects can be understood as sites for critical and creative inquiry into the specificities, possibilities, and frictions that we encounter within today's highly mediatized and mediated public spaces. To be specific, the aim is to understand how we can recognize such a self-reflexive agenda, zooming in on how mobile media can produce so-called mixed or extended reality spaces that act as creative laboratories for experimentation with, and critical examination of, ubiquitous location-based and mobile technologies in the city. As proposed in the introductory chapter, such a reflexive gesture is realized when the hodos/street is also the method/way. Engagement with location-based projects has direct implications for our experience of, and agency in relation to, our situated presence in the contemporary

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cultural moment. With a focus on these implications in my analysis, it is by paying special attention to the performative nexus of being, connecting, and acting that the active verb form of the chapter title—"crossing"—as a concept for the workings of specific screening situations can receive an actualized meaning.[1]

For such a perspective on screen projects that examine urban space literally through the lens of the hybrid screen/camera device, I propose to think conceptually about the inclusive and flexible category of XR—used in reference to Mixed or Extended Reality—as both a technology and a cultural form that enables the experience of *crossing realities*. XR may be exemplified by projects and applications for mobile screens but can also be worked with in larger installations that include more fixed elements (Crolla and Goepel 2022). As a category that spans a continuum between the related and often intersecting technologies, genres, and dispositifs of augmented reality (AR), virtual reality (VR), and mixed reality (MR), the category of XR as a cultural form entails a conceptual spectrum. Ubiquitous as a label for specific, albeit broader categories, here, we take up the "X" beyond its meaning of an "extension" of reality to explore the shapes and forms of *crossing* as the main principle at the heart of XR. The X in XR is understood here as "crossing," enabling us to use crossing as a concept to examine how urban screens can make different "realities" intersect. Moreover, such a conceptualization opens up XR as a category to include a diversity of urban screen technologies, practices, and situations that work with such principles. In other words, my aim in this chapter is to take seriously (or go beyond) the generic label as a concept in order to become more precise in my analysis and to also think with and through the diversity and difference of urban screen practices and situations.

We can recognize a double meaning in the more colloquial use of the word "crossing" as either the *act* or the *location* of traversing. On the one hand, one may think of "crossing a street" versus "a crossing," referring to the intersection of two streets, while on the other hand, one may think more in terms of mixing (cf. crossbreeding or cross-fertilization). If this diversity of meanings is part of our conception of XR, we can look beyond confining and fixating—or classifi*x*ating (van der Tuin and Verhoeff 2022, 47–49)—and

1 The starting point for this chapter is the earlier publication co-authored with Paulien Dresscher on mobile media art (Verhoeff and Dresscher 2020), which grew from a dialogue between my perspective on mobile urban AR and Dresscher's perspective on VR. This led us to discern and argue for a conceptualization of a shared category of XR through crossing.

historically determined technology-based delineations of distinct technologies and subgenres of mobile screen media, and instead explore a variety of converging or intersecting interfacing principles and (artistic, critical, political, educational, and more) spectatorial agendas.

In the following, I explore how, by means of crossing, mobile and urban XR projects examine and experiment with—albeit in different ways and on different levels—emerging and migrating technologies. This analysis facilitates a critically questioning of their impact on public spaces and our social beings, doings, and mobilities within them. This impact entails the working of technology, not only on an individual phenomenological level, but also in ontological, epistemological, ethical, and political registers that pervade our private and our public lives. Using these technologies of mobility, various creative experiments demonstrate an activation of both a bodily and a participatory engagement of the spectator/user in relation to, or towards, a mobilizing of affect, thought, and opinion. This generates a productive crossing of multiple generic and disciplinary boundaries in the co-creative practices that such technologies entail.

XR as a conceptual spectrum—rather than a limited category—invites an exploration of the variety of connected or intersecting technologies of mobility *between* and *beyond* categories of AR, VR, and MR. It offers a comparative and inclusive lens through which to view the various artistic genres that such technologies have inspired, and for the diversity of art projects that interrogate and confront us with the way in which we (can) relate to new technologies. Specifically, this relating pertains to the variety of possible "realities" of which these technologies afford experiences. Working through and beyond understanding these confrontations as the crossing or intersecting of separable and fixed domains of "real" or "virtual" realities, I approach their interrelation as XR from a perspective on their performative qualities as relational reinforcement. These are the result of strategies, not so much of *extending*, but more specifically, of *interfering* realities. Yet, relating in XR is not *a priori* real, physical, virtual, augmented, mixed, or extended, as such qualifiers suggest. This perspective builds on the understanding that all *relata* are mutually constitutive, since they can only be discerned and experienced by the subject within their relating. This is what is meant by *crossing*.

XR Archives

Before continuing with the archiving principles of XR as referring to crossing screen practices, a further reflection on the archive of these practices

themselves presents itself. Needless to say, current rapidly developing technologies and interfaces, their (relative) increase in affordability and accessibility, and the spread and diversification of their use within various fields—from science and research to health care and education, entertainment, or art—have inspired a lot of scholarly attention. The speed and spread of technological change may suggest that media practices and cultural forms change as rapidly. This is not necessarily the case. In the following, I revisit some examples from my earlier research that may now seem somewhat historical. While we can also see new practices and forms in more recent cases, these older ones do provide insight into the ways in which artists, designers, and media activists pioneer experimenting with new, yet always also historically situated technologies. Indeed, some early projects of urban AR very poignantly expose the affordances of the apparatuses with which they work.[2]

The category of AR refers not only to the technology or specific apps working with this technology and the affordances of the hybrid mobile screen device, but also to its distinct visual form and dispositif. In the simplest possible terms, AR is a technology that allows for the combination of a video feed of the surrounding "real" world as captured by a camera, layered with digitally added imagery and/or text, and presented in real time on a (mobile) screen or other interfacing surfaces, such as a wind shield, headset, or glasses. In this sense, it is a typical *urban* medium. It makes use of different affordances of hybrid mobile devices, such as a smartphone or tablet, camera, (touch)screen, or Internet connectivity, as well as location and orientation sensors. In this way, it is firmly embedded within the media infrastructures of the city.

While different technological variations are developed for indoor use, here I am interested in AR designed for outdoor navigation in applications that been developed since 2009. Browsing urban space in AR requires either holding up a mobile device or directly using smart glasses or a headset and scanning the direct environment with the camera/screen. Making use of GPS technology and the location-awareness of the device and connectivity to online or offline databases, location-specific information about the direct vicinity is retrieved and displayed on screen. Besides commercial applications, or creative uses by artists, some archives and museums make use of this location-based technology to provide access to their digitized objects on location, for pedestrian publics in the urban space.

2 With this phrase, I refer to the title of the collection *Exposing the Film Apparatus: The Film Archive as a Research Laboratory* (Fossati and van den Oever 2016). This book includes my earlier article on AR, which this section revisits and upon which it builds.

In this first part of this chapter, AR interfaces for mobile screens are explored as archival urban laboratories—as project-by-project temporary platforms for demonstration, experimentation, and critical engagement. They are most often developed for archives or museums to make their collections accessible on location within urban environments. Discussing several AR applications developed for archival material, I examine how we might recognize the intersection of cartographic and archeological tropes or principles. These bring together the affordances of mobile and location-based technologies for the spatiotemporal "emplacement" of the digital archival object, and the design for active engagement by the participant. Combined, they enable a performative *crossing* of times.

Since the early days of AR, archives and museums have experimented with the medium, exploring the affordances of mobile screens and location-aware technologies for new and specific ways to present and situate their collections *in time* and *on site*. This intersection of time and space in the use of location-based media for archival access and dissemination is the starting point of my inquiry here. As applications for mobile devices, these "tours," "archives," or "museums" are designed for spectators with their devices as ambulant technobodies (Verhoeff and van der Tuin 2023). They exemplify a fundamental in-betweenness of urban interfaces—discussed in chapter 5 on figuring—producing forms of *inter-mediacy*. Let us here consider the implications of the in-betweenness of AR and as a way to understand AR projects as urban archival laboratories that creatively explore this in-betweenness as interfacing potential.

The conception of the interface and interfac*ing* as the shift from object to practice resonates with the concept of boundary objects, as defined by sociologists Susan Leigh Star and James R. Griesemer (1989), or the object/practice synthesis in Bruno Latour's ([1991] 1993) notion (following Michel Serres) of action-inscribed "quasi-objects." In a different yet somewhat related vein, we have seen in chapter 1 how Alexander Galloway (2012) speaks of the "interface effect," approaching the interface primarily as a process. The "in-betweenness," I argue, occurs between technology and practice, and in its situation. We can recognize this in-betweenness in the names or promotion attributed to AR applications for mobile screens—as temporary things ("project"), institutions ("museum"), and exhibition formats ("tour") or, as we will see, as machinic devices ("time machine"). They are material, temporal (i.e. historical as well as temporary), performative, and, as urban screens, practiced and situated.

Furthermore (as also argued in chapter 1), they are object-concepts: things that generate ideas, oscillate in our thinking, and are naming

schemes between device and application, between experimental space (studio or lab) and mobile cultural form (exhibition or tour). They are urban laboratories *par excellence*—spaces for techno-cultural experimentation able to re-contextualize and re-situate objects that were previously detached from context and stored in archives. The word (concept) of the *laboratory* resonates with Bruno Latour's use of the term in works spanning *Laboratory Life* (Latour and Woolgar 1979) to *Reassembling the Social* (Latour 2005). Indeed, in the wake of Latour, the perspective on the intricacies of technologies, practices, and situations of this book seeks to grasp the fundamental socio-cultural dimensions of material technologies. The creative laboratory, as I propose to call urban screen projects—much in line of what Iris van der Tuin and I have called the *creative humanities* (van der Tuin and Verhoeff 2022)—resides somewhere between an artist's studio, a tech-lab, a socio-political realm, and a site for scholarly conceptualizing.[3]

In such a hodological, street-level archival laboratory, the analytical and the creative collaborate in working with the archival object as it produces a layering that is dynamic and mutable, and results in a variety of experiences. The "archival laboratory" integrates the old and authentic (archive) with the new and experimental (laboratory) as it brings forth new/old performative objects—or objects "in use." Against the idea of an archive as a dusty place of historical safekeeping, these experimental, performative objects keep the archive alive in situational and relational forms of urban curating.[4]

In my earlier work on mobile screens (Verhoeff 2012), I proposed the idea of *performative cartography* to conceptualize the temporal and site-responsive aspects of spatial representation of such mobile screen-based interfaces for AR. I considered the performativity of navigational practices to be a form of space-making that occurs simultaneously with the instant reading of the space. Here, I wish to bring to the fore the navigational space-making and space-reading properties of mobile screen practices in relation to the archeological-cartographic project of excavating and recovering the past in the present—in other words, with the analysis of a temporal layering of urban spaces in the here and now. This relationship is particularly relevant

3 Darren Wershler, Lori Emerson, and Jussi Parikka (2021) have authored an inspiring and insightful study on the laboratory as space, apparatus, infrastructure, people, imaginary, and technique. In the previous chapters, I have also referred to the concept of the city as "perceptual laboratory" in the work of Scott McQuire (2008) and Dave Colangelo (2020).

4 About the liveliness of the archive, see Ernst van Alphen's book *Staging the Archive* (2014) and his more recent edited volume, *Productive Archiving* (2023).

to the use of AR applications as archival laboratories. I see the intersection of these two perspectives—the spatial in the context of cartography, and the temporal in terms of archeology—as crossing or mutually constitutive in AR as a mobile archival laboratory. Due to the temporary status of these applications when in use, this becomes a project-by-project experimentation rendering cultural archives contemporary. The app allows one to capture collections as data that are made accessible—or *sensible*, as argued in the next chapter—in urban space, on location, for mobile and physically and haptically engaged participants.

Two Tails

Let us now take a closer look at a key example of such a project: the *Cronovizor*, with a first iteration in 2013. Comparable to, yet different from, earlier AR applications such as *Streetmuseum* by Museum of London or the Dutch *Street Museum NL*—apps that both use the still images of street photography—*Cronovizor* was developed to display historical film/video footage shot walking and/or driving around Bucharest superimposed on present-day, real-time images captured by the camera on the device used (see fig. 3.1).[5]

The app was developed as a proof of concept by Romanian studio Colorbitor and aided by the Romanian National Archive. Incidentally, the term "proof of concept" expresses the same in-betweenness as the kind of objects the collective proposes, for the object is fugitive by definition: a design only. It is essentially a proposal for a future realization. Today it is somewhat of an archival experiment in its own right, because of the historicity of the project as a creative experiment. This double archival position—a now-archival prototype of a then-new interface for archival footage—makes it an interesting historical case of futuring with the affordances of AR as an archival technology. We can recognize a similar ambition in the more recent Dutch project *Utrecht Time Machine* (fig. 3.2) and the European project simply called *Time Machine*. These more extensive platforms hark back to earlier pioneering apps such as *Cronovizor* or the "street museum" apps such as the London-based *Streetmuseum* and the Dutch *Street Museum NL*. Similarly conceptualized as "time machines," these multi-platform projects

5 For more about the project, also spelled as "Chronovisor," see http://cv.gontz.com/portfolio/chronovisor. About found footage and questions of programming and accessibility of this kind of heritage material, see Bloemheuvel, Guldemond, and Fossati (2012).

Fig. 3.1. Screenshot taken from the promotional video *Cronovizor—The Time Viewing App* by Colorbitor, http://youtube.com/watch?v=vjcaM9bGMrE&ab_channel=colorbitor.

have the potential to include various interfaces and allow for participatory formats where users can contribute materials to the more expansive and multi-media archives. The ambition and method of "crossing," however, is very similar.[6]

When the proof of concept was launched, this news item described Colorbitor's ambitions and fascination with the medium as follows:

> Colorbitor has launched the mobile augmented reality channel that adds a layer of archival footage on the same spots in the city were [sic] they were shot. Visitors in some of the historical Bucharest sites are able to open "time windows" on their internet-connected IOS and Android devices. They will discover real life moments from around 80 years ago integrated *seamlessly* into the camera view looking upon the present locations. For this project, Colorbitor team uploaded a *gallery* of short film documents

6 While this is not the same as a historical perspective on futuring, about futuring as a historical endeavor in its own right, see Bendor, Eriksson, and Pargman (2021). For the Dutch examples of AR time machines, see https://utrechttimemachine.nl and https://www.amsterdamtimemachine.nl. The European platform can be found at https://www.timemachine.eu. We can compare these projects of time travel with the urban interfaces that similarly work with the imagination of the screen for a form of transport. In the earlier chapter on interfacing, we see instances of screens that produce situations in which physically separated people can meet each other "halfway." The next chapter on sensing screens also addresses this form of virtual travel.

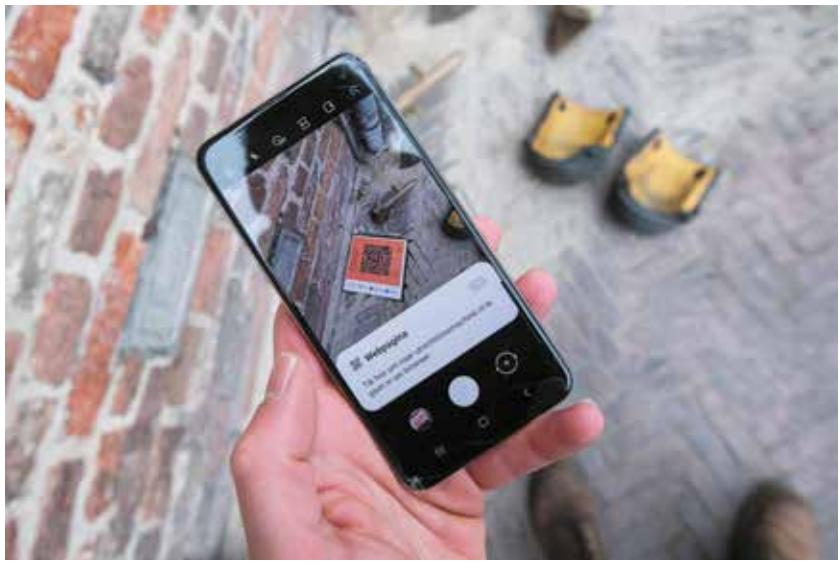

Fig. 3.2. The app version of the *Utrecht Time Machine* uses fixed QR markings to connect with archival materials via the mobile screen. Image: https://www.duic.nl/cultuur/ontdek-2000-jaar-utrechtse-geschiedenis-met-de-utrecht-time-machine.

> and *embedded* them each in its place—marked on the map and printed on the pavement around town. (emphasis added)[7]

What interests me in this text is the mixing—crossing—of metaphors. The app with the somewhat archaic-futuristic name of *Cronovizor*, or time-viewing device, is described as a *channel* that allows the user to open up "time windows." Moreover, the metaphor of the screen-based app or channel as window is combined with the notion of both the museum ("gallery") as well as the tourist trope of walking the city with a map. When we watch the video demo, these lively yet clearly old, on-screen images of archival footage inserted in—or stitched onto—the present-day street scenes, surrounding the user of the "vizor" as a viewfinder of sorts, indeed suggest a form of space-based historical continuity, established by the viewing device. Elsewhere, I have proposed the verbs of *plotting*, *tagging*, and *stitching* for this in-frame montage in AR with its specifically co-presencing effects (Verhoeff 2012, 153–7). The result is a spatial distribution of images that are "stitched" into the real-time

7 See the article "Visit the Inter-War Bucharest using the Mobile Augmented Reality Channel" (2013) at https://business-review.eu/featured/visit-the-inter-war-bucharest-using-the-mobile-augmented-reality-channel-42838.

Fig. 3.3. A horse with two tails. Screenshot taken from the promotional video *Cronovizor—The Time Viewing App* by Colorbitor, https://www.youtube.com/watch?v=vjcaM9bGMrE&ab_channel=colorbitor.

environment. In chapter 5, I add to these verbs of connecting verbs to express principles of positioning and spatial organization, or scenography, leading to *figuring*.[8]

The idea, or ideal, of a device rather than an application—in other words, a thing rather than its use—suggests that the aim is to develop a machine with which to experiment, as well as a machine for vision. In chapter 1, I have called the conflation of such objects and ideas "object-concepts." Here this idea(l) is also infused with the metaphor of the museum, for it is the museum that holds and exhibits the (archival) objects. Yet, the choice of the found footage and the use for which the *Cronovizor* is designed emphatically bring this archival material from the museum out into the streets. Everyday urban views we know so well that we do not see them anymore are made visible anew as they are historically layered. On the one hand, this is simply the result of technological affordances of GPS and 3D-tracking. On the other hand, the outdoor locations make fascinating historical connections possible. When using moving images to work with, the leap between the inserted moving images and their real-time surroundings is highly visible.

8 In a related vein, William Uricchio (2019) speaks of the principle of marking.

Here, spatiotemporal continuity plays a crucial part, for it is this continuity that provides the "glue" necessary for editing the moving images together. Much like the contemporary "streetmuseum" apps and other AR apps and platforms that use archival images, the *Cronovizor* plays with the combination of spatial continuity and temporal discontinuity, and the spectacle of paradoxically both effacing and emphasizing the disjunctions between them. It establishes an integration of the two moments displayed at the same time—one is displayed on screen, the other in "real" space surrounding the archival image—yet on screen it also shows a frame-within-a-frame, creating a curious crossing of times.

An amusing example of such crossing through embedding is the tail of the horse on the bronze monument of Carol I in the middle of Revolution Square (Piaţa Revoluţiei) in Bucharest. There, the archival footage was originally shot and is now re-plotted. This has funny implications. In the archival material, the horse is there, which gives an anchor point by which we can match our frame. However, curiously, in the archival embedded footage the tail hangs down, while in the contemporary embedded footage, in contrast, the tail is raised up (fig. 3.3). This disjunction gives the seam itself—for "seamless" it is not—the appearance of motion. The effect is that it animates the immobile monument, and thus creates a jump that resembles a stop-motion effect. This jump of two tails, then, can be seen as a *mise-en-abyme* of both the limits and the potential uses of the technology. These are the two sides of *affordance* and *failure* with which projects like these experiment. The two tails become a trigger for reflection on the medium that made seeing them together possible in the first place. Prompted by the two horses, the viewer's thoughts go back to the past while also wondering about the present. The *mise-en-abyme* fulfills its narrative function of re-booting the narrative structure of the embedding narrative.[9]

This example of AR used for archival time travel indeed demonstrates the merging of archival access, museum exhibition, and the mobile screen as grounds for experimentation. We can call this special branch of the more general category of AR "Archival Reality." This makes the archive emphatically an experimental as well as an *experiential* laboratory, rather than an undisturbed space for storage and retrieval. Its primary material is archival; its interface constitutes a cross-temporal layering; its status as application/screen also entails a technological layering. I suggest that the

9 The effect is clearly visible in the looped GIF image on http://cv.gontz.com/portfolio/chronovisor. For the term *mise-en-abyme* and its implications for narrative theory, see Jefferson (1983), further developed by Bal (1994, 45–58).

mobility of the object makes for a disjunction—in-betweenness—between what we usually consider an archive and the site-responsivity of this device, which entails an extreme fugitivity. This fugitivity is the logical consequence of the use of these device programs. It is the position of the user, who sees the archival images in relation to her own placement, that determines the content on the screen. This makes the images ephemeral, fugitive, and different each time they are being seen. This mode characteristically belongs to an "on-demand" culture. The participating audience is addressed and given power: the viewer is the proverbial "viewmaster," but this mastery is deceptive, since the device is structured by design and curated in the urban space. This design determines the fugitivity itself, as it resides in the viewer's ongoing mobility.

Fugitivity here seems to exist in a particular tension with the idea of an archive that is normally considered a venerable, but also rather inaccessible place. Moreover, the idea of access and ubiquity—connecting with participatory and democratizing ideals—is not new: it has, of old, been attached to the very notion of innovation. As new developments often—if not always—stand in a dialectic relationship with those that precede them, the resulting paradox is that innovation is always returning to something old—something that may have prefigured this future return to itself.[10] Indeed, the current popular interest in history and the archival may be carried by innovation, but an aspect of its newness is also in some way a return to history. As Marshall Berman (1992) argues, renegotiating the definition of, and our relationship to, heritage has been part of the project of modernity from the very beginning.

The archive on location seems to give this a new twist. We can discern a crossing here of three cultural preoccupations, or desires: the ubiquity of access, which means that there is data anywhere, any time, and accessible on demand; a cartographic impulse, which fulfills the wish to both be anywhere and to know where one is; and a participatory ideal, which calls for access to agency for all. Yet this is not unique to *Cronovizor* or indeed other mobile urban archival interfaces. I speculate that these three features, in their ability to fulfill cultural desires, are successful in doing what people today perhaps crave most: provide access to the inaccessible—in this case, the past. Experimenting with that possibility shakes the archive awake and affords the individual using the device a measure of omnipotence.

10 In a way, this view on the historicity of innovation, also addressed in Verhoeff (2012, e.g. 16–7) brings together the concepts of remediation (Bolter and Grusin 2020) and prefiguration, as discussed in the introduction.

Interfering Realities

For a conceptualization of these screening realities-in-relating, I think with the new-materialist physicist and philosopher Karen Barad (2007). For Barad, characterizing something as co-constitutive means that the two entities of a relation, even in binary opposition, are mutually implicated and come into being simultaneously. Barad uses the term *diffraction*, or *interference*, as both a phenomenon in the world and as a concept for understanding its dynamic to indicate that the emerging entities cannot be predicted, nor are they (to be) predetermined. This turns an object-in-diffraction into a case of an object-concept. Moreover, in their mutual constitution, the entities inherently and fundamentally also open up towards each other and, importantly, can only become known within their relating (Barad 2007)—here, seen as crossing. This entails not only an analytical perspective on their relation, for which I will adopt the concept of diffraction as a methodological foundation, but also on the way that artworks themselves address "relating," which I will conceptualize with the para-synonym of *interfering*.

Transposing and mobilizing Barad's (2007) terminology to the practice of scholarship as well as to the practice of mobile media art that the scholarship examines, but that itself also investigates and experiments with diffraction/interference, characterizes both our perspective as well as the objects that we analyze. Concept and object, therefore, are mutually constitutive. This yields a fundamentally relational perspective. Following the logic of both diffraction and interference, "realities" of XR are not layering, augmenting, or extending a shared "hybrid" reality, so much as they are performative and literally *creative* in their meeting.

The entanglement of object (art projects) and concept (thought in art as well as in scholarship) is a productive starting point for a comparative and inclusive perspective from which to consider the various ways in which artists and designers work within the domain of urban interfaces. We recognize interference both as an ontological characteristic of any form of relationality, important for the argument here, as a central epistemological and political questioning at the heart of the art projects that can be conceptualized as *crossing*. In short, the projects question the consequences of their workings *in* their workings. Through the lens of interference, I propose to look at the way in which mobile media artworks using XR technologies interrogate the implications of their affordances for crossing realities by putting these technologies to the test. Thus, for this strategy we may use the verb form *interfering*. As such, art and scholarship share questions and methods. Therefore, the X of XR also stands for the continuity and dynamics within the

intersecting or crossing fields of technological design, artistic experimentation in an activist or political key, and cultural inquiry.

The debate about the status of XR—specifically in the case of AR and VR—as a technology and a medium that visually and conceptually brings together the "physical" and the "digital" has produced various conceptual metaphors. First and foremost, there is "augmenting" itself. Such metaphors help us understand the affordances of the location-based and imaging technologies to literally visualize the "meeting"—with which I invoke Barad's (2007) book title *Meeting the Universe Halfway*. Such metaphors also conceptualize the relating of the subject while facing and connecting with multiple realities. From such a relational perspective we can understand reality as the composite of spatiotemporal registers of a relational *situatedness*—where and when am I in relation to my surroundings?—and the experiential *subjectivity* of the "I" within this situation. This experiential positioning pertains to what one is invited to do or held back from doing. Within a given situation, it also has a bearing on how this window of (non-) opportunity and possibly disruptive creativity changes one's subjectivity and co-constitutes the situation itself.

I have previously written about this phenomeno-onto-epistemological dynamic in terms of the cartographic (Verhoeff 2012). Traditionally, cartography indicates representational fixity along spatial, temporal, and epistemological axes. A cartographic map is a two-dimensional representation of something that is both external to it, and meticulously mapped. A navigational, *performative cartography*, however, focuses on the practice of "cartographizing," thus leaving open the possibility of a less measurable, linear, absolute integration of space, time, and thought. More precisely:

> Representation entails more or less fixed outcomes of creative production processes. The results, such as images, statements, models and materials can, for example, be transmitted or stored. This would be an insufficient understanding for some contemporary media practices and approaches to these practices that foreground process, mutability, flux, simulation, remediation, notions of becoming, and mobility. These characterize the "pre" to representation—the processes *before* representation in which representation comes into being, in its performativity. (Verhoeff 2012, 143, emphasis in text)

In this characterization of the activity of cartography itself, notions such as *locatedness*, *relationality*, *positionality* or *deixis*, and *corporeality* are mobilized. Thereby, we can see a relevant instance of crossing, for, in the

case of the various manifestations in XR, the navigation between and across mediated domains produces a continuous process of encounter. This process towards an encounter is both under construction and in deconstruction (Barad 2010).

As such, the performative cartographic act produces a paradoxical reality built on the contradictory yet symbiotic relationship between oppositional and compositional logic. In AR, for example, this underlies the stitching together of various types of imagery into a navigable "whole," yet simultaneously making very clear the ontological cuts between the whole and its parts. Examples of this will be discussed in the sections below. This paradox invites the thinking through of a logic of complexity. By straddling an exclusive, binary either-or logic as well as an accumulative both-and logic, which both (and wrongly so) presuppose *relata*, complexity makes thinkable the ontological or immanent spatiotemporal primacy of *relatings* that are unpredictable yet effective. Binary, compositional, and differently structured relations may emerge from complex entanglements, but entanglements are never a priori binary, nor compositional. XR, then, is composed of a (creative) complexity of (onto-epistemological) paradox, (navigational) deixis, and (corporeal-philosophical) experience.

Crossing Before/For Interfering

A landmark moment in the history of AR is its deployment in activism—let us call it ARtivism. On October 9, 2010, the Museum of Modern Art (MoMA) in New York was invaded by AR art (fig. 3.4). Artists Sander Veenhof and Mark Swarek hacked the museum's space by augmenting it, digitally, and put up *WeARinMoMA*—a virtual exhibition set up without the museum's authorization. The original press release announced:

> On Saturday October 9th, the physical space inside the MoMA NY building will host a virtual exhibition occupying all floors (including an additional virtual 7th floor) in parallel to its ongoing show. [...] The show will *test case* Augmented Reality art within an appropriate critical context: the bastion of contemporary art.[11] (emphasis added)

11 October 4, 2010, reprinted at https://sndrv.nl/moma/?page=press. The relevance of this event is positioned in relation to other "unauthorized augmentations" of museum exhibitions as part of a still ongoing practice in a 2018 article in *Wired* magazine (http://wired.com/story/augmented-reality-art-museums).

The ARtivists addressed a fundamental question raised by technologies such as AR about the experience, organization, and also the governance of public and institutional spaces. Are the distinctions between the public, institutional, and private spaces eroding, as we are approaching a situation of an ever-increasing fragmentation of realities that are all to be perceived individually? As the press release continues:

> Being *uninvited guest users* of the MoMA space themselves, Veenhof and Skwarek call out to any AR artist worldwide to place their artworks *within the walls* of the MoMA too, on the 9th of October. Since the exhibition happens in virtual space, there's no reason not to host an *endless amount* of parallel virtual exhibitions. (emphasis added)

With some irony, the announcement underscores the activist potential of AR as a medium that allows for a crossing of the traditional borders between the domains of institutionally established art and ARtivist art. As part of the New York Conflux Festival that was dedicated to the practice of psychogeography, the ambition was to investigate the implications of AR to cross public and private spaces and the possibility to reconfigure any public space, including the "walled" architectural spaces of museums.[12]

Moreover, the emancipatory potential of the technology did not just reside in allowing ARtivists (and their audiences) to invade these spaces, but also in the redistribution of curatorial power to makers, the audience, and technology. As the festival stressed:

> [B]esides the difficult qualitative judgement, the former "helper" criterium [sic] of whether something was placed within museum walls or not, is no longer valid. Virtual artworks by "non artists" could mix with officially curated art within an official museum. The museum offers the white cube and walls, the visitor decides what to see, curators are bypassed.[13]

As such, more than an annex exhibition in augmented space, this crossing as a form of "guerilla curation" produced a mix of what we know—pre-existing frameworks or a priori categorizations—and what we come to know. This *coming-into-knowledge* we can see as the result of interference: as the

12 Psychogeography is "the investigation of everyday urban life through emerging artistic, technological and social practice." From the festival's page at http://martinestig.com/projects/conflux-festival.

13 See also www.sndrv.nl/moma/?page=press for a reprint of the statement of the festival.

Fig. 3.4. The *WeARinMoMA* exhibition by Sander Veenhof and Mark Swarek (2010). Photograph: Sander Veenhof.

disturbance of that which is already articulated—our *a priori*. Interfering, then, is the creative strategy of the production of thought as a result of unfamiliarity in the meeting of the known and unknown. This entails diffraction. In the poetic words of artist Lynn Randolph: "Diffraction occurs at a place at the edge of the future, before the abyss of the unknown" (quoted in Haraway 1997, 273).

The staging of encounters with the unfamiliar, unexpected, and unknown is perhaps in line with what Irit Rogoff (2006) has characterized as a curatorial strategy of "smuggling" for an embodied criticality, as mentioned in chapter 2. She sees such criticality as an embodied encounter that is radically different from a distanced and dismissive intellectual critique. She points out how curatorial strategies can produce this shift from criticism to criticality, by inhabiting a space of uncertainty rather than analyzing a problem, question, or issue from a distance. Criticality, for Rogoff, is thus experienced in encounter (Rogoff 2006).

From the perspective of the present-ness of performativity, in the case of the AR exhibition within MoMA, the additional works interfered not so much *in* a pre-existing exhibition space, but activated a diffraction *within* this new space, as it came into being at this crossing or intersection of the two domains or "realities." In the first example of this chapter, I have renamed AR as "archival" rather than "augmented." In extension of this idea, we can call this hacking project at MoMA similarly archival, and then see what that change of term yields. The activation in the present of such

archival encounters puts us in a position of (embodied) uncertainty. This activation of diffraction by interfering makes us, literally, look again. This second look is an invitation to museum visitors and curators—to artists and scholars alike.

Double Crossing, or XR[x]

Artist Sander Veenhof is a Dutch XR pioneer, who uses the medium—most notably AR—in the context of smartphones, Google Glass, and HoloLens. He deploys XR to experiment with the "non-functional" experiences of these technologies—what we might term an *artistic experientiality*. He thus experiments with the way in which these experiences raise critical questions about them, or their *artistic criticality*. He moves from hacking space and crossing borders to intervening within existing infrastructures of art institutions and other public spaces, towards examining the relationship between human and technological agency. In other words, Veenhof's works activate the possibilities for new spatial experiences through XR. It is within these experiences that an investigative, embodied criticality towards their very spatial and relational affordances emerges. Indeed, through Veenhof's playful engagement, curiosity and embodiment are activated for the investigation of the implications of technology *in* the encounter with technology as a productive *double crossing* in XR.[14]

Avatar Says No (fig. 3.5) is one of the more recent projects by Veenhof that thematizes curiosity and encounter. It does this precisely through addressing the non-compliance of technology. The underlying question of the work is, in Veenhof's words: "What does it feel like on the HoloLens, when encountering stubborn life-size avatars that walk away from you when you approach them, and step back to you when the distance is safe enough?"[15] The first part of this question alludes to artistic experientiality, while the second adds an artistic criticality. Thus, it actualizes a hitherto unknown subject position, in this case situated precisely on the threshold between possibility and non-possibility. This is a productive failure of crossing, for

14 I omit the hyphen here, to avoid the colloquial meaning of "double-crossing" as an act of deceit. Here, it means more precisely and literally a "double doing" or doubling of crossing. This and other interpretations of his work are greatly inspired by a conversation with Veenhof that took place in Amsterdam on June 7, 2019.

15 For this quote and a video impression of his playtesting of the work, see https://www.youtube.com/watch?v=P2RknGprTRA&ab_channel=sndrv.

Fig. 3.5. Sander Veenhof's *Avatar Says No* (2019). Photograph: Sander Veenhof.

it paradoxically addresses precisely the coming into being of both human and technological agency.

With the frustration caused by the im/possibility of meeting in AR, *Avatar Says No* seems to be diametrically opposed to one of Veenhof's earliest AR works, the "first ever" *AR Flashmob* that was held at Dam Square in Amsterdam at 2pm on April 24, 2010 (fig. 3.6). There and then, the possibility of encounter at the crossing of public and augmented space was very much key to the project. This work included an exact timing and location-specificity, typical for the dramaturgy of flashmobs as pre-planned, physical meetups in public spaces.[16]

The technology of marker-based AR of this flashmob makes the physico-virtual encounter in the domain of XR to some extend also *immobile*. This standstill is caused by the fact that the meeting point is fixed and pre-arranged by way of the physical marker of the QR code. Crossing, there, is a *place*, a punctuation at the intersection of space and time, arresting the flow of mobility, futurity, and possibility, hence the small x in superscript in the subheading of this section.[17] In *Avatar Says No*—which uses marker-less AR, without a QR code posted on the pavement—the meeting of the subject and her avatar remains a continuously mobile, shifting, and open possibility,

16 About this event, see https://www.moma.org/interactives/exhibitions/2011/talktome/objects/146407. Sander Veenhof returned to the flashmob phenomenon more recently, in 2021 with a Snapchat filter "AR Flashmob Lens." See https://www.snapchat.com/lens/d709031ff12a4d4d8dc6d2be291f641f?type=SNAPCODE&metadata=01 and https://www.youtube.com/watch?v=nS9XBC4Pyro&ab_channel=sndrv.

17 This use of the concept of punctuation is further elaborated in my earlier work (Verhoeff 2006; 2020) and also addressed in chapters 1 and 5.

Fig. 3.6. Sander Veenhof's *AR Flashmob*. Photograph: Sander Veenhof (2010).

with each step in one direction effecting another step away. Crossing, in this later project, seems to be more of a paradoxical space-making process, with the encounter at once continuously present as possibility. Yet, at the same time, that process is also continuously frustrated and, as such, emphatically absent. Reading the works diffractively, then, reveals that we can both investigate the possibility and non-possibility for mediated encounters through AR as a spatial and social technology. What we can learn is that agency is an *agentiality*, to borrow again from Barad (2007), always dynamic, even in its halting.[18]

In his book *Art Beyond Itself*, Mexican scholar Néstor García Canclini (2014) generalizes ideas on crossing, discussed in this chapter in relation to XR specifically, and of urban screens more broadly. He did this in his conception of art as a larger category and activity than just what is recognized as such in official artworld parlance:

> [A]rt is the place of imminence—the place where we catch sight of things that are just at the point of occurring. Art gains its attraction in part

18 On the method of diffractive reading, see Iris van der Tuin (2011; 2017).

> from the fact that it proclaims something that could happen, promising meaning or modifying meaning through insinuations. It makes no unbreakable commitment to hard facts. It leaves what it says hanging. (Canclini 2014, xiii)

In view of this conceptual generalization, the specificities of the historically divergent works of Sander Veenhof are interestingly different and similar at the same time. They both elaborate on, and simultaneously ameliorate (or exponentiate in XR^x) the impact and politics of the technology that runs through our entangled private and public spaces. Having defined reality as constituted by, in, and as constituting relatings, Veenhof's projects activate various realities. As the *relata* that come into being cannot be fully predicted, both seem to approach their artistic practice as open-ended and continuous creative lab work. They offer sites of encounter and inquiry for engaging spectators who join this work and who influence the work by doing so.

In the crossing of XR, "reality" as a subject-driven and experiential category can be understood as a composition of what philosopher Federico Campagna (2018) has called the dimensions of *essence* and *existence* as part of our techno world. As Campagna states: "'[R]eality' is the name that we assign to a state in which the dimension of essence (*what* something is) and the dimension of existence (that something *is*) are inextricably bound to each other, without merging into one another" (17, emphasis in original). Building on this notion of co-constitutive essence and existence, both threaded through with technology, Campagna argues that reality is not fixed or given, but is culturally and historically situated, and thus changing over time. Most importantly, it affects how we think about what is possible in imagination and hence also in action. Indeed, the current moment, as it is felt by artists such as Veenhof, requires a framing of the human sensing of reality with the question of technology. This thinking through what is possible in imagination and in action is specifically activated in what we can diffractively distinguish as *technologies of mobility*. Such technologies mobilize the body through affect, and they call for subjects to engage and participate in artistic media spaces and for boundaries to be crossed in co-creation.[19]

In this chapter, to understand how screens produce forms and experiences of crossing, I have proposed the concept of *interfering* to understand the

19 I am indebted to Paulien Dresscher for connecting my reflections on AR with Campagna's work, when we co-authored the article that inspires parts of this chapter (see Verhoeff and Dresscher 2020).

way in which urban screen spaces mobilize positionalities that are continuously in flux. Its synonym *diffraction* I have reserved for the analytical perspective on how their interrelating produces meaning. In the words of García Canclini quoted above, we can understand crossing with its affective and also knowledge-producing effects as a form of mobilizing places of imminence, imminence, "where we catch sight of things that are just at the point of occurring" (2014, xiii. As I will consider in the following chapter, this catching sight and insight requires a "sensible" form of relating between screen (or art) and the experiencing subject.

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4. Sensing

Abstract: Urban screens and installations can make present and perceivable data about, and frictions between, the individual, the social, and the environmental. They do so by engaging more than the visual register, only. Such sensory works compel us to think and feel beyond the surface level of the city. Opening up spectatorial territories for engaging with our environment, they enable forms of knowledge production that activate and fundamentally imply our own situated positionality. As such, urban screens can engage spectators as response-able subjects by bringing them into new sensory and sensible relationships with their immediate, or broader, environments. This chapter examines media architecture, artistic installations, and scientific *knowledge objects* that in various way activate and mobilize our senses and sensibilities.

Keywords: data visualization, spectatorial territories, site-responsivity, data dramaturgy, knowledge object, intra-action

Environmental Data

The public art installation *In the Air Tonight* used light and architectural surfaces for data visualization (fig. 4.1). This project, developed by Toronto-based artists/designers Dave Colangelo, Patricio Dávila, and team—later to become Public Visualization Studio—made use of the LED façade of The Image Center in Toronto. It was a temporary, yet recurring installation upon a pre-existing and fixed architectural structure, which ran for one month in 2014, and again in 2015 and 2016. The overarching aim of the project was to raise awareness of homelessness in the city. Throughout the cold winter evenings, a blue wave on the facade displayed fluctuating information about changing temperatures and wind speed. With the color blue, it visualized the feeling of being outside and exposed to the elements, presenting a translation from one sense (touch) to another (sight). The data *in between*—between

Verhoeff, N., *Urban Screens: Situations, Practices, Concepts*. Amsterdam: Amsterdam University Press, 2025
DOI 10.5117/9789048563623_CH04

Fig. 4.1. *In The Air, Tonight* (2014) by Dave Colangelo and Patricio Dávila at The Image Centre, Toronto. Photograph: Maggie Chan, courtesy of Public Visualization Studio.

experiential and numeric, or between qualitative and quantitative—came from a weather station located on the roof of the building. Tweets that used the hashtag *#homelessness* generated a red pulse on the building's surface. In response to financial donations, the façade intermittently turned white. A webcam enabled participants remote to the project to witness the building as its façade changed color in real time.[1]

This project combined communicating layers of remote sensing, individual engagement, and public display. Aimed to activate public awareness of, and engagement with, social as well as environmental urban concerns, it mediated and made perceptually present that which remains otherwise invisible or distant. In his book on urban screens and media architecture, the project's co-designer and urban media theorist Dave Colangelo (2020, 121) calls the work a "research-by-creation" project about public data visualization. He critically evaluates in what way the "low-resolution media façade" was successful in realizing this ambition:

> [...] *In the Air, Tonight* was *informative* in that it was clearly responsive to tweets yet was not necessarily *insightful* in the sense that it did not

1 For more about *In the Air Tonight*, see http://davecolangelo.com/project/in-the-air-tonight and the section about this project in Dave Colangelo's (2020, 124–27) own book on urban screens and media architecture, *The Building as Screen*.

> easily allow onlookers to creative meaningful insights about the problem of homelessness. Instead, it allowed them to do so only if they engaged in the online component of the work and followed links and tweets served up on the interface. Finally, *In the Air, Tonight* could be said to be somewhat *functional* in that it was aesthetically pleasing and was persuasive for those that had deciphered its meaning. (Colangelo 2020, 125–6, emphasis in text)

With Andrew Vande Moere and Dan Hill (2012), Colangelo makes a distinction between the work being informative, insightful, and/or functional. He does so in order to mark different forms of, and strategies for, knowledge production—ranging from information to insight, and from (aesthetic) experience to persuasion. This project invited a relevant critical evaluation of the possibilities and perhaps also the limits of what urban screens and installations can "do" in terms of a positive societal impact via public access to, and participation in, processes of knowledge production by means of discursive public messages. However, we can also take their working seriously as a more sensory form of knowledge production. This entails a thinking beyond the screen as a surface for the display of "information," to being part of an installation and thereby productive of a screening situation (or *dispositif*) within which encounters and experiences may yield various forms of engagement, knowledge, and action. As a theoretical object to think with, the installation compels us to think about what happens to the relation between data and knowledge in this shift from surface to situation. In chapter 2, I have addressed this as a form of *curating*. As I will argue in this chapter, we can take up the proposition that such a situational perspective on urban screens as installations also entails a shift from thinking in terms of urban data *visualization* to urban data *dramaturgy*. Moreover, in this chapter I will address how this shift activates a historical perspective on our approach to screens as both spectacular and attractive, and appealing to other forms of engagement.

From such a historical perspective, we can see how *In the Air, Tonight* articulates many of our contemporary fascinations. It provides a public spectacle of experimentation with digital connectivity and new sensing and display technologies. Like many other screen-based urban interfaces—from artistic screen installations and media facades to more mundane displays of information, advertisements, and commercial entertainment—it both activates and updates certain characteristics of preceding and adjacent screen paradigms. While addressing the present in their situated articulations, these urban screens also invoke the environmental characteristics

the dispositifs of panoramas, dioramas, and other visual spectacles of the eighteenth and nineteenth century.[2]

These historical dispositifs also activated mobile forms of spectatorship that in many ways resemble pedestrian, urban *flânerie*. In urban screens, installations, and other forms of media architecture we see this combined with the visual spectacle of attractions and illusions, in historical lineage with such devices as the camera obscura, magic lanterns, and phantasmagorias. Moreover, as environmental urban attractions, they also connect with, build upon, and update a rich history of public performances and other happenings seen, for example, at fairgrounds, festivals, and exhibitions. By working with light, color, and movement to create various visual effects, they examine and extend the city's material surfaces in line with a long tradition of ornamentation, anamorphosis, and *trompe l'oeil* in architectural monuments such as cathedrals.[3]

Recent public screen installations thus integrate visual technologies that recall earlier forms of urban lighting and display, but also infuse these with increased activating and critical possibilities. Such installations, as we will see, do far more than simply addressing us from a distance. They speak to us in direct address to which we cannot help but respond. This is where *visualization* becomes a matter of *dramaturgy*. Dramaturgy, I take here in an expanded sense, as also proposed by performance studies scholar Cathy Turner (2010), to encompass "performance structures beyond the theatre setting and in an interdisciplinary context" (150). Here, this encompasses the setting and context of urban architecture. Dramaturgy may provide us with a lens via which to assess how urban screens and installations, both situational and event-full, use sensory materials to make sense—to shape experiences, construct meaning, and produce knowledge. As Johanna

2 About the notion of adjacency in the context of urban screens, see DeBoer (2019).

3 This historical perspective on screens as between, as the editors call it, "optical" and "environmental" media is extensively discussed in other contributions in the collective volume (Buckley, Campe, and Casetti 2019) in which an earlier version of part of this chapter first appeared (Verhoeff 2019). In *The Lumière Galaxy*, Francesco Casetti (2015) has also provided a perspective on the history of the cinematic screen as one of various changing *assemblages*. Similar to the concept of *dispositive,* which approaches the screen as a spectatorial situation that is situational and therefore historically various, the concept of assemblage offers a perspective on an "alterable complex of components" and allows us to recognize a dynamic field of technological changes and emerging practices. For a rich archaeology of the panoramic dispositif, see Huhtamo (2013). About mobile spectatorship and immersion from a similar historical perspective, see Griffiths (2002, 2008). For Erkki Huhtamo (2009), urban screens are part of a longer history of what he calls "public media displays." On the comparison between contemporary urban screens and the historical architectural ornament, see Caspary (2009).

Drucker (2013) has succinctly stated: "Meaning is use, as Ludwig Wittgenstein famously said, to which we can add, such use is always circumstantial and situational" (1). To this statement we can further add that meaning as use is not a fixed "thing," but an event that takes shape in a present and in a direct, dynamic, and dialogic relation between first- and second-person participants. Moreover, as explored in chapter 3, this relation is not only dialogic, but also mutually constitutive of the dialogic partners or relata.[4]

In the following, I discuss *In the Air, Tonight* in connection with some other screen-based installations, treating these works as vehicles that can continue to guide us toward a more in-depth understanding of the double functioning of urban screens as spectacular surfaces and sensorially engaging situations. Here, I will focus specifically on some of the ways in which these works use technologically enabled remote sensing to engage spectators as response-able subjects by situating them in new sensory relationships with their urban environment. As such, these urban art projects represent a wider category of screens and installations that infuse material architectural surfaces in our urban public spaces with *matter*. This noun I use both in the sense of materiality and of meaning, by means of light and reflection—the latter similarly in the double sense of image and thought. Moreover, these installations evoke *sensations*: the activation of the senses that allow human bodies and minds to perceive, think, and communicate with one another and with their material environment. Sensations are essentially both situating and mobilizing, as they bind us to our environment and activate our engagement with(in) it.

Spectatorial Territories

In the Western tradition, five senses are distinguished, some of which require direct bodily contact (touch, taste) while others need only bodily tools (such as ears for hearing, noses for smelling, and eyes for vision) for experiencing at a distance. Vision is usually considered the most remote of the senses, and the one most capable of connecting over distances—even if there, too, sensing is based on the material contact with light. Today, we use the term *remote sensing* to describe technology-driven productions of visual sensations at great distances. Yet this term in fact describes nothing more than an extension of what (human) vision has always been capable of doing.

4 About dramaturgy as a practice of making as well as of thinking, see Bleeker (2023). On an event-logic rather than an object- or entity-logic, see Verhoeff and Van der Tuin (2020).

Only the particular sensations produced, the experiences compelled, and the effects created by these two forms of remote sensing—the everyday one and the technologically driven—differ from one another. Hence my claim is that it is the situation, aided by technological affordances, that can make for a different kind of sensation which, being only remote in appearance, is capable of encouraging close engagement with our environment. With their responsive display and visualizations of remote sensing, the installations I discuss in this chapter are aligned with Lev Manovich's (2006) assertation that "architects along with artists can take the next logical step to consider the 'invisible' space of electronic data flows as *substance* rather than just as void—something that needs a structure, a politics, and a poetics" (237, emphasis in original). That is, these artworks produce effects that the viewer can process as perceptible material, according to my understanding of the relation between the senses and the sensations they produce. An important element of the specific works that I will discuss is that these sensations function in, and thus have an impact on, the public space. That impact is the works' substance.

To explore this paradoxical fusion of remote sensing and substance, I consider how remote sensing shifts the screen's operations from surface to situation. In particular, I focus on works that visualize data generated from elsewhere. The urban projects under scrutiny here experiment with both surface and situation—or, as we can equally term them, with visual and environmental qualities. They provide visual interfaces for digital data that is either extracted from their direct environment—the spaces within which they are situated—or from more distant locations to which they are connected, by means of various sensing and display technologies. By enabling interfacing, they give access to and mobilize—i.e. articulate, situate, and make actionable—this data, as they visualize and display data, but they are also designed to create emerging, spatial stories with and about this data. As such, they are screens for data dramaturgy. In line with how I conceptualized this in chapter 1, I will thus conceive of the screen's work as an act of installation, and hence as situated and eventful, and as producing both architectural and cartographic parameters for urban presence and mobility.

In addition to *In the Air, Tonight*, I consider two other examples of the contemporary urban installations, both by the Turkish, US-based artist Refik Anadol. Many of Anadol's installations interrogate the conventions of architectural screen-spaces. His works *Infinity Room* and *Virtual Depictions: San Francisco* will feature prominently in this chapter, as examples of his growing portfolio of works that further develop and combine traits of

each of these two.[5] Anadol calls these works "data sculptures," and in light of my own argument, I propose to examine his works also as immersive installations and screen-spaces, so as to fully understand their architectural characteristics and effects. As such, we can bring them into a productive comparative connection with other examples of urban screens and media architecture that work with screens, projections, or other screen-like displays. As fundamentally *site-responsive* and *sense-based*, Anadol's installations articulate—i.e. demonstrate, examine, and propose—various forms of interfacing between individuals and their surroundings, whether those surroundings are immediate or more remote. The installations not only display spectacular visual sights, but also produce emergent environmental and event-based situations.[6]

This perspective on urban screens as architectural installations builds on and extends the concept of the screening *dispositif* to include the intra-active dynamic of screening *situations*—a dynamic that shapes, and emerges out of, the respective relational arrangement of spectator, screen, and image. Moreover, particularly in the case of screening situations in urban public spaces, the spectatorial dispositif is in principle a *composite dispositif*: a screening situation that is fundamentally connected to other situations. Taking up my earlier proposal for this concept, David Colangelo (2020) in his work on urban screens as "massive media" observes:

> [...] the effects of massive media can be considered as composite, relational, and contingent mixtures of many technical assemblages and associated dispositif[s]. For example, the coordinated effect of a heavily screened environment that includes elements of the media city such as urban screens and mobile devices that cater to an ambulatory spectator that is variously attracted and distracted by media (Verhoeff 2012, 104) might be described as a composite dispositif. Simply put, composite dispositif describes a situation in which we are both captured and comforted, distracted and attracted, by the overlapping media layers that define relational space. (37)

When we analyze the urban dispositif as a *spectatorial territory*—a territory within which ambulatory, urban spectatorship can take shape and become

5 The term that Anadol uses, in reference to for his working with AI, is *machine hallucinations*. For his works and ideas, see http://refikanadol.com.

6 Anne Friedberg (2006) already made the most convincing claim for this architectural perspective on screens in general.

embodied and enacted—we see that this territory is always layered, connected, and porous. Each temporarily delineated territory is permeable and opens up to other spaces.

Approaching the screen as part and productive of a spectatorial territory can help us understand how contemporary screen installations are historically connected to other screens and screen practices. These screen practices produce their own comparable and yet different spectatorial territories—the camera obscura, the magic lantern, and various forms of urban lighting being a few historical examples. These screen practices likewise shaped fields of vision for spectators who were positioned behind or in front of screens, or amidst the architectural facades that surrounded them. Within the spatial arrangements of such projection-based dispositifs, the image emerges as either transported from another realm, beyond the screen, or in continuity with the surrounding spectatorial space. However, these territorial aspects of spectatorship may not yet have been sufficiently analyzed to grasp the role of interactive digital urban interfaces in our contemporary moment. The *intra-active* processes (as explained in the introduction) and *responsive* events (as I explain below) bring mobility into the spectatorial territory.

As I have argued before, mobile and digital screens and location-based technologies have reorganized the screening situation, or dispositif, in a variety of ways (Verhoeff 2012). Not only have they given added physical mobility to screen-based spectatorship, adding an experience of vehicular, portable, or wearable transport (Huhtamo 2011). Digital responsive screens have also shifted the conditions and affordances for spectatorial agency. Moreover, there is also a mobility implied in the variability of their operation, given that digital interfaces afford many different uses. Hence, mobile screen technologies reveal the dispositif to be fundamentally performative. As such, it mobilizes the spectator in multiple senses of the word.

Actively interfacing with screens within a mobile and composite dispositif entails complex, dynamic, and intra-active processes within which spectatorial territories emerge. Indeed, while we can perhaps mark a location that hosts a screening situation on a map, its territory is essentially not pre-existing. Hence, the screening situation or dispositif of urban screens is not only situated in the sense of *taking* place in a particular location, but also *makes* space as it emerges within the wider urban composite dispositif and in connection with its surrounding (urban) spaces. In this sense, it is also *situating*. Therefore, the spectatorial territory of urban screens is a space that is continuously under construction.

Site-Responsivity

Building upon my brief description of *In the Air, Tonight* at the beginning of this chapter, let me now address how this interactive urban installation aims to raise awareness and solicit civic participation in urban social issues by activating its spectatorial territory and mobilizing the spectator by means of sensing technologies. *In the Air, Tonight* is an example of what is also called *responsive architecture* used for (real-time) data visualization that raises social awareness about urban issues—in this case, homelessness. It does this by deploying and also reflecting on sensing technologies. Yet, beneath the surface, it is more complex than it might appear, not least due to the way in which the act of interfacing with the work translates a social issue ("homelessness") into physical and experiential categories (feeling "cold"). It transfers something we can measure (temperature) and subsequently evaluate and display. Here, this display has a metaphorical visual form: a blue wave signifies coldness. Yet it modulates—or, as argued in the previous chapter, *crosses*—one data source (temperature) with other information, such as the number of tweets using the hashtag *#homelessness*. Thus, it draws on different registers of information from different locations and material contexts, and symbolizes different indexical relationships between both image and world. The installation makes a connection between very different spaces, making digital communication visual and hence *sensible*. This particular form of interfacing makes perceptible the urban challenges we often take for granted—a transformation that attempts to change our attitude. As such, the installation aims to produce attentiveness and reflexivity and, in doing so, compel viewers to action. In Harawayan parlance, the viewer is mobilized to become *response-able* (Haraway 2016). The spectator is positioned as an insightful and, most of all, an experiencing and learning citizen who is becoming aware of the presence and situation of others. This process of experiencing and learning may stimulate responses—acts such as, in this case, donations—which might help to improve and transform the environment surrounding the installation itself.[7]

The installation itself responds to its direct and also its more *expanded* (and expanding) environment—i.e. understanding the territory of the

7 Comparable installations that make "sense-able" environmental elements or flows are *Sensing Water,* which is part of Seattle-based artist Dan Corson's portfolio of "environmental site works" (http://dancorson.com/sensing-water), or New Mexico-based artist and theorist Andrea Polli's *Energy Flow* (2016), visualizing wind power on the Carson Bridge in Pittsburg. For more about Polli's environmental media art, see http://sites.google.com/andreapolli.com/main.

installation as comprising various scales. As such, this project demonstrates how data visualization not only communicates data from and about the "here" and "there," but also allows for a connection, mobility, and exchange—or interfacing—between disparate spaces. It also represents the "now" of the sensing-acting subject in relation to this data as it extracts, translates, connects, and makes present—both temporally and spatially—data about elsewhere in the now, thus producing relations and, perhaps most pertinently, performing acts of *sensing*. The thrust of urban projects like *In the Air, Tonight* is to mobilize local publics by stimulating reflection on their situation and transforming this reflection into social action. Sensing thus implies a distillation of information from the environment prompting, mobilizing, the sensing subject to respond. Sensing is therefore not only physical, passive, and subjective, but also cognitive, active, and social: the senses can put the self in a response-able relation to others.[8]

Responsivity is a term also used as a specification of, or even substitute for, interactivity. Elsewhere (Verhoeff 2012, 129), I have quoted art historian Andreas Broeckmann, who wrote about the 2006 installation *SENSOR* by Carsten Nicolai in Berlin, which demonstrated a responsivity to visual and sonic data input that came from its direct environment: "The façade was conceived as an abstracting mirror that reflects light back into the environment as a response to the urban activity in the square—an architecture that 'talks back' through the medium of a screen façade" (Broeckmann 2009, 114). This is also relevant here for its proposal to speak of responsivity, and its suggestion of how responding as a form of "talking back" of a screen as an "abstracting mirror" is not necessarily dialogic, as "interactivity" suggests. Indeed, responding can also take a more primary form by acknowledging presence. As I have put it (Verhoeff 2012), often it is not so much the content of the "response" per se, but the responsivity of the screen that matters. As a concept, responsivity brings to the fore how this acknowledgement of presence through the senses may also speak to a response-ability on the part of the spectator or subject.[9]

Art historian Joanne Morra (2017) has specified responsivity in relation to site-specificity and proposes that we consider any artwork that responds to its site of installation to be *site-responsive*. An installation can

8 Urban screens and installations and their possible use for social awareness and civic participation are usefully discussed in Pop et al. (2016). About sensing technologies, smart technologies, and urban experiences, see Shepard (2011).

9 See also Broeckmann's (2017) longer argument about "machine art," and the technical imaging of ecology.

act site-responsively perhaps most obviously when it performs in a space that is not primarily a site for art exhibition. Morra writes that site-responsive interventions aim "to render historical space contemporary, to critically engage with the museum, its collection, display strategies, narratives, and history, or to open the space up to a broader cultural context that includes artistic practice" (2017, 14). They can activate potential narratives, experiences, and meanings not otherwise obviously primary in the experience of a space. As a result of this activation, the work responds to the site and enables us to understand it differently from how we might routinely perceive it. Because the viewer and the work interact, there is a clear reciprocity at play. "Site-responsivity," Morra writes, "acknowledges the way in which the artworks and space dynamically relate to, and respond to, one another" (2017, 14).

The installation of *In the Air Tonight* in Toronto produced new situations that connected the spectator through the senses with the urban environment. Environmental data about the climate impacted upon the building's façade, which immediately transformed its environment visually, but then this environment became also more indirectly transformed by impacting social awareness, mobilizing citizens to act upon this awareness. This relating between subject and environment through the senses is not a one-directional causal *effect*, but a complexly intertwined and intra-actively mutually constitutive process. Accordingly, I propose we understand these site-specific architectural and situated screens as *site-responsive urban interfaces*. This terminology emphasizes how the screening situation not only takes place within a space that produces subjectivity, but also produces a spectatorial territory that allows possibilities for action and transformation to emerge. While we perhaps tend to understand screen-based spectatorship first and foremost as based on attraction or immersion, we see here how site-responsivity combined with spectatorial agency may yield situations that are performative—fundamentally emergent, dynamic, and affecting the subject.

Data Dramaturgy

The following case may seem a bit exceptional—let us say, literally out of place—considering my focus on public screening situations, yet here it offers an interesting and valuable further perspective. Contrary to exterior displays that cover the city's building facades, Refik Anadol's *Infinity Rooms* are closed interiors that fully immerse the spectator in an abstract spectacle of light and sound (fig. 4.2). It is difficult to describe in words what we see in the rooms. Changing black-and-white or colored light patterns projected

Fig. 4.2. Infinity Room *Living Paintings: Nature* (Refik Anadol, 2023) at Kunsthal in Rotterdam. Photograph: Nanna Verhoeff.

by lasers surround the spectator. Mirrors cover the walls of the small space, visually effacing its boundaries. Engulfing sounds accompany the flow of light patterns. In this audiovisual spectacle, the visitor loses the visual boundaries and surfaces that typically serve as points of sensory reference. The projections of kaleidoscopic light patterns visually encompass the spectator and fill her entire field of vision, without the borders of a frame and without discernible walls, floor, or ceiling. As a consequence, the illusion of being both detached and fully immersed is very powerful.[10]

This forcefully enigmatic work has appeared in various iterations and in various locations and contexts—e.g. from the Istanbul Biennial (2015) in Turkey and the SXSW festival in Austin, Texas (2017), to more recently in London (*Serpenti Metamorphosis*, 2022) for the Bulgari company at the Saachi Gallery, or in the museum the Kunsthal in Rotterdam in the Netherlands as part of the exhibition *Living Paintings: Nature* (2023–2024).[11] The rooms travel

10 See Ng (2021) for more about the immersive effects of the loss of borders in what she calls the post-screen.

11 See http://refikanadolstudio.com/projects/infinity-room and the video about the work *Serpenti Metamorphosi* at http://youtube.com/watch?v=EP4kNKPUjZo&ab_channel=Bulgari. About the *Living Paintings: Nature* exhibition, see also https://www.kunsthal.nl/en/plan-your-visit/exhibitions/refik-anadol.

and are, as such, *site-adaptive*—a form of migratory site-specificity that we can recognize in many travelling installations that appear in different locations and for different publics, in each instance framed differently by the various occasions of their installation. One other example of such migratory site-specificity would be the Shared Studios *Portals* project, which in various locations places shipping containers that contain screen-based connections by means of live video links to other locations. Described in the exhibition text produced by Shared Studios, they "make distance irrelevant" and "are gold spaces equipped with immersive audiovisual technology. When you enter a Portal, you come face-to-face with someone in a distant Portal, live and full body, as if in the same room."[12]

We can locate some historical roots of the *Infinity Rooms*—and by extension the *Portals* and other similar installations—in the way they work with visual spectacle and spatial effects. In particular, the early history of virtual reality would be an antecedent. As an immersive environment that travels to, and is installed in, various public spaces, it recalls early cinema exhibitions, which often took place in fairgrounds, markets, circuses, and other travelling shows. It also recalls the mirrored rooms created by artists such as Lucas Samaras and Yayoi Kusama since the 1960s—rooms that used multiple facing mirrors to produce an effect of *mise-en-abyme*. These works are, in a sense, in line with the early nineteenth- and twentieth-century practice of travelling exhibitions, which provided local spectators with a form of virtual travel by showing both local and more exotic sights.

Conversely, *Infinity Rooms* presents abstract visual forms based on programmed algorithms. Rather than visualizing data from outside or elsewhere, the visual spaces are created in the here and now by means of these algorithms that generate new emergent environments. Compared with earlier practices, this shift from the transmission and representation of data to the construction of a data space radically changes the spectator's visual and sensory experience. In that sense, Anadol's box-like immersive installations are perhaps more akin to early virtual reality, or the CAVES (Cave Automatic Virtual Environments) developed in the 1990s. The difference here, however, lies in the position of the subject. Rather than simply immersive—rather than entice people to drown in dimensions—Anadol's installations are responsive in the sense that they foreground presence. The

12 Note a similarity between the imaginary of the screen as a device for contemporary spatial transportation or historical time travel. In the previous chapters, the *interfacing* (chapter 1) and the *crossing* (chapter 3) of place and time travel is discussed more elaborately. For more about the *Portals* project, see the Shared Studios website http://sharedstudios.com.

spectator's awareness of her own body is not effaced but is instead placed center stage.[13]

The *Infinity Rooms* seem to be inspired by two trends that, put together, create a paradox. On the one hand, the artist suggests that the range and variety of screen technologies have caused us to become increasingly detached from our direct environment. This produces a sense of displacement. On the other hand, his artworks install a media architecture that makes explosive and innovative use of light and screen technology. Anadol thus proposes a temporary synthesis of the two poles of this paradox: between the displacing effects of media on the one hand, and their production of new, albeit temporary spatialities on the other. His *Infinity Rooms* are part of an ongoing project that he calls "Temporary Immersive Environment Experiments," intimating his attitude towards this paradox. Anadol understands the immersion produced by his *Infinity Rooms* as a "state of consciousness where an immersant's awareness of their physical self is transformed by being surrounded in an engrossing environment; often artificial, creating a perception of presence in a non-physical world."[14]

What Anadol calls immersion needs a bit of elaboration. The artist creates the impression of boundlessness by taking away borders and surfaces. Immersion, here, is the result of the strategic production of a limitless visual space. The visitor's disembodied visual experience breaks with the dimensions of our common perception and experience of space. However, with these installations, Anadol aims at more than just disorientation:

> In this project "infinity" is chosen as a concept, a radical effort to deconstruct the framework of this illusory space and transgress the normal boundaries of the viewing experience to set out to transform the conventional flat cinema projection screen into a three dimensional kinetic and architectonic space of visualisation by using contemporary algorithms.[15]

13 We can recognize a kinship with the Hales' Tours early film exhibitions, even in the way the visual field is radically cut off from the outside, effacing the perspectival cues of horizon and scale, maximizing the optical effect of light and movement. For the connection between Hales' Tours and modern ride films, see Rabinowitz (1998). This historical connection also segues to a different track, connecting to the immersive environments of virtual reality (see Cruz-Neira et al. 1992). Interestingly, Anadol also experimented with VR versions of his *Infinity Rooms,* but preferred the architectural version. In his words: "We have so many opportunities in the physical world that we have never explored. […] If you know this much better, then the leap to VR experiences will be much more meaningful, much more impactful" (see also Souppouris 2017).

14 http://refikanadol.com/works/infinity-room.

15 http://refikanadol.com/works/infinity-room.

The suggestion here is that the transgression of borders can create a disorientation that produces transformation. And that, of course, is the point. One might describe this as producing a different kind of spectatorial territory, an alternative scenographic design in which the screen becomes coterminous with every interior surface rather than serving as a singular focal point of attention, as in classical theories of the dispositif.[16]

The installation's elimination of (perceivable) boundaries troubles the certainty of perspectival viewing inherent in the model of a single screen facing an audience. As scholar in the field of performance, science, and technology studies Maaike Bleeker (2008) suggests:

> [Perspectival projection] creates a "scenographic space" in which all that is seen is in a sense staged for a viewer. At the same time, this staging aims at an effect that is quite the opposite of being theatrical: the promise presented by perspective is one of directness, immediacy, it is the promise of Alberti's *finestra aperta*. (99)

In connection to the work's realization of a reversal of Alberti's promise, I invoke film director and architect Liam Young's concept of *data dramatization*, or data visualization as a story-telling principle. Young suggests: "Data Dramatization, as opposed to data visualization presents a data set with not only legibility or clarity but in such a way as to provoke an empathetic or emotive response in its audience" (quoted in Akten 2015). Anadol endorses this perspective when he explains how, in his work, "the experiment intends to question the relativity of perception and how it informs the apprehension of our surroundings."[17] Following these ideas, Anadol's installation works thus suggest that a scenography for the screen as surface works towards a dramaturgy of a given situation. Anadol's installations thus raise a question: can a different scenography for the screen be mobilized (that is, made mobile and also, literally, transformed) in more fundamental ways than its effacement?[18]

16 On scenography, see McKinney and Palmer (2017). For dramaturgy as a critical concept, see Turner and Behrndt (2016). For more about dramaturgy in relation to digital media, see Eckersall, Grehan, and Scheer (2017). About dramaturgy as thinking practice, see Bleeker (2023).

17 http://refikanadol.com/works/infinity-room

18 A conversation between Anadol and Young in 2022 can be found at http://dezeen.com/2022/03/04/metaverse-liam-young-refik-anadol-space-popular-neuehouse-talk. See also the interview with Young at http://vml.com/insight/liam-young-speculative-architect-and-director and Willis (2017).

Fig. 4.3. Virtual Depictions: San Francisco (Refik Anadol, 2018). Image: still from the video at *http://refikanadolstudio.com/projects/virtual-depictions-san-francisco*.

Moving Surfaces

Other projects by Anadol address this question. The early work of *Virtual Depictions: San Francisco* is a video wall created for the 350 Mission Street building in San Francisco (fig. 4.3). Visible from the street and displayed on a surface behind the large glass façade, the work is literally situated both inside and outside public space. It is an architectural screen: a screen surface that wraps around corners, having the visual effect of a thick mass. Called a *parametric data sculpture* by the artist, it is a work of media architecture: between display surface and building material, the screen is a dynamic architectural component.

Virtual Depictions fluidly displays changing abstract vistas—sometimes colorful, sometimes black and white—which, with visual special effects, visualize and animate otherwise static numeric digital data from various sources. Although made visible and animated, this data is not legible as such: there is no way to interpret or distil information from these spectacular yet enigmatic visuals. They do, however, appeal to a sensorial response. The images are abstract and are not accompanied by a legend, scale table, or other interpretative tools. For example, the screen might display information about the geographic origins of a series of tweets, but not in a map-like, readable image. Instead, the datasets are translated into a gripping visual spectacle. A *trompe l'oeil* effect enhances the kinetic and haptic three-dimensional

appearance of the screen and its images, the movements of which makes it seem as though the visual materials protrude from, and spill out of, their frame. This makes the screen look more like a kinetic sculpture than a fixed and flat surface, even if it is actually—materially—definitely the latter.

In his reflection on this work, Anadol invokes the installation's historical roots in the phantasmagoria and the cinematic screen. The "media wall," in his own words, "turns into a spectacular public event making direct and phantasmagorical connections to its surroundings through simultaneous juxtapositions."[19] Anadol's phrasing suggests he is purposefully alluding to the phantasmagorical tradition. With this invocation of the phantasmagoria, the connection to pre-cinematic kinetic art and other forms of experimentation with visual movement brings a retrospective—or, as Mieke Bal (1999) would have it, a "preposterous"—connection to historical moments and their meanings, yet to be disclosed. The work establishes an architectural hybridity. Its mobile surface expands and transforms its surroundings. It not only makes dynamic the appearance of the material structures, but also suggests permeability of its terrain.

A crucial part of the work's situation is its positioning behind a glass façade. It thus displays a flowing spectacle of digital data layered under the reflected image of pedestrians passing by. As *screen-architecture*, this work expands and infuses its environment with vibrant visuals. Its visual suggestion of material fluidity brings life into the static surface of the façade. It speaks to our senses as we behold its movement. It is spectacularly beautiful, yet it also firmly situates its spectacle in the everyday space that surrounds it. However, does the spectacle also situate us? Or do we just look at it?[20]

Mobilizing Senses

Digital and networked media are characterized by a fundamental disconnection between the modes of operating of these media, the human sensorium, and knowledge. In order for humans to consciously participate in this expanded domain of sensibility, additional mediation is required to "presentify" what is not accessible to human perception. This situation has

19 See http://refikanadol.com/works/virtual-depictions-san-francisco. About the legacy of the phantasmagoria and magic lantern in digital interfaces and media art, see Grau (2010).

20 On phantasmagoria as a tool for "cultural optics," see Gunning (2004). On the retrospective look at past art or "preposterous" history—what has later been called "anachronism"—as a productive take on historical relations going in two directions, see Bal (1999).

motivated the creation of manifold data objects in the form of visualizations, soundscapes and sonifications, 3D materializations, and data-driven interactives in the neighboring domains of art, design, science, and humanities scholarship. These new *knowledge objects,* as I have elsewhere called them with my co-authors Maaike Bleeker and Stephan Werning (Bleeker, Verhoeff, and Werning 2020), both produce and mediate knowledge in the process of making data experienceable. They turn that which essentially does not correlate to human sensory capacities into something with which the human sensorium is capable of engaging. As such, they can play a crucial role in providing access, and thereby modalities of critical and creative relating—to what Mark Hansen (2015) has described as the expanded domain of sensibility.[21]

Yet, the effects and implications of the sensory specificities of these knowledge objects remain underacknowledged, nor are the potentials of these modes of presentifying data fully elaborated upon and/or noticed. Here, I explore and compare a diversity of such knowledge objects. I look at their different media modalities and different experiential qualities that address the senses. This raises the question of how these afford ways of knowing. By approaching several knowledge objects as theoretical objects, we can investigate which—and how—experimental sensory techniques are used for data presentification. With this, I want to draw attention to the onto-epistemological implications of the design of these knowledge objects. Their main implications are relationality and performativity. Understanding the potential and implications of this performativity would benefit from what we call a creative humanities approach, which combines insights from the critical and digital humanities with those from the fields of the creative arts and design.[22]

As Maaike Bleeker (Bleeker, Verhoeff, and Werning 2020) has insisted in our collaboration, Hansen observes that digital and networked media are characterized by a fundamental disconnection between the modes of operating of these media and the human sensorium. He is referring to (among others) micro-sensors, data processors, smart technologies, and search engines, and how they detect intensities, differences, fluctuations, and patterns inaccessible to human sense perception. Their modes of operating do

21 This and the following paragraphs are revisions of fragments from the earlier co-authored publication, written together with performance scholar Maaike Bleeker and game scholar Stefan Werning (see Bleeker, Verhoeff, and Werning 2020). In particular, the concept of the "knowledge object" emerged from our interdisciplinary discussions.

22 The creative humanities approach has been laid out extensively in Van der Tuin and Verhoeff (2022).

not directly correlate to human sensory capacities the way nineteenth- and twentieth-century media such as photography, cinema, or sound recording do. Rather, they "open up an expanded domain of sensibility that can enhance human experience" (Hansen 2015, 4). To access this domain of sensibility, Hansen continues, "humans must rely on technologies to perform operations to which they have absolutely no direct access whatsoever and that correlate to no already existent human faculty or capacity" (4–5). In order for humans to *consciously* participate in this expanded domain of sensibility, therefore, additional mediation is required to "presentify" what is not accessible to human perception.

The inaccessibility of (digital) data has motivated the creation of manifold "data objects" that make that which is inaccessible to human perception experienceable in the form of visualizations, soundscapes and sonifications, 3D materializations, and data-driven "interactives," following the definition of computer scientist Duncan Buell and media theorist Heidi Rae Cooley (2012). In the process of making data present and experienceable, these *knowledge objects*, as we (Bleeker, Verhoeff, and Werning 2020), proposed to call them, both mediate *and* produce knowledge. Considering screen-based installations or projections as knowledge objects, I want to draw attention to the relationship between the sensory affordances of these interfacing objects and how, through sensory engagement, they can become part of practices of knowing. As knowledge objects—i.e. by turning objects, processes, or phenomena that are not directly accessible to human perception into something with which the human sensorium can engage—they can play a crucial role in providing access, and thereby afford modalities of critical and creative relating. They are, as such, fundamentally *performative* in the manner they bring about, rather than represent, these ways of knowing and how they effectuate what they bring about as a result of the way in which they engage the subject/user/spectator. Therefore, it is important that understanding the implications and the potential of this performativity would benefit from a creative humanities approach to data that brings together insights from the digital and critical humanities with those developed via experimentation by the creative arts and design.

In our collaborative writing (Bleeker, Verhoeff, and Werning 2020), we demonstrated a shared analytical approach that we built on a combination of three perspectives for a range of objects from the creative knowledge domains of dance, media art, and digital games. These comprise: a *dramaturgical* perspective in order to theorize knowledge objects as a spatiotemporal design of emergent relations; a *curatorial* perspective that considers how the principles of selection and framing build up meaning; and a perspective

on knowledge objects as shaping various specific dispositifs that bring to the fore the ways this design constructs spectatorial subjectivity, various forms of agency, and other forms of knowledge.[23] With this integration of perspectives of dramaturgy, curation, and dispositif, we designed the outlines of a comparative approach to sense-based sense-making. This concerns not so much a classification or genre of design, but instead points to the various sensory translations of data and the engagements that they afford. We traced a path through visualization, sonification, materialization, and interactivity, and their respective visual, oral, haptic, and playful affordances. This route aimed not only to develop insights in shared or divergent characteristics of various data-based knowledge objects, but also in how creative and artistic experimental design can play a role in a creative humanities approach to, specifically, digital data, algorithms, and AI that researches *through* their design how affordances for sensory engagement contribute to the production of (sensible) knowledge (Bleeker, Verhoeff, and Werning 2020).

As explained in the introduction, to take an object as a *theoretical* object requires an approach that does not use the object to *demonstrate* "what is the case" as an a priori, but rather to allow the object to guide us in finding out and *theorizing* what this would be, from our reflexive encounter with it. I am interested in exploring how, approached as theoretical objects, these knowledge objects are not simple tools or even artifacts, but rather "respond, ('speak back') to the look cast onto them" and "entice viewers to theorize" (Bal 2013, 51–52). Especially this latter claim speaks to their affective implications, which are sometimes systematically disregarded (e.g. Crowley and McDonald 2015)—an issue not confined to digital humanities discourse, with its semi-automated tools affording a seemingly detached viewpoint, as we can see already implied in concepts such as distant reading (Moretti 2013).

Instead, approaching these knowledge objects as theoretical objects draws attention to the onto-epistemological implications of their design: how objects of knowledge and knowing subjects, and the relationship

23 Dispositif, a term I have discussed in the introduction and in earlier chapters, is, as per film theorist Jean-Louis Baudry (1975), part of what has also been translated from French into English as apparatus and refers to the spatiotemporal and relational arrangement and positioning of subject, technology, and image (or object) within a specific (viewing) situation. Here, I use dispositif as the positioning of the sensing and thinking subject, in relation to what philosopher Giorgio Agamben (2009) describes as the apparatus that is "[…] literally anything that has in some way the capacity to capture, orient, determine, intercept, model, control, or secure the gestures, behaviors, opinions, or discourses of living beings" (14).

between them, are effectuated in the *intra-actions* afforded by the design of such objects. The design of data-based visualizations, sonifications, materializations, interactives, and applications exemplify such a relational understanding of *how*, rather than (providing the illusion of) presenting a transparent window onto aspects of the world previously inaccessible to humans, they set the stage for intra-actions that engage in, and indeed effectuate, ways of knowing.

For Mieke Bal, the possibility of objects to oblige us to do theory and to furnish us with the means of doing is what makes an approach to objects as theoretical objects such a useful and important alternative to the more common understanding of objects as case studies. As discussed in the previous chapter, Karen Barad (2007) would call this approach "diffractive." The "objects," Bal (2013) observes,

> are active participants in the performance of analysis in that they enable reflection and speculation; they can contradict projections and wrong-headed interpretations (if the analyst lets them!), and thus constitute a theoretical object with philosophical relevance, whether materially embodied or not. (53)

Accepting these synchronous objects on theoretical terms, we draw attention to the modes of operating of these objects as sites for understanding and their active participation in analysis (as per Bal) and knowledge production (as per Barad). As simultaneously a "zone of encounter" (Hookway 2014, 12) and a "mediating environment" or "critical zone that constitutes a user experience" (Drucker 2011, 10), they can be understood relationally and situationally as interfaces. As such, they provide the contours for a sensory encounter with data. Through enabling this experiential form of relating and engaging with data, they performatively produce sensible knowledge *through* and *about* this data. In the following section, I now take a closer look at some examples that investigate the possibility of other means to presentify what is (otherwise) imperceptible to humans and see how these objects may guide us in theorizing the ways in which they activate different sensory modalities, and how, as a result, they effectuate different ways of knowing. Afforded by the specificities of their design—their material and structural specificities—the objects set the stage for perceiving intra-actions that otherwise stay imperceptible. Such perceptions offer a starting point: how approaching them as theoretical objects can give us insight into the ways in which knowledge objects can yield knowledge *in* the encounter.

Materializing Data

Data materialization, also called *data physicalization*—or in more artistic terms, *data sculpture*—is a domain in which creation, engineering, and research collaborate to promote sensuous engagement. For various scientific fields, physical data objects may enable researchers to demonstrate, analyze, and interpret digital data in radically new ways.

Data sculptures as data-inspired three-dimensional art entails, according to theorists of data visualization and design informatics Jack Zhao and Andrew Vande Moere (2008), the making of "a data-based physical artifact, possessing both artistic and functional qualities, that aims to augment a nearby audience's understanding of data insights and any socially relevant issues that underlie it" (343). Here, we can understand this augmentation as a form of materialization, giving three-, and in some cases also four-dimensionality to static, numeric, digital data. This mobilizes the senses. It means that objects, flows, or processes that are first measured, framed, and translated into fixed numbers can be perceived through the senses by humans in their dynamic, material situatedness again. This is facilitated by their re-materialization into form, texture, and perhaps most importantly, time-based shifting of shape. The aim, then, of data sculptures seems to be, according to Zhao and Vande Moere (2008), to contribute to understanding the fact and impact of data, or perhaps in terms most relevant to our perspective, the presence and performance of data.

Let me briefly return to Refik Anadol's installation *Virtual Depictions San Francisco*. As the artist attests, the work is part of his project to "define new poetics of space through media arts and architecture and to create a unique parametric data sculpture that has an intelligence, memory and culture."[24] As a material object, the architectural data sculpture is a screen surface that has the visual effect of being a thick mass. Second, the work displays a series of fluidly changing abstract vistas, sometimes colorful, sometimes black and white, which, with the optical special effects, seem to materialize and animate static numeric digital data from various sources. For this, Anadol uses publicly available, "frozen" data from DataSF and X's (formerly Twitter) real-time API service and combines them with architectural algorithms to create his site-specific time-based installation. Yet, the visualization of data in animation does not make the data "legible." It does not invite analysis and a knowledge production in the form of "information," but rather in the form of experience—of a sense of awe for the enigmatic and spectacular visuals.[25]

24 http://refikanadolstudio.com/projects/virtual-depictions-san-francisco.

25 http://datasf.org/opendata.

Specifically, with its visual suggestion of material fluidity it not only brings life to architecture—as a three-dimensional optical illusion, it alludes to a sense of touch and an intimate haptic visual relationship with the image. More than an illusion, this relationality is produced by the dispositif of the installation. As Laura U. Marks (2002) has argued, haptic visuality is not only a quality of a way of looking but can also be attributed to the object of the gaze. This intra-active relationship between image and spectator is constituted, then, by the reciprocity of the hapticity, as the haptic quality of specific imagery invites a specific embodied relationship with the work on screen:

> The term haptic *visuality* emphasizes the viewer's inclination to perceive haptically, but a work itself may offer haptic images. Haptic images do not invite identification with a figure so much as they encourage a bodily relationship between the viewer and the image. Thus it is more appropriate to speak of the object of a haptic look than to speak of a dynamic subjectivity between looker and image. (3, emphasis in original)

The artist addresses the specific spectatorial positing and his ambition to create a spectatorial experience that is perhaps the opposite of distant and rational interpretation:

> [The] main motivation with this seminal media architecture approach is to frame this experience [of the parametric data sculpture] with a meticulously abstract and cinematic site-specific data-driven narration. As a result, this media wall turns into a spectacular public event making direct and phantasmagorical connections to its surroundings through simultaneous juxtapositions.[26]

Indeed, the origin of the data is not traceable, and its curating is obscured. However, the work's *dramaturgy* produces a situational and relational co-presence of both data and subject, through the experience of its temporal unfolding—its performance in the here and now.

Between cinema and (media) architecture, the installation presentifies originally geo-locative, now digital data and re-infuses it with materiality and temporality. It makes numeric differences between the discrete data perceptible for a spectator in the form of a spatiotemporal flux, sustained by the optical illusion of three-dimensionality and thickness of the image/

26 http://refikanadolstudio.com/projects/virtual-depictions-san-francisco.

surface. Anadol frames this as his architectural intervention in response to the presence of data in and about the public space:

> Traditionally, architecture cannot produce buildings that transform themselves in response to a[n] environmental data feed. The architecture of the future, however, is enticingly malleable and increasingly collaborative, gathering architects with media artists, designers, programmers and engineers.[27]

This suggests that when working with digital data, the media-architect needs to be an interdisciplinarian in order to work with the temporal complexity of data's origin, presence, and performativity in relation to the public space in which it is situated.

Melting Memories is another screen-based project that comprises a series of data sculptures by Anadol, and which similarly depicts digital data in three-dimensional animations on what, in reality, is a flat surface. Installed in Istanbul in 2018 and New York in 2022, and comprising many other iterations and locations, the work shows a protruding box frame, with impressive large-scale abstract animations enhancing the illusion of depth and texture. For this series, Anadol experimented with technologies developed by Neuroscape Laboratory at the University of California, San Francisco, for neuroscientific research, gathering datasets of the neural mechanisms of cognitive control from an EEG that measures changes in brain wave activity and, as such, can be used to provide evidence of how the brain functions over time. These datasets are used for the algorithms that feed the three-dimensional visual images that, like *Virtual Depictions*, suggest dynamic texture and—emphasized by the theme and name of *Melting Memories*—offer a fugitive temporality.[28]

In both installation forms, while they speak directly to our haptic sense, we cannot touch the light and screen-based images. Movement and transformation also make this object too elusive for detailed exploration and investigation, even if it simultaneously suggests proximity and availability. The origin of the data and its curation—whether in on- or offline spaces, or in the body—is made invisible. The data is presented in order to reflect upon its presence, rather than to analyze its content. What is primarily relayed in its imagined materialization, is the fundamental dynamicity and situatedness

27 http://segd.org/virtual-depictions-san-francisco.
28 http://refikanadol.com/works/melting-memories.

Fig. 4.4. Compilation of a variety of 3D-printed data physicalizations. Image: The Mediated Matter Group at https://derbader.co/making-data-matter.

of the data—time, as well as space, is inherent in all data. Moreover, as argued by digital media theorist Yanni Alexander Loukissas (2019), data is fundamentally local as it is created by humans and their machines, in specific places, at specific times, before the data is re-contextualized by interfaces, and becomes indexes to local—and hence, spatiotemporal and situated—knowledge. To use Baradian terminology, this situating is a "spacetimemattering" that we can see going in multiple directions, mediating between past and present and in its unfolding, presentifying a future (Barad 2007).[29]

Indeed, as Karen Barad (2007) has argued, matter performatively materializes time and space rather than unfolding within them. In this sense, as knowledge objects, the dispositifs of both installations make the spacetimemattering of data experienceable and, as such, yield a form of embodied knowledge about the specific presence of data, both in the

29 About the situatedness of data, building on Loukkissas' perspective, see Van Es and Verhoeff (2023).

public space and in our bodies. Of course, the materialization of data can also be found elsewhere, within multiple fields, and for different purposes. The projects of the Mediated Matter Group, active between 2010 and 2021 at the MIT Media lab, for example, include the use of material 3D-printing techniques to translate complex 3D datasets into fixed, physical, material objects which, contrary to Anadol's works, can be touched, manipulated, and investigated from various angles (fig. 4.4).[30]

Working at the intersection of computational design, digital fabrication, materials science, and synthetic biology, the research group proposes that the materiality of these data physicalizations allows for a specific kind of knowledge, enabling what they frame as a "comprehensive and "inherently intuitive" mode of understanding. They suggest:

> Although conventional screen-based media visualizations are known to be effective, it has been argued that physical manifestations of data sets can leverage active and spatial perception skills, enabling a more comprehensive understanding of presented information in an inherently intuitive manner. (Bader et al. 2018, 4–5)

Haptic perception, here, relies on a physically active sensuous subject and can yield a complete and direct, intuitive, if not intimate, form of knowledge through visual scrutiny. This description suggests a transparency of the medium and direct presentation of information. According to the developers, with use of the so-called *voxel* technique, or 3D-pixel printing, the loss of information that on-screen 3D imagery entails is minimized. The printing technique allows the creation of objects with, and indeed, within, transparent material and enables a physical visualization of compact time-based manifolds such as unconnected point cloud data, lines and curves, open surfaces, and volumetric data. The transparent material is actually necessary for perceiving and gaining insight into the volume and shape of the object. It contains the data object, making it both possible to hold and manipulate, in order to watch it from all sides, while also encapsulating the object. Touch, then, will in this case necessarily always remain on the surface.

These techniques for, and forms of, materialization—the screen-based installations and their print-based counterparts—work in very different ways. While both invoke touch, as folded into haptic visuality in the encounter between image and spectator, touch in each case appeals to different experiences

30 For more about their Making Data Matter project, see http://media.mit.edu/projects/making-data-matter/overview.

and forms of knowledge. Anadol's artworks frame this as an eventful experience of the moment of encounter, whereas the Mediated Matter Group frames their objects with the possibility of material investigation. One perhaps contributes most to an experiential understanding of the emergent, spacetimemattering quality of data, the other to the possibility and necessity of movement of the subject, to gain insight in the volumetric properties of the data object itself.

Sense-Making

In this chapter, I have proposed an understanding of data visualizations, soundscapes and sonifications, 3D materializations, and interactives as knowledge objects. Moreover, I have demonstrated how approaching them as "theoretical objects" and accepting them on theoretical terms can illuminate the ways in which they operate as sites of encounter with data. In that capacity, their design and the specificities of their materiality set the stage for intra-actions that also enable ways of knowing. As also discussed above, Karen Barad (2007) introduces the term intra-actions (as an alternative to "interactions") as part of a radically relational approach to knowing-in-being in which relata are understood to *emerge* from relationships rather than preceding them. From a relational perspective, objects of knowledge cannot be separated from the apparatus within which they are produced, nor can the agencies of the acts of knowing. "Objects of knowledge" are the (temporary) outcome of a process of knowing in being. Therefore, "knowledge objects" must be seen as situated at the epicenter of that process. They are indeed objects, but actively participate in the process of making themselves and entangled aspects of the world known. Objects of knowledge conceal access to the ongoing intra-active processes within which the human knower also participates. Conversely, knowledge objects put these processes center stage. The sensorium is the domain in which this can take place.

Rather than (providing the illusion of) presenting a transparent window to aspects of the world previously inaccessible to humans, in collaboration with the senses, the objects of knowledge discussed above are apparatuses that mediate in relating to that which otherwise would be perceptually inaccessible to humans. From a combination of a dramaturgical perspective, a curatorial perspective, and a perspective on knowledge objects as dispositifs, the relationships between the construction of these knowledge objects, their modes of operating, and their performativity have become clear. These knowledge objects, indeed, are *performative* because of how they enable and produce, rather than represent, ways of knowing.

Defining knowledge objects as sites of encounter that activate a combination of different sensory modalities emphasizes the performativity of knowledge production. In line with this, such a definition also foregrounds the potential of, and for, digital humanities research taking place within these sites. Analyzing and comparing different sites of encounter with data from an expanded perspective that includes the (digital) humanities, but also the creative fields of performance, art, and design—a perspective of *creative humanities*—is an important step in developing our data literacy and, perhaps most importantly, our *sense* of data. Additionally, this adds nuance to the common dichotomy between "digital tools" and "digital artifacts" (Ramsay and Rockwell 2012, 77).

I see this proposal as related to Johanna Drucker's call for a humanities approach to interface theory. In her 2011 essay of the same name, she states: "Interface theory has to take into account the user/viewer, as a situated and embodied subject, and the affordances of a graphical environment that mediates intellectual and cognitive activities" (Drucker 2011, 16). Elsewhere, she calls for a "humanistic interface design" that "applies" a theory of performative materiality (Drucker 2013, 1). Much in line with her double focus on analysis and design, I argue that scholarship and design practices share much of the same goals and see the meeting of both domains as part of the creative humanities perspective with which I work here.

The sensing and sensuous site-specificity of these works raises questions about their specific aesthetics, and how this infuses both epistemological and ethical questions. In other words, how do they work to produce meaningful experiences that mobilize us as thinking and acting, response-able subjects? The works discussed here all explore this relationship between sense-based perception and spatial experiences on the one hand, and the production of meaning and knowledge on the other. Particularly, they examine how the one infuses and intervenes in the other, in mutuality. They also raise questions about contact and action—about how proximity and presence may foster engagement and incite action. How, then, can we understand the subject's spectatorial position and agency within this spatial screening situation?

I want to suggest that by screening, filtering, and territorializing, these works have a relationship—as I suggested in chapter 2, one of *curating*. Here, this curating of the subject occurs in three distinct senses. First, the works design the space in which the subject is situated and construct or curate this space as emergent. Second, these works also curate data by filtering: selecting, processing, showing, and activating it. Third, by interfacing with the data, these works also curate a field of relations. Enclosing the subject with screens establishes a territory that is paradoxical: physically

enclosed, yet apparently infinite. Screens in these works establish multiple pathways between a viewing subject and the data they display, so as to produce a dispositif through which subjects can constitute and transform themselves. This, then, is the emergent and relational situation that they produce: the territory of spectatorship's emergence. Hence my earlier claim that screen-architectures generate situations that can instigate specific kinds of sensations and that stimulate relational connections and thereby infuse our environment with active, and actively curated subjectivities. Yet the specific kind of spectatorship at stake varies, depending on the specific screen-architecture at hand. *In the Air Tonight* aims to create a social consciousness in the spectator by linking specific stimuli to specific data, but *Virtual Depictions: San Francisco* does not. Instead, the latter work creates lush patterns and relief effects that do not allow viewers to recognize in familiar forms, the data they depict.

What is at stake, then, when we consider the screen as/in a given situation? Specifically, how does the aesthetic experience of art work in urban, public spaces—spaces that are literally and figuratively infused with various socio-material, political, affective forces? Or indeed, how does aesthetics work at the level of the *hodos*? The mid-eighteenth-century philosopher Alexander Gottlieb Baumgarten, often considered the founder of aesthetic theory in Western philosophy, described aesthetic experience as a mode of connecting, or binding, through the senses (see Wallenstein 2013). Taking up the consequences of Baumgarten's view, the element *binding through the senses* is, I would argue, key in these examples. All mobilize the senses, actively binding the work to the spectator, who thereby becomes a participant. *In the Air Tonight* deploys color to convey temperature. Anadol's *Infinity Rooms* amplify tactility and hearing in tandem while also enhancing, yet also problematizing, vision through their disorientating effects. As such, the rooms simultaneously isolate and augment the visitor's senses. Finally, *Visual Depictions: San Francisco* limits the senses to that of vision, even when the work's haptic texture invokes the idea and sensation of touch. The work's animated materiality turns vision into more than itself. It makes vision tactile and hence binds viewers by mobilizing the desire to touch what they see and thus to come closer.[31]

31 As far as I know, Baumgarten's *Äesthetik I* has not been translated into English. For a relevant, politically oriented discussion of Baumgarten's aesthetics, see Gaygill (1989, 148–86). About the bond between aesthetics and practical life, as she calls it, visual media theorist, curator, and immersive media producer Jill Bennett (2012) writes: "[Aesthetics] inclines not only toward the judgment of art [...] but also toward a more general theory of sensory-emotional experience, potentially crossing from the arts into psychology and social science" (1–2). Earlier, Bennett

However, for the cases and questions central in this book, it is important to see how, in essence, binding exceeds individual subjectivity resulting from such experiences. *Binding* also implies a form of sociality as the senses are activated in *encounter*—here with artworks and, among others, in various *public spaces* within the urban environment. Indeed, binding is a result of the sensory connections and relatings that emerge between entities. In aesthetic terms, then, binding implies a transformation of the self in the sensory experience of the encounter with an art object. In the cases I have outlined in this chapter, this experience is, to a great extent, shaped by how the works organize space, in the sensory address of screens and projections, and in the transformational effects resulting from relating with the work. This is where the specificity of public space—or in the case of screening situations, the *hodos*—comes into play. All three works use data visualization to impact the environment through the binding effect of the screen, binding the subject with the work's surrounding (public) space through the senses. More than just positioning the subject, binding invites the subjects—or perhaps provokes the subjects—to position themselves in a bond with their environment. *Situation*, as I have used the concept here, implies that relations are not detached from the subjects. On the contrary, these works solicit subjects to participate in them, persuading spectators to want to engage with them.

These installations, with their high-tech look and feel, strongly evoke the idea of the contemporary: they project a sense of being in the now and, with consideration of the spatial aspect, in the here and now. As such, they bring to fruition a latent aspect of older location-based cinematic screens: the capacity to bring the subject into direct relation with her environment. This type of screening is fundamentally and explicitly situational. However, more so than before, urban screen interfaces compel social engagements with the environments that surround them, including the city's problems, such as homelessness and social disconnection. Thus, the situation surrounding the screen becomes as "animated" as the moving images projected upon it. Indifference in the face of these works is hard to sustain. If some form of detachment from self-absorption or self-interest—as could be argued is at the heart of contemporary neoliberalist ideology—is necessary for social connection and engagement, this can be fostered by binding through the senses. From that perspective, these installations are exemplary acts of

recalled Baumgarten's conception of sensitive or sensuous knowledge: "As a primary encounter, unconstrained by the categories, methods, and demarcations of other disciplines and practices, aesthetic perception is a unique nonscientific basis for inquiry" (Bennett 2011, 119).

aesthetic as well as political sense-making as they bring subjects and their environment into a sensitive connection.

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5. Figuring

Abstract: This chapter addresses the placemaking potential of the ***figuring of presence*** in the temporary and transitory states of inter-mediacy of urban screening situations. It asks how screening situations position urban subjects in their surroundings, thereby structuring, enabling, and limiting their potential movements and actions. The concept raises questions of how such scenographic acts ***pre***figure—i.e. design to produce—dramaturgies of bodies and data with various placemaking, affective, and meaning-making effects. A set of related concepts (i.e. ***plotting***, ***pointing***, and ***posting***, and ***following***, ***tracing*** and ***drawing***) are proposed for examining the urban scenographies that are shaped by, and shaped in, urban screening situations of various kinds.

Keywords: projection, urban scenography, presence, inter-mediacy, contemporaneity, prefiguration

Projecting Presence

The *Smart Distancing System* was developed by Dutch artists Jólan van der Wiel and Nick Verstand in response to the COVID-19 pandemic in 2020. It combined principles of motion tracking, distance measurement, and projection for a so-called "design for distance" in public spaces. During the pandemic, in the context of "not knowing"—between being healthy or infected—such design aimed to facilitate being co-present in shared spaces. For their work, Van der Wiel and Verstand used motion sensors and lasers that either positioned individual bodies within flexible circles with a 150 centimeter (5 feet) diameter, or beamed contracting and expanding lines of a specific length (again 150 centimeter or 5 feet) on the floor, so that passing people knew when and how to keep a safe distance so as not to risk infecting, or getting infected by, other bodies (fig. 5.1).[1]

1 This example and other screens and interfaces in the context of the pandemic feature in an earlier publication I co-authored with Iris van der Tuin (van der Tuin and Verhoeff 2020).

Verhoeff, N., *Urban Screens: Situations, Practices, Concepts*. Amsterdam: Amsterdam University Press, 2025
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Fig. 5.1. *Smart Distancing System* (Nick Verstand and Jolán van der Wiel, 2021). Photograph: Joery Verweij.

This artistic intervention for the city's public space took the oscillating state between knowing and not knowing as its basis and responded primarily and explicitly to the ontological instability caused by the pandemic. While the designers themselves refer to the action as an art project, they also point to its possible adoption for practical use in train stations, shopping malls, airports, or other crowded public spaces. In an online article, for example, the makers state that they developed a speculative design with the question of how, with a creative use of technology, art projects like this one can contribute to a shaping of the "one-and-a-half-meter society" (as the pandemic situation was called in the Netherlands). As a speculative design, it offered a prototype to inspire further development in other design projects, but also—and very clearly so in this case—tested its own affordances and implications. As Van der Wiel and Verstand put it, with their design they aimed to make physical distancing more fun, more beautiful, and better functioning.[2]

With its speculative design approach, it also connects with questions about how screens and screening technologies in the public space produce

For more about the *Smart Distancing System* as featured in the Dutch Design Week of 2020, see https://ddw.nl/en/programme/5426/smart-distancing-system. Additional examples of distance design developed in this time, ranging from innovative objects to scenographic proposals, can be found here: https://www.dezeen.com/tag/social-distancing. Another example of the use of mobile, site-specific screens for distancing in public spaces during pandemic time was https://algoritmeregister.amsterdam.nl/en/one-and-a-half-meter-monitor.

2 The project was also featured in the Dutch Design Week of 2020; see https://ddw.nl/en/programme/5426/smart-distancing-system.

environments within which our own position as subjects and inhabitants—here, in a very particular historical situation—emerge. In doing so, it also suggests some provisional answers to these questions. First, it addresses its own temporary and fugitive nature by suggesting its usefulness for a dynamic marking of typical transit spaces such as airports and railway stations. It centers the mobile subject and, quite literally, follows her, with its visualization offering the necessary feedback for her and others in the vicinity—feedback needed for the subject to navigate the uncertain terrain that public space had become. A tracing of dynamic positionality thus folds into the future orientation of navigation and mobility.

As a projection technology, the laser beams use the pavement as a display screen and literally mark the terrain for this mobility. The circular shapes drawn by the interface here foster presence, agency, and mobility within the regime of physical distancing in the public space. Visually capturing and encapsulating the moving body, paradoxically, these shapes allude to conceptual metaphors developed in critical interface theory such as the interface "envelope" (Ash 2015) or "traps" that captivate and capture (Dieter and Gauthier 2019). Such metaphors emphasize how subjects are understood to be constrained and disciplined, at least as much as they are empowered by interfacing technologies. Moreover, with the intersection of the temporarily site-specific mobile presence in navigation at the heart of this design, the project articulates how a *tracing* of such positioning can take shape within a screening situation. That is, it demonstrates, interrogates, and also produces perspectives for analytical and critical understandings of how the tracing and visually marking of a dynamic, relational, and mobile positioning temporarily organizes space, moving bodies, and relating and acting subjects. In continuation of chapters 2 (Curating) and 4 (Sensing), here I further develop the conceptual toolbox by analyzing how *figuring acts* produce scenographic *figurings*, thereby curating, designing, and producing dramaturgies of urban bodies and urban data—in the broadest sense of the word.

Inter-Mediacy

In our contribution to a dossier of articles about public spaces during the pandemic, my co-author Sigrid Merx—a scholar of theater and performance studies—and I conceptualized the notion of urban situations of *intermediacy* (Verhoeff and Merx 2020). We reflected on the then emerging re-organization of social space in response to what would later be labeled

the pandemic's first wave and its ensuing lockdown policies. In the public spaces of lockdown cities, we witnessed how emerging and temporary figurings and reconfigurings of urban public space impacted our possibilities for presence and mobility within these spaces. This was not only the case in response to the dual strategies of locking down and re-opening shared spaces, and the rules and mandates for being present, absent, or at a distance in the public space. At the time, these interventions were also shaped by large public rallies such as the Black Lives Matter protests, #MeToo manifestations, and Pride demonstrations, taking place in many cities all over the globe. These also included the critical and activist responses to the visible traces of our colonial and patriarchal history and led to efforts to publicly remove its monuments and to rename streets, buildings, and institutions. A second change we noticed concerned the double historical sensation of what we called the then current state of "inter-mediacy" between the status quo of what *was*, the still present past, and the uncertainty of the already present future as we might imagine and desire it. We used the hyphen to emphasize this "inter-" as relational and mutual, and to make explicit how, as an in-between state, inter-mediacy is also a mediating—and hence interfacing—moment.

We noticed how the urgency of fast-changing interventions in the social fabric within which we live, work, and connect, mobilized us to think, debate, and protest. Indeed, the heightened awareness of the limitations of the everyday—of what we know, what we can expect, and how we should proceed—seemed to yield a quest for new knowledge and exchange. Clearly, this also involves frictions and invites (re-)actions, especially concerning the parameters and rules for (co-)presence as well as the politics of in- and exclusion. In our essay, we connected these observations of the situation of inter-mediacy with how we recognized dots, lines, and other figures as sometimes literally drawn on surfaces and pavements as temporary designs defining distance in urban public spaces. Examples are the use of materials such as chalk, paint, tape, and lights painted, pasted, and projected on the city's surfaces to enable and organize presence and passage. Such design literally gives shape to the possibilities for bodies to be co-present, to act, and to communicate within these spaces, in these times. That design and its execution result from what I call in this chapter *acts of figuring*, with *figurings* (i.e. a multi-layered and emergent figuration) as their results. From a scenographic perspective, such figuring by means of these highly temporary urban interfaces offers the contours for individual agency and, more broadly, for a public and shared *agen*cy as an emergent quality of this figuring.

To bring these observations together, in our 2020 article we described our observations from within and about these entanglements in our own attempt to "stay with the trouble," to invoke Donna Haraway's (2016) call. In the case of understanding the shaping and reshaping of public spaces, in this context staying with the trouble involves occupying the historical moment in its temporary state of turbulence and taking seriously that this state of inter-mediacy encompasses past, present, and future is also, still, and already "there." This is reminiscent of what W. J. T. Mitchell (2021) has called the "present tense." With the triple meaning of this phrase, Mitchell brings together the present as historical time, as the time of "now," the verb form of the present tense as the moment in which we are and do, and the tenseness, as stressfulness, of these times as a cultural moment. An unpacking of the notion of the "contemporary" as a defining condition of the cultural present—specifically worked with, and through, in the laboratory of artistic practice and the epistemologies that this practice produces—is developed in the publication series *The Contemporary Condition*, edited by cultural theorists Geoff Cox and Jacob Lund (2016) for Sternberg Press, further explored in Lund's (2022) monograph *The Changing Constitution of the Present*. In the series, as well as in Lund's own writings, we can find a notion of the present, not only as layered and complex, but also (and especially relevant here) as *constituted*—i.e. created, rather than always fleetingly escaping us.

Such an onto-epistemological perspective on the present tense notwithstanding, or perhaps because of it, what we can call a state of *inter-mediacy* clearly has a direct impact on the way in which we can be present together (or not) in public, how we can relate to each other, and how we can inhabit the times and places of the present. In design for inter-mediacy, this both implies and entails scenographic *figuring acts* that shape a paradoxical distance for co-presence and mobility within our public spaces. Moreover, in this moment's present tense, it is particularly relevant to consider how tracing and positioning, as a double system of surveillance and protection, is a fundamental part of the logic of urban placemaking.

In the following, I address the placemaking potential of a *figuring of presence* in the temporary and transitory states of inter-mediacy of urban screening situations. Specifically, I am interested in the way in which such situations produce this kind of emerging *figurings*. Thinking through the act and event of figuring—moving between situation, practice, and concept—brings to the fore how screening situations trace and position urban subjects in relation to their surroundings, thereby structuring, enabling, and limiting

their potential movements and actions. While I imagine that the example of the *Smart Distancing System* articulates and addresses its own figuring acts emphatically by clearly visualizing them, I would argue that these are the result of a dual, interrelated process of *tracing* and *positioning*, which can be seen as a fundamental characteristic of most, if not all screening situations. Moreover, this seems to be most evidently so in the case of interactive and site-specific urban screens. With the intricate pairing of tracing and positioning comes a fundamental openness and also an uncertainty. While screens and other screening technologies perhaps firmly situate us and our bodies by (explicitly or implicitly) tracing and positioning our presence, they do so—only and just –

in the very moment and act of screening. The momentary and generative quality of such screening of/in inter-mediacy—also discussed in chapter 3 as a form of *crossing*—is steeped in a time-based, unfolding event-logic. This logic can be experienced as either comforting or unsettling—or both.

Figuring Acts

Figuring refers to the creative act of producing form for thought, and vice versa, thought for form. This is why I prefer to speak here of figuring acts and figurings, rather than of figuration. By using the progressive form of the verb, as I have done throughout this book in the conceptual propositions developed, underscored in the titles of the chapters, I aim to emphasize the nexus between situation, *practice*, and concept. Therefore, rather than using the noun "figuration" to refer to a fixed result of figuring acts or practices, I also use figuring as a noun for the emergent and often layered form-process. I privilege this progressive form of *figurings* above the more fixed and closed notion of *figurations*, as the focus is on the meaning-making process of creative acts of figuring, rather than on the result. From this starting point, I ask how the acts of figuring in "what the case may be"—to use the phrase from the introduction—produce forms, meanings, and actions, and this by means of figures—in whatever shape or shapeshifting form—to which the engaging, spectating, or analyzing subjects respond.

Figuring as a progressive form underscores the creative act with which figures as thought-images are imagined, designed, and performed as a form of *taking shape*. The progressive form gestures toward its emergent and presencing process. By becoming more specific about this distinction between acts and practices, tools or means, and meaning-making processes, we can discern how the acts of figuring actually cut across a set of widely

used categorizations and oppositions. With such a conceptualization, figuring as a lens makes this diversity of meanings productive for our analyses of urban screens and screening situations. This is specifically productive as our analyses concern not only singular screen-objects, but through particular cases, also the larger category of "urban screens" encompassing difference and situated—i.e. historical, cultural, local—specificity.

Please allow me a moment here to clear away a few potential misunderstandings that the more commonly used terms of the *figurative* or *figuration* would potentially provoke. First of all, figuring acts do not necessarily play a role in setting up a traditional opposition of the *figurative* versus the *abstract*, as two distinct categories of representation as they are described in more traditional overviews of genres and periodizations in the field of art history. For example, with the phrase "in a general sense figurative also applies retrospectively to all art before abstract art," as postulated in the online glossary of art terms offered by Tate Modern, such an oppositional categorization becomes connected to a historical perspective on chronology in the history of art. Instead, as a concept, figuring can offer a perspective on the way in which (or, in analysis, ask the question of *how*) figurings are traced, drawn, and produced in figuring acts—how such figures take shape, and how they produce thought.[3]

Second, and related to the former, discarding that binary makes the concept step aside from the opposition of figurative and abstraction as based on verisimilitude and representational realism. Thereby we also take leave of an anthropomorphic standard of the "figure" or "figuration" as having a human-like shape.

Similarly, to discard a third potential misunderstanding, the proposed understanding of figuring is not steeped in the logic of some binary opposition between the *literal* and the *figurative*. This stems from the field of linguistics—specifically rhetoric—in which it is used to distinguish the metaphoric from the non-metaphoric, or "literal" use of words. Within such a binary, the thoughts my sense of figuring acts produce would be underestimated or even eliminated.

Finally, as a fourth potential misunderstanding, figuring does not necessarily and foremost produce "figures" in the sense of characters, as sometimes used in language about cinema, theatre, literature, or other forms of representation. There, it refers to the human, humanoid, or anthropomorphic actant in fiction.

3 The entry "figurative art" in the online glossary of *Art Terms* of the Tate Modern confirms this conventional opposition. See https://www.tate.org.uk/art/art-terms/f/figurative-art.

The understanding of figuring acts and figurings, here, comes closer to—although does not fully coincide with—Gilles Deleuze's ([1985] 2005) *time-image* and Jean-François Lyotard's (1971) notion of *the figural*. Kinship with Deleuze's time-image can be found in the notion of the *figure* as already encapsulating the question of what the form harbors in conceptual terms. *Like* time-images, figurings can be understood as also inherently different from themselves, or essentially exceeding themselves (as image), when they also encapsulate directionality. This would be lines marking distancing to be observed, as in the case discussed above, or marking *futurity* by enabling public presence and mobility for those who observe this distance, the lines thus exceeding their form and "present." The conceptual question that such a thought-figure raises, then, is where, when, and to what such a futurity points. Or, more simply put: what does it "figure out"? To stay with the case of *Smart Distancing System*: the moving lines projected on the floor—the result of tracking and projection technologies—are figurings that design and yield cartographies—i.e. spatiotemporal structurings—of moving, acting, and relating. In conceptual terms, then, through the lens (or question) of *figuring*, we can discern how the work demonstrates a specific and situated scenographic working and placemaking potential.

For the concept of "the figural" as proposed by Lyotard (1971), I turn here to media philosopher David N. Rodowick's (2001) lucid account of Lyotard's concept. Rodowick presents Lyotard's "figural" as a proposal to deconstruct the opposition between word and image, and between philosophy and aesthetic. Instead of that opposition, Lyotard elaborates upon the *figural* as a central concept for analyzing language—for Rodowick, specifically digital audiovisual images. These are not seen as an already fixed sign structures, but as temporally oriented (audio)visual *events*. This view points at the meaning of the experiential that exceeds discourse and the semiotic. Rodowick invokes Lyotard's recognition of the force or movement of figuration when he writes:

> In homage to Lyotard, I can thus present a first definition of the figural as a force that erodes the distinction between letter and line: "The letter is a closed, invariant line; the line is the opening of the letter that is closed, perhaps, elsewhere or on the other side. Open the letter and you have image, scene, magic. Enclose the image and you have emblem, symbol, and letter" [...]. (Rodowick 2001, 1–2, quoting Lyotard [1971] 2020, 268)

The analyst should, therefore, approach the image, not as a representation that points to a past, but rather unpack the image as a *pre*figuration of

its (potential) futurity. This temporal complexity, or paradox, I have also discerned, lies at the heart of a navigational cultural form and visual regime, explained in my earlier study on mobile screens (Verhoeff 2012). Taking up this multi-directional temporality—or inter-mediacy—as foundational to an understanding of the figural through the practice-based notion of figuring acts, I here aim to activate before all the processual and performative connotations of the verb *to figure*. This emphasizes the act before, in connection with the process during, after, and beyond, the (encounter with) figurings.

Figuring, as an enactment or performance of "the figural," can be recognized in shapes and drawings, such as the silhouette, circle, line, arrow, bracket, or matrix. Such geometric forms can similarly be both expressive of, and simultaneously yield, emerging thought. These figurings express and produce the spatiotemporal dynamic structures and (emergent) relational constellations within which human subjectivity is produced. When architect and theorist Bernard Tschumi (2010) speaks of *concept-forms* in his performative perspective on architecture, we can recognize a similar take on the connection between theory and shape or form, between philosophy and aesthetics, or in my terms here, between thinking and making in the act of figuring. The concept-forms Tschumi recognizes in architectural projects are, for example, the circle, the dome, and the envelope, but he also points them out in larger compositions of architectural structures such as those of linear, concentric, and grid cities. Not only does architecture as material design build on such concepts, he argues, but it also produces new thoughts and novel forms of knowledge. With his questions about how material design produces and facilitates movement and events, he foregrounds how architecture comprehends a structuring of spatiotemporal experience as well as making arguments and proposing ideas. Concept-forms—a concept he positions before, in, and after the act of architecture—comes close to the figurings as I speak of them here (Tschumi 2010). As a concept for the bond between acts of creativity and the production of thought, then, figuring is my proposal to think with shapes or forms that prescribe and inscribe thought in form. These forms thereby draw out emerging possibilities for seeing and thinking, and for transforming relations as they are already programmed in shapes, lines, or forms.

Both anthropomorphic and geometric figures are capable of making, articulating, or suggesting thoughts, ideas, and concepts. This brings to the fore how philosophy, cultural theory, and creative practices such as design, scenography, architecture, and installation may share a double-sided creative and conceptual impetus. To give abstract thought shape or form as a creative-philosophical act is to materialize thought: to make thought

possible and make it happen. Moreover, to approach or take a specific shape or form *as* figuring is to conceptualize it—to accept the shape or form as a concept to think with.

Plotting, Pointing, and Posting

Following this proposal, let us now return to some examples of momentary and temporary urban (re-)design or scenography that enacted a "figuring of inter-mediacy," as discussed earlier in the article written with Sigrid Merx (Verhoeff and Merx 2020). While half the examples invoked therein did not involve screens or screen-based technologies, comparing their *family resemblances*—to invoke the Wittgensteinian concept—all can be considered as related works of temporary urban design, and all, albeit in different ways, use pavements or other urban surfaces as their interface. As theoretical objects, we can approach them as figuring acts that raise questions about the principles of figuration that they exemplify. These figurings, as material manifestations of these acts, explicitly activate the multiple and entangled meanings of the concept. In the following, I explore the principles of *plotting*, *pointing,* and *posting* that might be specifically pertinent to the cultural moment of urban inter-mediacy, yet also more generally demonstrate the workings and manifestations of figuring acts in urban design as a form of urban scenography, to emphasize the placemaking implications of the design of public spaces.[4]

As a principle of urban scenographic design, *plotting* can be understood as the organization of a spatial territory with the marking of distributed positions. Such plotting both punctuates and connects, or narrates, space. It marks multiple instances of "here," and thereby suggests a route to take by following different "heres," which will take you to "there." As such, plotting marks successive stages of mobility. In pandemic urban scenographic design for maintaining distance, we can recognize principles of plotting in the use of dots, or closed circles and lines between them that mark intermittent standing positions and the procedural order to follow to get to the end point (fig. 5.2).[5] At the moment of writing, we also saw a plotting of presence in

4 The logic of family resemblances as productive for historical and comparative approaches to screen cultures, I first developed in my book on early cinema (Verhoeff 2006), where I speak of kaleidoscopic constellations of such resemblances. On the relevance of the philosopher to the subject of the present book, see *Wittgenstein and Performance,* edited by Mischa Twitchin (2024).

5 About the principles of *plotting*, *tagging,* and *stitching* of mobile augmented reality in urban space, see my earlier book on mobile screens (Verhoeff 2012, 133–66) and also here, in the earlier

Fig. 5.2. Plotted pavement with chalk. Photograph: Sanne Leufkens for Platform-Scenography (2020).

the use of wider open circles painted in the grass of parks as the outlining of spatial containers, or terrains—a plotting of temporary dwelling (fig. 5.3).

In the introduction to our special issue on urban interfaces for *Leonardo Electronic Almanac*, Michiel de Lange, Sigrid Merx, and I (2019) explained our use of typographic square brackets used for the research group's name "[urban interfaces]." This was meant to indicate how we use the term as a provisional searchlight for a category that we can only really discern by using very open and flexible contours for its qualification. We use the word "bracketing" there both in a spatial and a temporal sense, to underscore with punctuation what I have sketched above as the temporary and provisional character of these urban scenographies of inter-mediacy (Verhoeff and Merx 2020).[6]

The plotting of such spatial containers can create spaces for forms of collective presence. Significant examples of this were the bracketing of standing positions by painted dots and circles or taped-off squares as forms of plotting of public spaces for collective protests (fig. 5.4).[7]

chapter 3 *Crossing*. There, I refer to a related principle of *marking* as discussed by William Uricchio (2019)—a concept that is much aligned with the principles of figuring that I discern here.

6 On the conceptual implications of punctuation generally and brackets specifically, see Van der Tuin and Verhoeff (2022, 38–40 and 155–57).

7 For a virtual exhibition showcasing various pandemic designs, see the project *Back to the Future of Public Space: Postcards from 2020* by Design and Research Lab Rhizoma, at https://www.rhizomalab.com.

Fig. 5.3. Circles for public intimacy in spaces for leisure. Photograph: https://www.standaard.be/cnt/dmf20200524_04970057.

Fig. 5.4. Standing ground: gridding the field for collective action. Photograph: ANP (2020). https://www.omroepbrabant.nl/nieuws/3213863/tilburg-verwacht-zaterdag-honderden-demonstranten-tegen-racisme.

Figuring as a scenographic act in public spaces thus involves a plotting of spaces with the use of figures that both indexically indicate and diagrammatically iconize, using a figuration based on a spatial structure or logic. Thereby, the figures signify temporarily endorsed positions, such as dots or closed circles that mark where to stand or to be. They also signify a border of a terrain, as safe spaces with open circles or

Fig. 5.5. Reclaiming the city by using the pavement as canvas. Photograph: Michael A. McCoy (2020). https://www.nytimes.com/2020/06/05/us/politics/muriel-bowser-trump.html.

squares marking off both an inside and an outside of where one can be among others.

Such visual markings and plotting offer the individual controlling guidance when assuming a position within an orderly and regulated space for a distributed co-presence. It is simultaneously a social contract—if one adheres to their endorsed position, others can take up theirs—while setting the stage for the possible organization and mobilization of groups. *Mobilization*, here, can be understood in both senses of the word: as a calling to *presence* and to *action*, and as a starting point for an event or temporary situation, making mobile that which was fixed, stagnated, or temporarily interrupted. Its military connotation creeps in here to add to the sense of control. For this double-sided notion of mobilization, of taking space and setting in motion, the use of paint and tape both marks and delineates individual presence and thereby allows for co-presence and collective action. Such scenographic design of urban spaces during the pandemic combined principles of inclusion and exclusion, for example, separating potentially healthy and infected bodies, or containing "households." Simultaneously, it allows for making visible the size of the collective body, assembled for a cause that also has to do with social inclusion and exclusion, albeit in those cases not based on "health" or "infection," but on race, gender, identity, or sexuality (figs. 5.5–5.7). In the examples of dots, circles, and squares, we see how plotting punctuates space in a spatial, but also in a temporal sense: a

temporarily opening up future possibilities for taking position, literally as well as figuratively, and thereby for mobilizing public space.

As a second principle of figuring, *pointing* can appear both in discursive and material ways. "Making a point" can be to state or claim an idea or a (strong) opinion. However, "pointing out" or "at" can also refer to marking and indicating a particular site or moment in time, in an act of *deixis*. As a spatiotemporal figure, a point marks the coordinates for the "here" and "now." This inherent situatedness of the point is captured in each picture presented above: we see a park, a street, a sidewalk, a square photographed from a specific point of view at a specific point in time. When we zoom in on particular scenographic figurations in these public spaces, we can discern points that are more ephemeral and fugitive than stable and enduring in nature—sprayed circles in the grass, a chalked plotting of the pavement, letters on the street, a statue covered with projections. Both their presence and design are a direct response to the urgent particularities of these tense times—to invoke W. J. T. Mitchell's (2021) present tense. Moreover, in their *timeliness* these urban scenographic figurings function as punctuation marks. In this sense, they are not unlike the full stop in typography, both separating and interfacing the present and the past, before and after COVID-19; before and after the murder of George Floyd. They both occupy and perform an inter-mediacy, providing us with a temporary vantage point for new perspectives.

Responding to the unstable and temporary state of inter-mediacy, these urban scenographic figurings invite us to reflect on the idea(l)s and politics that inform their design. They bring up burning issues, such as the notion that the economy needed to continue (fig. 5.2), that intimacy in public space was (and indeed remains) important (fig. 5.3), that black lives matter (figs. 5.4–5.6), that our colonial history needs to be rewritten (fig. 5.6), and that there is a need for presentifying a political diversity of bodies (fig. 5.6). Yet these urban scenographic figurings also point towards new suggestions and directions for our cities and societies to take in the future: a safer and healthier (figs. 5.2 and 5.3) "1.5-meter society" (during pandemic times), as well as an anti-racist society that is also more accepting of the diversity of identities (figs. 5.4–5.6), and perhaps more implicitly yet very urgently, a greener, more sustainable society. Each of these implied futures mobilizes us in the present, whether we are advocates or adversaries of these societal imaginaries, each gathering pace and retreating in our own protests and counter-protests.

An implied directionality—of pointing out or pointing at—becomes manifest in the scenographic figurings of these examples. However, also

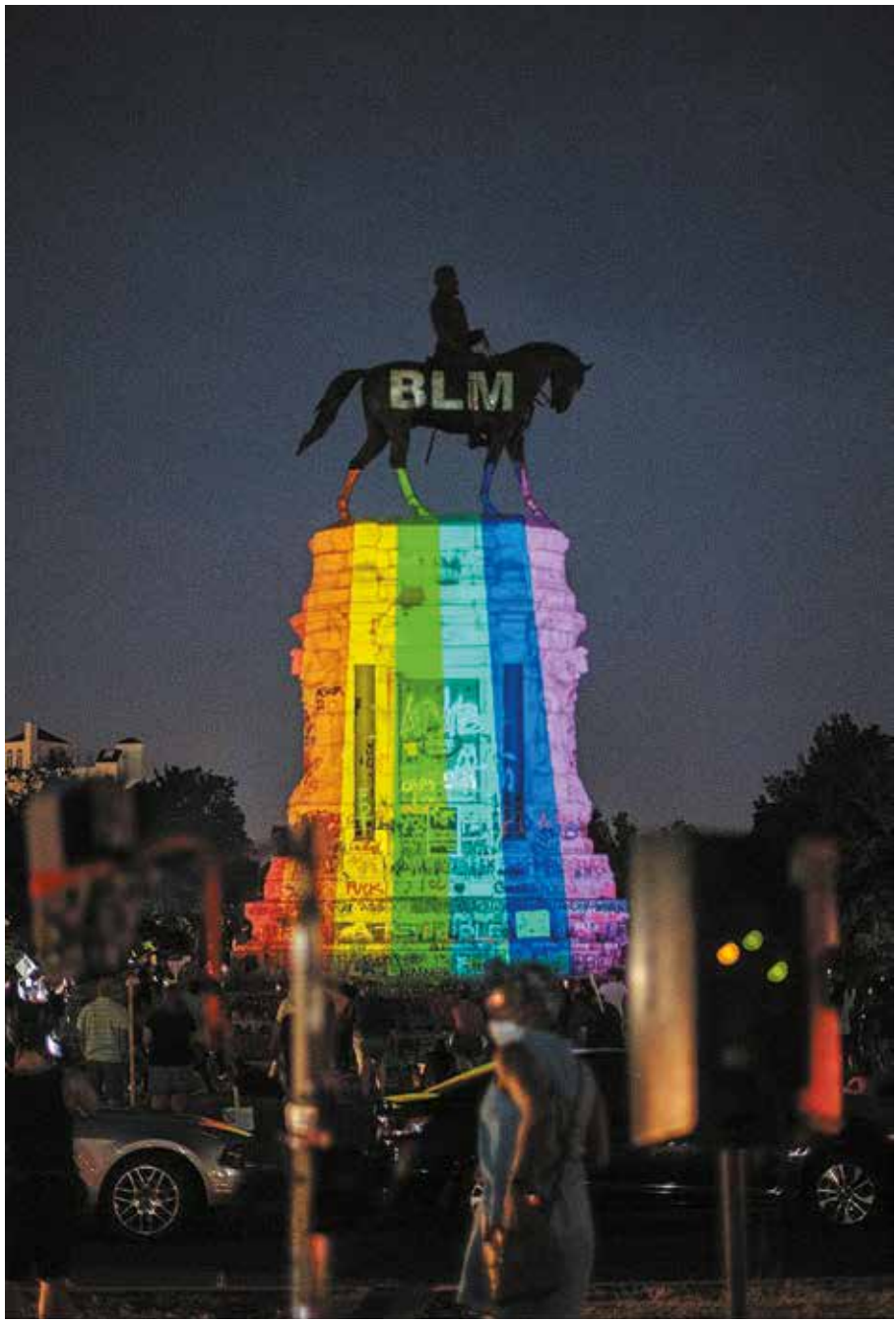

Fig. 5.6. Palimpsestic rewriting of history by using monuments as screens. Photograph: Getty Images (2020). http://www.dailymail.co.uk/news/article-8419995/Black-Lives-Matter-sign-LGBTQ-pride-flag-projected-statue-Robert-E-Lee-Virginia.html.

in the often-used arrows and other indexical markers in our public spaces, these can be highly authoritative and instructive. Taped routings in shops and restaurants, on streets and pavements, and in public transport are often actively policed, with little space for deviation. They constitute predetermined, plotted trajectories. However, they can also be more open and playful. This more positive effect emerges when they gesture towards a less determined future potentiality. No matter the differences in kind, agency, and effect, underlying the act of pointing is always a belief that the facts that are pointed out are true and the future that they point towards is necessary, unavoidable, and will happen eventually. In other words, there is a certain urgency linked to pointing as a scenographic figuring. The line and the circle, as much as the statue or the protest-grid, each in their own way call to attention what is deemed important. Their importance resides in their relevance: they are worth remembering, fighting, or striving for, especially when an issue is ignored, denied, forgotten, or under pressure.

From my perspective, here I can activate the notion of *posting* as a principle of acts and processes of figuring in various ways. Posting as a verb in common parlance, today, perhaps most often refers to the act of posting messages online, by individuals or collectives. The word itself suggests a one-to-many form of communication with a long history of urban public media, such as posters, bulletins, flyers, and newspapers, from both institutional and activist positions. Looking to the past, we may also think of formal notifications about (then) new COVID-19 regulations next to activist testimonies about police violence, profile banners expressing solidarity, or various other signs of protest.[8]

With posting as a principle of scenographic figuring, we can look at various media that display messages, sharing information and state opinions that are posted in physical public spaces. These can be the instructions for walking directions and distance rules, but also messages on signs held by protesters (fig. 5.4), statements painted on the pavement in Washington (fig. 5.5), and visuals projected on the statue of Robert E. Lee in Richmond, Virginia (fig. 5.6). Postings, in these cases, are acts of delivering a message to the public, as well as of re-inscribing the palimpsestic urban canvas. A compelling example is the fencing around the White House perimeter, erected to hold off Black Lives Matters protesters, but quickly re-appropriated and turned into a canvas for artists, citizens, and activists to post signs of protest.[9]

8 About this prehistory, see Huhtamo (2009, 15–28), Mattern (2017), and McCullough (2013).

9 This transformative act was reported at https://mashable.com/article/white-house-babygate-fence-protest-signs.

Another example would be the guerilla light projections adding new layers to the urban canvas that were used in the aftermath of the Black Lives Matter demonstration in the multi-cultural Amsterdam neighborhood De Bijlmer on June 10, 2020. Slogans and images from the protesters' signs were copied and redistributed all over Amsterdam, popping up in the form of projections on urban facades across the city, as echoes from the earlier protest. Indeed, postings as "delivery" can entail physical, material interventions in public spaces. These can be, for example, a rerouting, rewriting, and re-inscribing of the public space, adding new directions and layers, and, in some cases, claiming presence for other (marginalized, oppressed, erased) positions, opinions, and subjectivities.[10]

We also see this expressed in the so-called relay-protest of #AsLongAsIt-Takes, a citizens' initiative to collaboratively claim ongoing attention for the fight against systemic racism in the Netherlands. Starting from the idea that one person can synecdochally protest for many, and trying to creatively work around current distance regulations, every day from 9am until 5am a person occupied a spot on the central Dam Square in Amsterdam while carrying a sign. The sign reads: "Someone will stand here as long as systemic racism exists."[11]

Besides messaging to a wider public, posting can also refer to acts of vigilance, solidarity, or adopting a stance from one's own position within debates. To take a position, then, also means to hold on to that position, to occupy it, and to stand by it: to not give it up, to protect and safeguard it. Posting, thus, can also be a statement *about* positioning: we are here, we are not going anywhere, this will continue, this is not the end. Posting performs this claim for presence, individually or collectively. Therefore, and perhaps paradoxically so, as a territorial or reterritorializing act of marking and claiming a strategic position, posting can also perform a call for activation, transformation, or mobilization.[12]

Following Figures, Tracing Time, and Drawing Dance

The mobilizing and scenographic potential of figuring acts—whether working with chalk, tape, projection, or other media/materials—can be clearly

10 For more on the use of projections in relation to questions of property and occupation, see Chew (2018, 140–47) and Melzer (2018).

11 On urban screens and media architecture as critical spatial practices, see for example Colangelo (2021).

12 See the Instagram account @zolanghetnodigis at http://instagram.com/zolanghetnodigis (zo lang het nodig is, meaning, "as long as it takes").

recognized in the examples discussed thus far around very much punctuated, specific historical moments of mass events, public protests, manifestations, and demonstrations. They bring to the fore how the placemaking potential of urban screens does not only entail the spectatorial territories (cf. chapter 4 on *Sensing*) that they shape, but also produce embodied spaces, with the scenographic organization of affordances for presence, encounter, and relationality, and specifically also giving direction to agency and mobility for subjects within the specific dispositif that these figuring acts establish.

Thus far, the cases presented have exemplified figuring as a creative, scenographic act. This moves away from "the figurative" as opposed to "the abstract," as that already discarded binary would have it, or as essentially taking an anthropomorphic form, as in perhaps the dominant conception of *figuration*. The examples of emphatically non-human geometrical shapes and forms allowed for a very immediately clear distinction from such a binary logic. Moreover, the examples suggest that such figuring acts are creative –productive, emergent, and scenographic—in the sense that their figuring *effects* of placemaking entail, in various ways, movement, mobility, and mobilization. Now, in view of this accent on movement, mobility, and mobilization, taking a leap from the *Smart Distancing System* as the example that opened this chapter, I want to propose another case as my interlocutor in examining figuring as a multifaceted concept for urban screens and screening situations. At this point, and in an encounter with this very different work, it becomes particularly relevant for returning to the above-made distinction, with the help of David N. Rodowick, between the conventional notion of *the figure* as a fixed form, not abstract and based on anthropomorphic recognition on the one hand, and *the figural*, as a temporal event, a process and effect of mediation, on the other.

Acts of Holding Dance, created by the Australian artist Wendy Yu, is a collection of works featuring break-dancers from different communities, created for projection onto building façades in public spaces.[13] In various iterations, the multi-channel installation is composed of several parallel columns, each featuring one dancer at the top of each column, engaged in an improvised breakdance routine (fig. 5.7). While this breaking is projected in a loop, from each dancing figure streams of colors flow down their column as if the dancers are leaking paint. It is hard to describe the spellbinding visual effect of these both mesmerizing and disorienting images. Each projection

13 For Yu's portfolio and the various iterations of the *Acts of Holding Dance* series, see http://wendyyu.org.

Fig. 5.7. *Acts of Holding Dance* for the 2022 BLINK festival in Cincinnati, Ohio. Photograph: Wendy Yu.

within the series shows one or more dancers and similarly trace bodies, limbs, and movements on the façades of buildings.

Yu's works are as complex as they are mesmerizing. Dancers circle, tumble, jump, and seemingly defy gravity. For onlookers below, the large-scale projections high up on the façades skew proportions and perspectives even more. The vertical direction of the colorful, abstract downward flows decenters the dancers' core as the center of movement. This disorients the viewers looking up from street level, making them search for a different vantage point from which to gain perspective and ascertain the center of origin of the figures' movements, while they are unable to clearly determine what is up, down, left, and right. This disorientation is, of course, the point—as is the elevation.[14]

I speak of "figures" here in reference to the recognizable, but therein also disorienting, human-shaped bodily representations of the dancers. Such a use of the figure for these images is clearly not intended to re-affirm an opposition with abstraction or with the non-human—a point of critique to

14 With this, I refer to Wendy Yu's tagline that she uses on Instagram: "Making urban media placemaking experiences to elevate local communities" (see http://instagram.com/wendellsmindblowers).

which I referred above. There, Rodowick's insistence on force and movement in his rendering of Lyotard's conception of the figural provides a specific perspective on these verticalized break-dancers and the streams of color they emanate.

Clearly the figure does not stop at this semblance. This is where the "holding" of the dancing figure (as per the title of the work) becomes a "following" of its figuring act—a following in figurings. Another paraphrastic rendering of Lyotard's view in Rodowick's (2001) strong prose makes this even more emphatically clear. As the author emphasizes, "force," for Lyotard, is inherent in language, and, as he quotes Lyotard,

> nothing other than the energy that folds and wrinkles the text and makes of it an aesthetic work, a difference, that is, a form… And if it expresses, it is because movement resides within it as a force that overturns the table of significations with a seism that makes sense. (Rodowick 2001, 9–10)

These words affiliate the force of language with—and, in this case, perhaps specifically—visual cinematic language, based on an etymological sense of "movement" rather than any technical specificity. The connection between sense, sense-making, and especially the strong, shocking noun "seism" that indicates shock, sheds a particular light on the inter-medial, inter-active processing that figuring, as an act of and in movement, can produce.

Yet there is still more to Yu's artistic intervention. By means of creative coding design, Yu has drawn beautifully animated visual extensions and transformations of the dancers' bodies. She did so by *following*—as in both *tracing* their physical movements and extending these movement by *drawing*—the dancers' bodies, as their limbs seemingly stream away from recognizable, individual dancing human figures into four-dimensional moving and morphing abstract figurings. The work thus projects a *trans-figuring* of first captured, then traced, and subsequently animated more-than-human techno-bodies. Defying their original transitory states, the contemporary, animated images in transmission can now become looped and infinitely figuring and re-figuring. Visually, they appear to drift, fold, and merge into a multimedia and multichannel shapeshifting stream of screen-dance. The nomenclature of "dance" here also already implies such multiple and layered practices—such as methods/acts/events—as improvisation, choreography, motion tracking, coding, animation, video mapping, and live projection. Watching these screen images in live and site-specific projection, spectators can be enticed to read the image both horizontally—discerning each of the five dancing figures lined up next to each other—and vertically. This

verticality results from the figuring-effect of the figuring, the trans-figuring streams of color, and the spectator's simultaneous tracking of these movements, by scanning the evolving image from top to bottom. Simultaneously, going in and out of recognition and tradition, spectators just as easily follow more horizontally framed cinematic cues, as they shift to the verticality and multi-format forms of framing that we so often see in video projections, or video mapping, on the façades of buildings.[15]

Potentially, this verticality has also temporally disorienting effects. Art historian Noam Elcott (2019) discusses the verticality of the phantasmagoric dispositif that he also recognizes in contemporary video culture. Taking up Elcott's media-archeological comparative perspective in relation to the "apparitions and wormholes" of urban media art, art historian Annie Dell'Aria (2020) points out that the difference between cinematic horizontality and the phantasmagoric verticality that Elcott discerns entails a difference between the narrative diegesis of *there and then* and the direct simultaneity and parallel spectral presence of the *here and now*. Such sense of presence characterizes urban media formats of what she calls "portals, holes, or pores" (Dell'Aria 2020, n.p.)—screen formats (also discussed in chapter 4).

The ambiguity of simultaneous horizontal and vertical orientations in the case of Yu's projections results in an anamorphic effect. As another historical visual form popular in paintings from the fifteenth century, anamorphosis presents a distorted image which, from a specific viewpoint, looks "normal," but from most angles appears distorted. It asks the spectator to find the "right" vantagepoint for the optical effect to emerge—to happen, if you will. The skull on the floor in Holbein's *Ambassadors* (1533) is probably the most widely known example. Distorting optical tricks such as these demonstrate the painter's skill to make three-dimensionality plausible, as with linear or color perspective. Here, however, by verticalization and animation, ongoing distortion seems to be explicitly part of the plot—the method of attracting viewers into awe of the spectacle. For the viewer, such awe and possibly included admiration for the skills of the artist is likely to be enhanced by the very act of viewing, experiencing their own ability to read (or cope with) the ambiguity and (il)legible image. In Yu's figuring, the actual break(dance)ing of her figures and the movement of the paint-like colors flowing down extend, not so much the framed image of the dancing body alone, but also the spectacle itself into a spectacle of *urban anamorphism*. More complex

15 While it is not (yet) a much-conceptualized term in relation to screens, much less to urban screens or urban projection art, about verticalization, see Menotti (2019), Whissel (2014), and Sæther and Bull (2020) in the introduction to their edited collection *Screen Space Reconfigured*.

than the sum of its parts, this spectacle yields perceptual experiences of layered figurings, generated by multiple figuring acts.

This analysis of *Holding Dance* invites us to look back and reflect on what we can discern when comparing it with the radically different work(ing) of *Smart Distancing System*. As a partner concept, *crossing* can help us to discern the onto-epistemological logic of the now marked oscillation between capture, tracing, and animation of moving bodies in urban public spaces. Taken together, the concepts of figuring and crossing crystalize their shared screening principle of capture, tracing, and animation, in all their myriad differences. Investigating these principles with, and through, the concept of figuring compels us to think about the implications of these principles. Read together, diffractively, and with the conceptual lenses of both *figuring and crossing*, we can discern similarities and differences between the two. As such, comparing the specificity of individual installations, projections, or screen works with the help of analytical concepts also yields an enriching interference of the concepts themselves. Ultimately, this demonstrates how from their situatedness, each work also reaches beyond its own working. This is the continuum between *hodos* and *methodos.*

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Working With This Book

Abstract: As a readers' guide, this short closing chapter describes how the book is intended to be a starting point for future work—for thinking, for making, for doing. With its offering of a collection of analytical concepts, this book has proposed a method for analyzing the performativity of screens as they offer screening situations for various forms of engagement and relating—with the screens as well as the urban situation within which they are embedded. The futurity of the book, then, lies is its potential use value for continuing critical and creative engagements with other urban screens (or other *hodological* situations) by the reader, when working with this book.

Keywords: concepts, concept-driven situational analysis, methodology, mobilizing concepts

Updating the Book

This book is intended to be self-updating. By this I mean that the concepts offered make sense only when used for new readings of other screen works—updating also our shared catalogue of works—in constellations with other concepts, migrating to, and activated within, other situations. They are updated when used, inflected with other thoughts and meaning, and enriched by other concepts relevant to these future instances in which they are invoked. Concepts are for work, whether that be intellectual or artistic critical and creative work. Specifically, they are for *your* work as the reader of this book. In each new instance in which you use the proposed concepts—in reflection, analysis, or making—they are updated. This is the methodological quality of concepts: the way that they invite to think and to act, and "to work to make them work" in future encounters. I have called this "working to make them work" the *mobilization* of concepts: the actualization of their methodological critical and creative potential in response to various other objects, to questions about, and raised by them,

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and within specific social, material, and historical situations. This means that the book is explicitly intended for use—*your* use. The uses that I may have had in my mind while writing can only take shape in your critical and creative work: in your thinking, analyzing, and reflecting about urban screens, but perhaps also in other creative practices of designing and curating, or otherwise engaging and acting with, or in response to these screens.

Why is the methodological nature of concepts and the varied meanings of "working" with this book useful to think about? To state it succinctly, the book argues for, and demonstrates, what can be summarized as a methodical direction for use in the *concept-driven situational analysis* of screen media and various other instances of urban media, art, and performance, and by extension other performative situations in urban public spaces. The arguments laid out propose and promote a comparative and historical perspective on diverse emerging and transforming practices that are part of a broader public screen culture. This entails an analytical and critical approach that is necessarily as conceptual as it is miscellaneous and varied, as is the environment in which the screens are situated and function: the busy, public, urban streets I have called "*hodos*," to refer to both the publicly accessible level of the street and the method (or "*methodos*") of making things, thoughts, and experiences, happen in this socio-cultural terrain. This is how I would sum up the methodological heart of the book.

This also means that I propose to analyze specific objects that are specific yet never alone, nor autonomous. Instead, these objects are always *situated*. These situations include their viewers: the people present in public space, the actual and potential publics that can encounter and engage with them—either fleetingly or more intensely. And because of that "pedestrian" engagement of viewers who happen to pass by, with partial, full, quick, or slow, attention, those *screen objects*—whether single screens or screen installations—function as situated *screening events*. The gerund underscores that what we encounter, that in which we participate, is always temporary and mobile: both "in movement" and "in place." Moreover, it is also important to keep in mind that their situatedness turns them into specifically "urban" *dispositifs*, in the sense laid out in the introductory chapter. As such, they position, or situate, the spectator in specific ways and mediate meanings that are perhaps to some extent intrinsic, but always also relational. They consist of interfaces, which intervene temporarily yet fundamentally in our cities' material and social environments. They *do* something, as the qualifier "performative" stipulates. Those environments, as a consequence, are also constantly moving and changing—a dynamic process in which the inhabitants of cities participate.

Among the many aspects that deserve, and indeed *need* such critical, conceptual situational analysis are the material and technological qualities that the moving nature of what we see on and via screens necessarily entails. These are designed and organized to produce meaning. Their meanings concern knowledge and spectatorship—two features that require precise and critical analysis. This includes their medium specificity as well as their historical situatedness. In order to grasp those multiple aspects adequately, we need specific as well as specifying concepts. The verbs from which I have purposefully forged my chapter titles in the progressive form are conglomerates of activities, occurrences, and placements that only flexible concepts can designate, keeping them together while also indicating each of them. This is why I consider the manner of working deployed, demonstrated, and encouraged here as *concept driven*.

Yet, there is more to read than simply the descriptions of concepts. For building the arguments around such central concepts, the chapters are founded on the presentation of event-objects that are closely analyzed. The elaborations of these historical examples are meant to demonstrate how the concepts of each chapter function for a detailed and effective analysis. With "effective" I wish to suggest that they are intended to help, demonstrate, and encourage the different usages mentioned at the beginning of this short afterword, which is intended as a sort of reader's guide. In this sense, the examples can easily be considered as case studies. However, cases are not passive; not at all. Rather, they are what has been called *theoretical objects*—according to Hubert Damisch's inventive term, also introduced and explained in the introductory chapter. This concept rejects the passivity of the silenced object, usually considered as "illustration," as if the intellectual argument-makers are the masters that can subject the object to their argument. The concept of the theoretical object, instead, attributes to the object or work the capacity to contribute to, and participate in, the thinking it solicits and assists. This attribution gives the objects as events a paradoxical status, as they are approached as situated and thus specific in place and time, while also moving in both domains, for they also stand in for future objects that can be analysed, or even compared, with the tools they help the student, scholar, or maker to develop.

In a way, we could argue that for this aim, the specific historicity and locations themselves—including their geo-political positionings—are less at stake, as debated in the previous chapters, than the very fact that their situated performativity is taking shape within, and is co-constitutive for, such frameworks. Here, the framing question was about the urban as a specific situatedness. Urban publicness means that situatedness also

entails a socio-material public space: not only discursive, but social, in the sense of connecting, relational, and mediating; and of course, also material, which touches on the emergence and transformation of the figurations—a concept explained in the final chapter. In this sense, the geo-political is not discussed in specificity, but rather in principle.

The five chapters of this book each propose a potentially usable verb form relevant for the "multi-"and designed to assist concept-driven situational analyses—the aim of the book's usages. This means that the user-readers are invited to select and construct their own method. One, more than one, or all the activities mentioned through the chapter titles can be combined, in different manners, with one another as well as with theoretical objects of their future user's choice (yours!).

One aspect of the analyses will always also consider the urban media art as an "intervention." That performativity entails also *prefigurative* effects. The moving quality of the screens calls for a perspective on what is to come. This immediately raises the stakes to the geo- and socio-political implications of such effects. In this sense, the production of knowledge and experience is itself fundamentally and principally a social action; not its "other." This turns spectatorship as well as our scholarship about it—the acquisition and construction of knowledge—into a moment in the process of the political present. We can call this the *hodos* of urban living.

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List of Works

Acts of Holding Dance (Wendy Yu, 2021–)
AR Flashmob (Sander Veenhof, 2010)
AR Flashmob Lens (Sander Veenhof, 2021)
Amsterdam Time Machine (CREATE, 2017–)
Avatar Says No (Sander Veenhof, 2019)
Back to the Future of Public Space: Postcards from 2020 (Rhizoma Lab, 2020)
Bridge, The (Dropstuff, 2014)
Coronovizor (Colorbitor, 2013)
Deep City (Ursual Feuersinger, 2015)
Energy Flow (Andrea Polli, 2016–)
Het leven verspillen aan jou (Pipilotti Rist, 2021–)
Hole in the Earth (Maki Ueda and V2, 2001)
Infinity Room (Refik Anadol, 2018–)
In the Air, Tonight (Public Visualisation Studio, 2014–)
Living Paintings: Nature (Refik Anadol, 2023)
Large Screens and the Transnational Public Spheres (2008–2013)
MegaFaces (Asif Kahn, 2014)
Melting Memories (Anadol, 2018–)
Portal, The (Benediktas Gylys, 2024)
Occupy the Screen (Paul Sermon and Charlotte Gould, 2014)
Piano Staircase (NORD DDB, 2009)
Portals (Shared Studios, 2014–)
Reclaiming the Monument (Reclaiming the Monument, 2020–)
Saving Face (Studio Lancel/Maat, 2012–)
Selfiecity (Lev Manovich and team, 2015–)
Sensing Water (Dan Corson, 2015–)
Serpenti Metamorphosis (Refik Anadol, 2022)
SENSOR (Carten Nicolai, 2006)
Smart Distancing System (Nick Verstand and Jolán van der Wiel, 2020–)
Sonic Skate Plaza / *Sonic Skate Project* (Pablo Serret de Ena, 2013)
Streetmuseum (Museum of London, 2011–)
Street Museum NL (Oneindig Noord–Holland, 2012–)
Time Machine EU (https://www.timemachine.eu, 2019–)
Utrecht Time Machine (Utrecht University & UTM consortium, 2019–)
Virtual Depictions: San Francisco (Refik Anadol, 2015–)
WeARinMoMA (Sander Veenhof and Mark Swarek, 2010)

About the Author

Nanna Verhoeff is Professor of Screen Cultures and Society in the department of Media and Culture Studies of the Faculty of Humanities at Utrecht University. She dedicates her research both to the comparative study of screen media and to the development of methods and concepts for the creative humanities. Previously, she published *The West in Early Cinema: After the Beginning* and *Mobile Screens: The Visual Regime of Navigation* with Amsterdam University Press. This current book on urban screens completes this trilogy that proposes methods and concepts for comparing and analyzing screen media across times and places.

Index of Concepts (and Some Other Terms)

This book discusses the small and large screens, projections, interactive installations, and media architecture that populate our contemporary urban public spaces. It proposes a methodological toolset for the examination of their functioning and their critical and creative potential – ranging from every-day informational or commercial, to playful, artistic, or activist practices. Approaching these screens as street-level urban interfaces, the book offers theoretical concepts for understanding the relationship between various urban screen media, their techno-material design, and their spectators within the surrounding social and cultural urban context.

Nanna Verhoeff is Professor of Screen Cultures and Society in the Department of Media and Culture Studies of the Faculty of Humanities at Utrecht University.

"This book offers a welcome stock-take of contemporary developments in urban screens understood as both material and conceptual practices. Verhoeff uses close reading to explore the layered arrangements that bring screens, bodies and places into specific, situated conjunctions. Her book advances the idea that curating urban screens has the potential to contribute to distinctive modes of urban criticality and care." – Scott McQuire, University of Melbourne

"Verhoeff offers thoughtful insights not only for scholars but for designers and curators of urban screens. This book is a welcome resource for practitioners of urban media art to develop a nuanced understanding of the relational dynamics that shape media in urban space." – Kristy H.A. Kang, Arizona State University

"A unique and compelling book that will be of interest to a range of thinkers and makers across media studies, cinema studies, performance studies, and the humanities. Verhoeff outlines the unique potential of screens as objects to think through, on, and with – and deftly connects this to wider questions (and stakes) of identity and perception." – Dave Colangelo, Toronto Metropolitan University

"A remarkably insightful culmination of over a decade of the author's engagement with urban screens, this book offers a nuanced and multi-faceted set of frameworks and methods for effectively analyzing the screens that co-constitute our urban environments." – Stephanie DeBoer, The Media School, Indiana University

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