Screen Space

Reconfigured

EDITED BY

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MediaMatters

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Preface

Susanne Ø. Sæther and Synne T. Bull

This volume has taken shape over an extended period of time. It was prompted by the symposium *Re-Placing the Cinematic*, which we organized at Atelier Nord in Oslo in 2013. Under scrutiny during the symposium was 'the novel possibilities for exploration of physical and virtual space as well as geographical place' opened up by the expansion and migration of cinema to new platforms and sites. We thank the speakers of this symposium, which included Noam M. Elcott and Tom Gunning, whose papers presented at the event have been further elaborated in their essays included in this volume. We thank the Norwegian Artistic Research Programme and artist Jeremy Welsh's initiative for the research project that originated and funded the symposium. Additional funding for the conference came from the Oslo National Academy of the Arts and the Norwegian Cultural Council. For hosting the symposium and additional economic support, we thank Atelier Nord and former director Ivar Smedstad. We also want to express our gratitude to Liv Hausken, Head of the Media Aesthetic research group at the Department of Media and Communication, University of Oslo, for creating a generous platform for sharing work in progress, and our peers in the group for thoughtful and sharp responses to the project as it was reshaped into this book. Eivind Røssaak and Ina Blom have read drafts of our texts for this volume, and we thank them for their perceptive comments. The Department of Media and Communication and the Department of Philosophy, Classics, History of Art and Ideas, both at the University of Oslo, granted economical support for research assistance and copy editing. Kiersten Johnson has provided her superb language skills to secure flow and readability in the chapters written by the non-native English speakers. Liv Brissach has served as our invaluable, flexible, and precise research assistant. The University of Oslo's publishing fund granted support to enable the open access publishing of the volume. We are grateful for the permission to reprint Noam M. Elcott's essay 'The Phantasmagoric *Dispositif*: An Assembly of Bodies and Images in real Time and Space', first published in *Grey Room* (No. 62, Winter 2016), and Nanna Verhoeff's 'Surface Explorations: 3D Moving Images as Cartographies of Time,' which was first published in Italian in the journal *Espacio, Tiempo Y Forma* (No 4, 2016). Lastly, we thank the authors in this book for their excellent contributions and their patience in the process.

Introduction: Screen Space Reconfigured

Susanne Ø. Sæther and Synne T. Bull

Immersed in digital 3D stereoscopic vision, we float in a low orbit above Earth's atmospheric threshold, which glows blue against an otherwise black screen. A velvety, thick silence fortifies the authenticity of this sensorial encounter made possible by way of seamless integration between cinematographic excellence and high-performance computation. In this visually immense opening sequence of director Alfonso Cuarón's film *Gravity* (2013), a few minutes later we see astronaut Dr. Ryan Stone (Sandra Bullock) being hurled into the depth of space after a deadly shower of space debris severs her lifeline to the ship. Our gaze trails Dr. Stone's detachment and subsequent spin into the far distance. Within one continuous camera movement, and as such distinct from its 20th-century emblematic predecessors, *Gravity*'s virtual camera moves from a buoyant overview increasingly closer until at some point we effortlessly penetrate the thin layer of the protective visor into the inner helmet's claustrophobic atmosphere.[1] The shot ultimately cuts to Dr. Stone's point of view, i.e. into her head. This is the 21st-century plastic screen space tailored for a floating spectator, where any connection regardless of scalar, material, or temporal disparities can be rendered into a coherent, elastic, and convincing cinematic space. Measured by its revenues as well as critical appraisal, *Gravity*'s employment of the capabilities of digital 3D to create a novel, seamless rendering of deep as well as proximate space was heralded as a victory for linear, theatrical

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1   Perfectly tailored to the vacuum in outer space, the shot for a second reverberates Dr. Frank Poole's (Gary Lockwood) soundless spin into the void, caused by supercomputer Hall's bad-tempered behaviour in Stanley Kubrick's revolutionary *2001: A Space Odyssey* (1968), as pointed out by Stuart Bender in "There is Nothing to Carry Sound".

cinema in an age characterized by cinema's radical relocation to new arenas and platforms.[2]

Gravity presents us with a configuration of on-screen spatiality—or what we with an art historical terminology could call pictorial space—that is distinct for 21st-century moving images. As outlined in detail above, this is a profoundly malleable cinematic space that, through visceral effects, invites continuous floating and traversal across vast distances, across cosmic and earth-bound positions, physical boundaries, and the threshold between human and non-human agents. *Gravity* thus seems to confirm William Brown's claim of digital cinema more generally, that it tends to favor an intensified and unbroken spatial continuity that 'suggests a mastery of space that is beyond the abilities of the analogue camera alone' but within the capacities of the virtual camera.[3] With digital 3D, the continuity effect is further amplified, played out along the z-axis and into the space of the spectator. Indeed, by now, *Gravity* has become an emblem of the viability of digital 3D cinema, with this hyper-continuous, stereoscopic spatiality as its main draw.[4] However, as Thomas Elsaesser has convincingly argued, digital 3D is but 'one element among many' that is 'resetting our idea of what an image is and, [and] in the process, is changing our sense of spatial and temporal orientation and our embodied relation to data-rich simulated environments' in the 21st century.[5] Echoing Erwin Panofsky's seminal work on the Renaissance linear perspective, for Elsaesser 3D is a 'symbolic form' for this century; an emblem of a whole set of novel spatial configurations and relations dispersed across contemporary screens. As Elsaesser contends, the proliferation of new spatial renderings that we are seeing across 21st-century screens does not simply produce a particular kind of view but also corresponds to the production of an 'ideal spectator' who is 'floating, gliding or suspended'.[6] Ultimately, what these new spatial configurations amount

2   For a discussion of the dual conception of 'deep space' (both as the vastness of cosmos and as cinematic space) produced through the skillful use of 3D in *Gravity*, see Sarah Atkinson, "Gravity – Towards a Stereroscopic Poetics of Deep Space".

3   Brown, *Supercinema*, p. 44.

4   See Spöhrer, ed., *The Aesthetic and Narrative Dimensions of 3D*, for a collection of essays that investigates the 'aesthetic and narrative space of possibilities for 3D film' as it has resurfaced in its digital iteration, thereby claiming the creative and economic viability of digital 3D (p. 22). Whereas Spöhrer's volume overlaps in some sense with the present in its foregrounding of emerging on-screen spatialities, it does so within the constraints of stereoscopic cinema rather than seeing these novel 'spaces of possibilities' as part of a larger setting of spatial configurations.

5   Elsaesser, 'The "Return" of 3-D', p. 240, 221.

6   Ibid., p. 221.

to is a set of novel relations between the human, embodied spectator and her environment.

With this volume, we follow Elsaesser's lead and set out to explore the many other novel spatial configurations that, like digital 3D, may be seen to partake in an overall repositioning of the embodied spectator in relation to the screen-saturated milieu of the 21st century. Importantly, while digital 3D may be the paradigmatic example of emerging spatialities of the 21st century, it is only one. Under the compound concept of screen space, a term that is further discussed below, the present volume assembles eleven case studies from a selection of expert voices across the disciplines of film and media studies and art history in order to present a timely analysis of some of the multiple reconfigurations of spatial tropes, conventions, and representations we currently encounter across a range of contemporary screens. In addition to digital 3D cinema, which is the main subject of two of the essays included here, the essays solicited for this volume cover a wide range of contemporary spatial configurations as encountered in moving images. Among them is the tendency towards so-called 'vertical framing' and variable aspect ratios presently seen across a range of screen practices, and the axial (re)orientations of the spectator's position in relation to mobile screens, as such screens increasingly are used not only for consumption but also production and thereby foreground a proximate spatiality. An intriguing co-presence between proximity and distance is exemplified by the haptic interfaces of touchscreens as evoked in recent video art, which through their conjunction of (touchable) flatness and (perceptual) depth recall the stacked tableaus of early cinema, yet now within the perceptual and computational parameters of 21st-century digital media.

As should be evident from these examples, the cases of reconfigured screen space examined in this volume span from highly professionalized screen practices, like mainstream cinema, to amateur ones such as mobile phone videos; from art, including experimental film and video installations, to mass attractions such as holograms projected at stadium concerts. Our cases also span a range of different moving-image technologies and viewing contexts. Apart from the fact that the spatial configurations explored in this volume are experienced, in one way or another, as new or reconfigured, they share the following features: they are encountered in moving images as these are displayed on and by screens, and they surface prominently—either at the centre or at the forefront—of 21st-century media culture.

By the phrase '21st-century media', we here want to foreground two dimensions, one quantitative and one qualitative. First, we use the phrase as a straightforward demarcation of a given timeframe: roughly the last two

decades. The majority of cases explored here are from the present century, and the book as such is firmly established within a contemporary discourse, while some essays offer important contributions of historical precedents. Secondly, our use of the term is informed by Mark B. Hansen's conception of the 21st century as an era that has seen a fundamental reordering of the relationship between human sense perception and medial operations that makes it substantively different from the 20th century's versions. From Hansen's far-reaching theorization of 21st-century media, we find particularly relevant his claim about the fundamental incompatibility between, on the one hand, human sense perception and faculties, and on the other, the computational processes of contemporary media.[7] According to Hansen, 21st-century media differs from the previous century's media forms in that while they 'open up an expanded domain of sensibility that can enhance human experience', they also work at scales—micro and macro—that make these operations not only unfathomable but outright inaccessible for any human capacity.[8] Yet these operations still 'impact our sensory lives in significant ways', but they do so 'through embodied and environmental sensory processes' that we cannot consciously or perceptually grasp.[9] As such, Hansen points out, 21st-century media marks a 'shift from agent-centred perception to environmental sensibility', wherein human agency is dispersed across and configured by the networked, computational media that make up our contemporary living environment.[10]

Whereas the very processes and operations of 21st-century media may be ungraspable for our human sensory capacities, these media however also do have a perceptual side: they display images and information we perceive through hearing and sight, and the devices that these operations are relayed through are habitually touched and handled. Guiding the conceptualization of this volume is our contention that the manner in which 21st-century media produce and represent space for our perception ultimately impinges on the question of the position of human agency and experience in the current medial environment.

That we here assume 21st-century media to be qualitatively different from the modern media of the 19th and 20th centuries does not, however, imply that the empirical examples of screen space explored here are considered to represent a fundamental rupture with earlier spatial forms and

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7   Hansen has put forward this claim in his book *Feed Forward: On the Future of Twenty-First Century Media* (2015), based on his revisionist reading of Alfred North Whitehead's philosophy. Yet it is traceable throughout his previous scholarly production.

8   Hansen, *Feed-Forward*, p. 4.

9   Ibid., p. 38.

10   Ibid., p. 5.

configurations. Rather, as is evident in many of the essays, we see continuities and discontinuities form across a sedimented media culture, in line with the media archeological approach advocated by Erkki Huhtamo and Jussi Parikka.[11] Indeed, whereas some of the spatial configurations considered in this volume may appear unprecedented and genuinely new, a number of them have clear precedents in the 19th and 20th centuries, including proto-cinematic attractions, early cinema, and avant-garde art. These are historical practices taking place at earlier moments that, like the present, are marked by intensified medial transformation and experimentation. Nonetheless, while contemporary configurations of screen space may have their 20th-century precedents, their resurfacing in the networked, computational moving image culture of the 21st century make for novel spectatorial perceptions and experiences.

The Concept of Screen Space

The compound concept of 'screen space' is crafted for this volume to provide an umbrella term for a number of different but related tendencies in the representation, production, and perception of space within 21st-century screen culture. First off, we admit that the term itself—*screen space*—could appear confusing rather than clarifying, combining two terms that are already tenuous. As is well established, the term 'screen' has multiple meanings in the English language. In Erkki Huhtamo's outlining of a 'media archaeology of the screen', or what he terms 'screenology',[12] we find the following quote from the *1911 Century Dictionary and Cyclopedia* (originally published in 1889), which demonstrates the range of this term's meanings:

> [a] covered framework, partition, or curtain, either movable or fixed, which serves to protect from the heat of the sun or of a fire, from rain, wind, or cold, or from other inconvenience or danger, or to shelter from observation, conceal, shut off the view, or secure privacy; as, a fire-screen; a folding-screen; a window-screen, etc.; hence, such a covered framework, curtain, etc., used for some other purpose; as, a screen upon which images may be cast by a magic lantern; in general, and shelter or means of concealment.[13]

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11   Huhtamo and Parikka, *Media Archaeology*.
12   Huhtamo, 'Screenology; or Media Archaeology of the Screen', p. 78.
13   Ibid., p. 77.

We can, in this early definition, identify two fundamental meanings of the term that are of particular relevance for the spatial emphasis of this book: the screen as an object that divides and thereby defines physical space (screen as a 'covered framework, partition, or curtain' that protects, shelters, conceals); and the screen as a means for transmitting and displaying images ('a screen upon which images may be cast by a magic lantern'), which, in turn, represents space in certain, conventionalized ways.

The former conception of the screen can be traced back to texts from at least the 16th century, where, as Huhtamo notes, the screen designated a 'contrivance for warding off the heat of fire or a draught of air' as listed in the *Oxford English Dictionary*.[14] The latter conception of the screen, which foreshadowed the contemporary understanding of screen as a means for transmitting and displaying images, emerged during the early 19th century. One of the earliest such examples recorded by the *Oxford English Dictionary* dates back to 1810 and described the highly popular entertainment known as the phantasmagoria. Further expounded by Noam M. Elcott in this volume, the phantasmagoria featured one or more Magic Lantern projections on semi-transparent surfaces, smoke or wall, using mirror or rear-screen techniques to hide the source of the image. By the end of the 19th century, the word *screen* was being used as a metonymy to represent and refer to the cinema 'as the art of the screen, as opposed to the theatre as the art of the stage'.[15] As electronic and digital technologies of producing and displaying moving images have been added, however, 'the screen' has become the connecting term between the many different technologies and devices on and through which moving images are experienced, be they small or big, projected or electronically transmitted via power-activated liquid crystals.

In this volume, we acknowledge this duality inherent in the concept of 'screen': the screen both as an object that in itself has spatial extension and that parts and defines the physical/actual space in which it is placed, and as a surface/means for displaying images holding their own spatial representations. Referring to Huhtamo again, we also acknowledge that screens, although two-dimensional surfaces, often elicit an experience of three-dimensionality extended through a variety of representational and technological means, such as surround sound and stereoscopic vision systems.[16] Our main focus in this book, however, is the spatial renderings within and on the screen surfaces themselves; what one within an art

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14   Ibid., p. 82.
15   Chateau and Moure, 'Introduction: Screen, a Concept in Progress', p. 14.
16   Huhtamo, 'Elements of Screenology'.

historical terminology could call pictorial space. Screens, as Huhtamo points out, 'are also framed, which metaphorically associates them with paintings or windows', a notion elaborated extensively by Anne Friedberg in her two books *Window Shopping* and the *The Virtual Window*.[17] Even less settled than the concept of screen is, of course, the concept of space, to which a multitude of diverse scholarship has been devoted. We return to this topic in our discussion of recent treatments of space in film and media theory below.

Despite these potential misgivings, we have sought to craft the combined term 'screen space'. We have done so on the basis of purely empirical and pragmatic grounds. 'Screen' here simply designates any surface containing or displaying images, be it reflective or projective, whereas 'space' refers to the way any spatial dimension—be it room, field, landscape, site, architecture, or environment—is represented on and by these surfaces. Hence, what the present volume specifically addresses is the screen as a surface for projection or electronic emission of moving images, which represent, produce, or express spatial relations, many of which currently appear as reconfigurations or intensifications of earlier spatial tropes and conventions. In short, it is predominantly *on-screen space* that is the analytical focus of the volume; that is, the spatial relations we see on the screen. However, any discussion of on-screen space will by implication amount to a reflection on the demarcation of this space against both off-screen space or the hors-champ/out-of-field, as well as the physical space in which the screen itself is placed, variously referred to as the space of the spectator, the space of the auditorium, or the space of the gallery, depending on the context. This demarcation between on-screen space and its outsides is of concern in some of the essays in the volume, but not as their core subject. Hence, whereas we foreground and focus here on on-screen space, on-screen space is seen to both reflect and partake in an overall shift in the production and perception of space as such. It is in this sense that *Screen Space Reconfigured* is devoted to the analytical, critical, and theoretical examination of the novel spatiality rendered by and on 21st-century screens.

A Spatial Turn in Film and Media Studies?

Since around the millennial turn, one can discern at least four (partly overlapping) trajectories in film and media theory and analysis that have

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17   Friedberg, *The Virtual Window*.

increasingly emphasized the importance of the spatial dimension. While being informed by these developments to various degrees, the present volume synthesizes and carves out an additional position in ways that are expounded below. First, what has been labeled a 'spatial turn' within media studies can be traced throughout the previous decade, as convincingly argued by André Jansson and Jesper Falkheimer.[18] Arguably spurred by the resurgence of theories of space across the humanities and social theory at the end of the 20th century as well as the intensified mediatization of society brought on by digital, networked technologies, the spatial turn in media studies foregrounds the increasingly complex relationship between space, technological use and distribution, and mediated communication and information.[19] Notable contributors to this 'turn' are, for example, Anna McCarthy, Nick Couldry, Lisa Parks, Rob Kitchin, and Martin Dodge, who all have critically examined the material infrastructures, everyday experiences, social conditions, and/or power relations produced across various cases of medial-spatial arrangements.[20] Another subfield within this 'spatial turn' is the increasing number of studies devoted to globally dispersed sites of media production and consumption and the flows between them.[21]

A core insight driving the spatial turn in media studies is that '(t)hinking about space today requires thinking about *media space*', as Stephen Monteiro has claimed: media 'do not merely penetrate or occupy space' but also 'produce and shape it'.[22] As implied in Monteiro's echoing of the title of Henri Lefevbre's seminal study *The Production of Space*, media studies' spatial turn is indebted to French critical theories, if filtered through the resurgence of theories of space across the humanities and social theory at the end of the 20th century. In addition to Lefevbre, the works of Michel Foucault, Michel de Certeau, Guy Debord, Marc Augé, Jean Baudrillard, and Paul Virilio are field-generating, 'all of whom explore the spatial characteristics of power relations, technological deployment, and the generation of meaning in

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18   Jansson and Falkheimer, *Geographies of Communication*, p. 7.

19   For influential theories of space within social and globalization theory, see for example Bhabha, *The Location of Culture*; Soja, *Postmodern Geographies*; Soja, *Seeking Spatial Justice*; Soja, *Thirdspace*; Harvey, *Spaces of Global Capital*; Jameson, *Postmodernism*; Jameson, *The Geopolitical Aesthetic*.

20   McCarthy, *Ambient Television*; McCarthy and Couldry, *MediaSpace*; Parks, 'Earth Observation'; Parks and Starosielski, *Signal Traffic*; Parks, *Rethinking Media Coverage*; Kitchin and Dodge, *Mapping Cyberspace*; Kitchin and Dodge, *Code/Space*. For a far more nuanced outline of the different positions within the spatial turn in media studies than what is possible in this context, see Monteiro, 'Rethinking Media Space'.

21   See for example Hallam and Les Roberts, *Locating the Moving Image*.

22   Monteiro, 'Rethinking Media Space', p. 281; Lefevbre, *The Production of Space*.

post-industrial Western societies', as Monteiro summarizes.[23] Whereas the fundamental insight of the deep entanglement of media technologies and their uses with the social repercussions of spatial production also informs the present volume, its core focus, cases, and methodologies depart from those that fall under the rubric of media studies' spatial turn in significant ways. Most obviously, many of those studies draw heavily on ethnographic methodologies, theories of communication, globalization theories, and/or the field of human geography, whereas the site of theoretical and analytical intervention in this volume is a much narrower focus on on-screen spatial representations and relations as brokered by contemporary screens.

Second, in the same period, the field of film studies has attempted to come to terms with the migration of cinema onto multiple platforms, materialities, institutions, and spaces, ushered in by digitization. Unbound from celluloid, film projector, and the single screen of the auditorium, the cinema of today is to be found on mobile phones, architectural structures, and geographical sites, in galleries and museums, and dispersed in networks and pixels. To grasp this new condition, film theorists have mobilized metaphors and a terminology of a decidedly spatial nature. As Vinzenz Hediger has remarked, André Bazin's ontological query '*Qu'est-ce le cinéma*? (What is Cinema?)' (1964) has thus been reformulated repeatedly by film scholars to a question of topology and what is perceived as the far more pressing '*Où est le cinéma*? (Where is Cinema?).'[24] Sarah Atkinson, for one, has taken this question as a point of departure for her empirical case studies of what she has called 'emerging cinema': that is, contemporary cinema that takes place 'beyond the screen' and the conventional theatrical setting, yet still somehow afford cinematic expressions and experiences.[25] Other spatial conceptions of cinema's material, social, and cultural migration are Francesco Casetti's notion of 're-located cinema' and Timothy Corrigan's notion of a 'cinema without walls', the latter proposed already in 1991 when cinematic migration was budding through new patterns of film viewing and production installed by technologies such as VCRs and cable TV.[26] Titles such as *Cinema Beyond*

23   Monteiro, 'Rethinking Media Space', p. 281.
24   Hediger, 'Lost in a Space and Found in a Fold', p. 61. See Dercon, 'Gleaning the Future from the Gallery Floor'; Casetti, 'Filmic Experience'; Hagener, Where is Cinema (Today)? pp. 15-22.
25   Atkinson, 'Beyond the Screen. Emerging Cinema and Engaging Audiences', pp. 1-15. Among her examples are so-called 'event-led' cinema, in which film screenings are augmented by elements such as synchronous live performance, site-specific locations, social media engagement, and various simultaneous interactive sensory experiences including eating, smelling, and dancing.
26   See Casetti, 'The Relocation of Cinema'; pp. 1-12; Casetti, 'Cinema Lost and Found'; and Corrigan, *Cinema Without Walls.*

Film (2010) and *Mapping the Borders of Cinema* (2012) also illustrate the prevalence of a spatial vocabulary to chart the demarcation of cinema in the 21st century, as does the revitalization (and arguably, reduction) of Gene Youngblood's concept of 'expanded cinema' to designate the range of new platforms and contexts onto and into which cinema is migrating.[27] Indeed, Hediger has suggested that we take this abundance of spatial metaphors seriously and see them as markers of an inherent spatiality of film theory itself.[28]

While Hediger's suggestion has produced a welcome foregrounding of the 'topological undertow' in film theory, this volume takes another route.[29] Here we look instead for cases of spatialities and topologies not in film theory but in the contemporary moving image itself. In so doing, this book finds a model in scholarship of early cinema, particularly within the new film history advocated by Thomas Elsaesser and others, which are considered by some to be a branch of media archaeology.[30] The spatial focus in early cinema is addressed by Mary Anne Doane, Antonia Lant, Giuliana Bruno, Tom Gunning, Miriam B. Hansen, and Wanda Strauven, to mention but a few.[31] For our purposes, what is central in much of this scholarship is its historically informed sensitivity 'to the construction of a space [...] which is typical of the cinema' and irreducible to its pre-cinematic antecedents, as Elsaesser has stated.[32] This volume aims for equally sensitive analyses of the construction of spaces that are typical of and distinct for contemporary moving image practices as they unfold across a range of different screens, if not without antecedents, or yet reducible to them. Moreover, early film scholarship stands as a model, as on-screen space is frequently considered in continuity with both its technological-material underpinnings and the social and sensorial experiences it effects. A touchstone is, of course,

27   Albera and Tortajada, *Cinema Beyond Film*; Koch, Pantenburg, and Rothöhler, *Screen Dynamics*. See Pantenburg, '1970s and Beyond', for a perceptive discussion of the often reductionist employment of Youngblood's notion of 'expansion' as a purely spatial term in contemporary discourse, which does not acknowledge the consciousness-expanding call at the core in Youngblood's book.

28   Hediger, 'Lost in Space and Found in a Fold', p. 62.

29   Ibid.

30   Elsaesser has in several texts outlined the non-teleological thrust of new film history as a form of media archaeology. See for instance Elsaesser, 'The New Film History as Media Archaeology'.

31   Doane, 'Scale and the Negotiation of "Real" and "Unreal" Space in Cinema'; Lant, 'Haptical Cinema'; Gunning, 'An Unseen Energy Swallows Space'; Hansen, 'Early Cinema: Whose Public Sphere?'; Hansen, 'Early Cinema, Late Cinema'; Bruno, *Atlas of Emotion*.

32   Elsaesser, 'Early Film Form: Articulations of Space and Time', p. 12.

Tom Gunning's persistent inquiry into cinema's spatial dimensions, most seminally put forth in his notion of a 'cinema of attractions' in which the performative oscillation between the 'inside' (illusion/image) and 'outside' (display/apparatus) of cinema 'brought focus back onto the specific spatial and social construction of cinematic experience'.[33]

Third, and perhaps most correctly seen as a subset of the second trajectory or at least overlapping with it, the same period has seen the emergence of a research field dedicated to 'moving image art' in which the issue of spatiality has featured prominently. Indeed, the art world is one of the new habitats in which cinema currently thrives. If a somewhat tenuous term, 'moving image art' has come to serve as a pragmatic designation that signals the art world's institutional assimilation of practices across the range of film and video, including analogue and digital video art, cel-luloid film, multimedia installations, internet-based works, sculptural film objects, as well as the odd feature film.[34] The generic tenor of the term also heralds that, at least materially speaking, the medium-specific boundaries between 'film' and 'video' are harder to sustain after digitization. Much of this scholarship is concentrated on a very particular feature of this art—the condition that the image in these works tends to be projected.[35] Frequently the projected image is also dispersed across multiple screens in the gallery, as demonstrated in the work of artists such as Eija-Liisa Ahtila and Isaac Julien. Several studies within this fast-expanding research field contribute to productively recasting the genealogies of film and video through their shared recent spatialization within the gallery. However, works within this trajectory have tended to emphasize the relationship between the projection and the physical space in which it is placed, the 'hybrid' condition between white cube and black box that results, and the

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33 Gunning, 'Cinema of Attractions'; Dell'Aria, 'Spectatorship in Public Space', p. 20.

34 For an overview of some of the objections to the term 'moving image art', see Leighton, Introduction, p. 11. The terms 'moving image art' and 'projected-image art' are in this discourse frequently used alternatingly and overlappingly.

35 A starting point for the prevalence accorded to projection in this discourse is arguably the exhibition *Into the Light. The Projected Image in American Art 1964-1977*, which was curated by Chrissie Iles for the Whitney Museum of American Art in 2001. Iles also published a compre-hensive catalogue that accompanied the exhibition, which drew on theorization of Minimalism as well as histories of artist's film and video to develop a theoretical framework in which the physical space of projection was emphasized. *Into the Light* and its emphasis on the relationship between projection and its spatial and architectural surroundings set the tone for the subsequent discourse on moving image art. See Trodd's introduction in her book *Screen/Space: The Projected Image in Contemporary Art* for a more detailed account of the impact of *Into the Light* on the theorization of moving image art.

novel spectator positions and embodiments this situation opens up. Only to a very limited extent do they engage with the on-screen spatiality on offer. A case in point is the excellent book *Screen/Space* (2011) edited by Tamara Trodd, wherein projection is held forth as a defining feature for much of the film and video works shown in art galleries and museums in the 21st century.[36] In her introduction, Trodd states that the book's aim is to develop a new theoretical framework 'which is properly attentive to the specificity of the gallery space in which it is often found, as well as to the fuller artistic and cultural history with which it often engages'.[37] Thus, despite the book's title (which our own title for this volume echoes), it seems that, in this case, it is the physical space in which the screen and projection are placed that have priority. On-screen space is not met with the same critical or scholarly attention. Scholarly studies on moving image art provide a highly welcome integration of perspectives from art history with film and media theory and history and provide an invaluable platform for further inquiry into the ongoing spatialization of the moving image and its relationship to its physical locations. While drawing on this discourse, the present book diverges from it in that it explicitly gives priority to and seeks to analyze key features of contemporary on-screen space across a wide range of screens and screen practices.

In addition to these three trajectories, the same period has seen a number of publications devoted to the intersection of media screens and (urban) architecture, frequently emphasizing the shaping and experiences of public spaces that results. Perhaps less a defined research field or unified discourse than the other trajectories, this branch of scholarship on the spatial dimension of contemporary media tends to foreground the movement of images, bodies, and screens in and through spaces and the mobilization of space that ensues. Notable contributors to this discourse are Giuliana Bruno and Nanna Verhoeff, both of whom are represented in this volume. Embodied experience and the performative navigation through such spaces, either through mobile and/or locative media (Verhoeff) or these spaces' intensified multi-sensory address (Bruno), is pivotal for these scholars, frequently conceptualized through cartographic terminology.[38] Here, it is the amalgamation of on-screen space and its surrounding environment that is of interest, which is what makes their contributions highly relevant for this book.

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36   Trodd, *Screen/Space.*
37   Ibid.
38   See for example Bruno, *Atlas of Emotion*; Bruno, *Surface*; and Verhoeff, *Mobile Screens.*

The amalgamation of on-screen space and its physical surroundings is also at the core of a recent strand of spatial scholarship within media studies, which has surged with the growing ability of images to work 'operationally' and the increasing dissemination of 'transparent' screens and immersive technologies, such as virtual reality (VR) displays, across both professional and consumer practices.[39] Bringing together much of this research is the illuminating volume *Image – Action – Space. Situating the Screen in Visual Practice* (2018), edited by Luisa Feiersinger, Kathrin Friedrich, and Moritz Queisner. Here the merging of images and operations are explored with a view to how resulting practices situates viewers in spaces within and beyond the screen and how these spaces in turn structure users' actions and perceptions. Many of the essays in *Image – Action – Space* examine the procedures, practices, and technologies involved when images serve as tools for action and navigation. While the active and operational dimension of images are acknowledged by several authors also in the present volume, its scope differs in that here the emphasis lies on their aesthetic and experiential dimensions rather than their production and use. Included in *Image – Action – Space* are several case studies of VR, which is indicative of the recent turn towards immersive screen technologies and experience in the media industry, and increasingly also in art.[40] Through such technologies, the elasticity and enveloping qualities of contemporary screen space and its attendant 'floating' spectator position, which, as shown, was so emblematically crafted through digital 3D in *Gravity*, is further intensified. This recent surge in scholarship on VR and AR is a significant and timely addition to the spatial discourses in art and media studies, with the potential to recast some of the theoretical and analytical underpinnings of spatial discourse in relation to screens and the very concept of 'screen space' that this volume rests on. Most importantly, of course, with VR and head-mounted displays, the screen and its framing function is no longer perceptible, replaced by a 360° view with the viewer having 'no possibility to look away'.[41] In this volume we have nonetheless chosen to delimit our scope to cases and perspectives that are somehow premised upon the presence of the screen as a 'classical'—and

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39   The seminal concept of 'operational images' was coined and developed by artist and film-maker Harun Farocki in the early 2000s. In Farocki's often quoted words, operational images are 'images that do not represent an object but are part of an operation.' Farocki, 'Phantom Images', p. 17.

40   That high-profile artists such as the performance artist Marina Abramovic, installation and light artist Olafur Eliasson, and painter Bjarne Melgaard all recently have made VR works illustrate that VR is no longer relegated to the sphere of media artists.

41   Neddermeyer, 'I Want to See How You See', p. 203.

perceivable—tetragonal frame.[42] The reason for this is simply that we want to show how space and spatiality currently is reconfigured not only at the technological vanguard of contemporary screen culture but also within established media forms such as mainstream cinema and 'regular' video installations. In keeping our focus on contemporary on-screen space, we aim to intervene at a point that is curiously under-researched in spatial discourses in media studies and attendant disciplines.

As can be seen from the above discussion, relations between conceptions of space and screen are multiple and varied. While not making an overarching claim about this relation, our contention in this volume is simply that in order to grasp the complexities of the contemporary entanglement of media and space, on-screen spaces and their precise formal, material, affective, and sensory configurations must also be part of the equation. The present volume seeks to deliver such a contribution to spatial thought within film and media studies.

Screen Space Reconfigured

The aim of this volume is, as mentioned, first and foremost to probe novel and resurfacing configurations of space as they appear across 21st-century screens. In order to do so, it brings together eleven focused case studies that explore spatial tropes, representations, and perceptions ranging from—and crossing between—contemporary mainstream cinema, experimental film, video art, mobile screens, and everyday screen practices. Indeed, the present volume is guided by the contention that these diverse practices are deeply interrelated. Work by scholars such as Anne Friedberg, Thomas Elsaesser, and Tom Gunning are exemplary for the conceptualization of the present volume in this respect as well. In addition to their (media archaeological) charting of spatial tropes, practices, and configurations across disparate historical moments, their non-hierarchical (and synchronic) probing of such configurations across vernacular, popular, mainstream, and avant-garde media forms within a given moment of time is also formative for the volume. It should be noted that the essays in this volume predominantly lie within the methodological scope of aesthetic and to some extent material analysis. In order to efficiently foreground the aesthetic and experiential characteristics

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42 Noam M. Elcott's chapter in this volume is an exception, in that he explores historical and contemporary iterations of what he calls the phantasmagoric dispositif, in which images and spectators seem to share the same space.

of emerging on-screen spatialities, we have chosen not to include industry or audience studies among our cases. Whereas we do not aim to chart or claim an overarching theoretical framework for the exploration of what we see as an ongoing reconfiguration of 21st-century screen space, we do want to acknowledge that many (but not all) of the essays foreground the sensory and affective experiences effected by novel spatial configurations and/or the agency of technology itself. Engaging analytically and theoretically with these emerging configurations of screen space as they impinge upon issues of media materiality, perception and sensation, the volume ultimately also engages the question of the place of the human within these configurations.

In her chapter, Giuliana Bruno theoretically approaches the material condition of the film medium and the surface of the screen. Conceptualizing the screen as an environment of 'projection', Bruno understands projection in broad terms as 'an architecture of passage' which, while being a real environment, is a space of relations where texture, materiality, surface, and light play important roles as the visual and spatial meet and are remediated. For Bruno, materiality is not a question of the materials themselves but of the substance of material relations. As such, she is interested in the spaces that are made or taken up by these relations, showing how they are configured on the surface of different media.

William Brown's chapter 'Knowing Not What To Believe: Digital Space and Entanglement in *Life of Pi*, *Gravity*, and *Interstellar*' investigates the computer-generated imagery (CGI) in the feature films mentioned in his title. Brown offers theoretical perspectives that explore the forms of viewer engagement that specifically digital camera perspectives and computer-generated moments activate. In the digital renderings of space that these three films offer, the viewers are put in a position of uncertainty regarding where the CGI begins and ends, and in terms of not knowing what should be accepted as 'real' within the narrative of the film. This uncertainty encourages the viewer to choose what to believe is true or real, that is, to intellectually engage and interact with the film. Brown argues that this interaction is linked to the assumed non-indexicality of digital images, which are thought of as infinitely modifiable. Because they are 'virtual' rather than indexical, these images present non-anthropocentric perspectives and 'impossible' virtual camera movements—which are found in all three films—in a powerful manner. With reference to Karen Barad's concept of entanglement, Brown also argues that the ways in which the digital cinematic images show a virtual conquest of space reinforce the viewer's sense of *not* mastering space in the same way, reminding the viewers instead of their entanglement with space in our real-world existence.

In her chapter 'Digital 3D, Parallax Effects, and the Construction of Film Space in *Tangled 3D* and *Cave of Forgotten Dreams 3D*', Kristen Whissel investigates how the return of stereoscopic 3D as a digital medium prompts a rethinking of the history of moving images in ways that take into account the changing dimensionalities of moving images and transformations in the articulation of film space. With new means for organizing film images not only around the horizontal and vertical axes of the screen space but also in terms of depth, digital 3D images address the spectator in what Whissel calls 'a different temporal and affective register'. Through close readings of the films *Tangled 3D* and *Cave of Forgotten Dreams 3D*, Whissel looks specifically at the ways in which negative and positive parallaxes promote different perceptual experiences and construct digital film spaces. Accordingly, she argues, they force us to rethink the history of cinema as a history of the dimensionality of the moving image.

Nanna Verhoeff also takes contemporary 3D cinema as an object for probing potential new epistemologies, seeing it as a tool for the production of space in time. In her chapter 'Surface Explorations: 3D Moving Images as Cartographies of Time', she explores the question of whether the trope of navigation in 3D moving images can work towards an intimate and haptic encounter with other times and other places. The particular navigational construction of space in time in 3D moving images can be considered a cartography of time. This is a haptic cartography of exploration of the surfaces on which this encounter takes place. Taking Werner Herzog's film *Cave of Forgotten Dreams* (2010) as a theoretical object, the main question addressed is how the creative exploration of new visualization technologies—from rock painting and principles of animation to 3D moving images—entails an epistemological inquiry into, and statements about, the power of images, technologies of vision, and the media cartographies they make.

Miriam Ross' essay 'Reconfigurations of Screen Borders: The New or Not-So-New Aspect Ratios' interrogates how moving image framing configurations determine our understanding of on-screen and off-screen space. While Ross' examples for this investigation are cinematic—*Life of Pi* (Ang Lee, 2012), *Oz the Great and the Powerful* (Sam Raimi, 2013), and *The Grand Budapest Hotel* (Wes Anderson, 2014)—she situates the changing frame configurations as conditioned by mobile phone usage, evident from the increasingly ubiquitous vertically framed moving images on social media sites, as a phenomenon that draws attention to a radical challenge to traditional screen culture. According to Ross, the wider historical contexts in which screen and frame borders have been experimented with have not

been given much critical attention. Although digital technologies have made it easier to reconfigure the frame's borders within the duration of the same film, Ross points out some of the historical experiments that have taken place. As more recent examples, *The Grand Budapest Hotel*'s shifting aspect ratios and *Oz the Great and the Powerful* and *Life of Pi*'s stereoscopic imagery condition the viewer's sense of proximity—immersion—or distance from the visual fields, thus affecting how different modes of embodied viewership are encouraged and experienced. Ross argues that the physiological processes at work when aspect ratios change within the same film are not limited to the eye's ability to process on-screen and off-screen content. The viewer's synesthetic and kinaesthetic sense of being is also affected when the on-screen space expands and contracts, and it is our bodies as well as our eyes that negotiate this proximity and distance.

Allan Cameron's essay 'Face, Frame, Fragment: Refiguring Space in Found-Footage Cinema' explores the ways in which the face holds a privileged position—not only as a figure in classical cinema acting as marker of identity or site of affect but also as a spatiotemporal anchor-point in the configuration of screen space—by closely interrogating a number of contemporary experimental 'found footage' films. These films, which include Peter Tscherkassky's *Instructions for a Light and Sound Machine* (2005) and Gregg Biermann's *Spherical Coordinates* (2005), remix and recycle found footage from narrative cinema, using techniques such as collage and montage in order to experiment with the face's role in organizing proximity and distance, flatness and depth. The works, Cameron argues, reorganize the relations between face and frame, splitting them into discrete fragments while at the same time setting them up in new, experimental configurations. Space is thus 'dynamically *refigured*'—modified into different forms as well as articulated around distinguishable faces and objects. The viewer is thus invited to reflect upon the codes and structures that are constitutive of cinematic space. As such, Cameron argues, these experimental films not only highlight the special position of the face in classical cinema but simultaneously bring to attention the different ways in which we face cinema itself in the post-cinematic era.

In her chapter 'Looking Up, Looking Down: A New Vision in Motion', Jennifer Pranolo uncovers a genealogy of photographic space that ruptures the conventional idea of it as 'mirror' or 'window' onto the world. Instead, she offers ideas of ambiguous and synthetic space, which act as perspective games and eye exercises. Looking back at Moholy-Nagy's call for a New Vision (1929)—which advocated for photography as an infinitely resourceful tool for

encouraging spectators to explore the visual and cognitive terrain of a new spatial logic—Pranolo considers what such a strong imperative to see the world with different eyes means for us today. With new digital technologies of the image, including computer screen interfaces on which the medium of photography increasingly finds its mode of production and display, our understanding of photographic space once again requires revision. The discussion focuses on the role of the human body—both the viewer's and those located within the picture—in negotiating the increasingly peculiar spatial possibilities that images offer. Pranolo's chapter offers analyses of three aesthetically and historically disparate examples—Elad Lassry's post-'Pictures Generation' work, László Moholy-Nagy's techno-utopian rhetoric of modernist photography, and the life-sized illusion of the Ames room (Adelberg Ames, Jr.)—which nevertheless intersect in their common use of the body as a pivot point for introducing spectators to the spatial paradoxes that can proliferate within the photograph.

In her essay 'Touch/Space: The Haptic in 21st-Century Video Art', Susanne Ø. Sæther charts a tendency that has marked video art since 2010: the co-presence between the motif of the hand that touches the screen and a distinctly layered spatiality. As Sæther argues, this co-presence—which is clearly informed by the influx of touchscreens in consumer culture—demonstrates an imbrication of the sense of touch with a distinct, proximate spatiality that productively can be conceptualized as haptic. Critically deploying a set of various notions of the haptic culled from film and media theory as well as perceptual psychology, Sæther discusses Trisha Baga's lo-fi 3D video *Flatlands* (2010) and Victoria Fu's immersive video installation *Belle Captive I* (2012) and expounds a contemporary haptic space that verges between planarity and volume, between the near and far, and that exceeds the frame to enfold us. The discussion shows how, in both works, natural elements like sunsets, sleet, and rain merge with medial elements to evoke the ambient and 'atmospheric' media of the present decade, in which 'devices and infrastructures have become part of the background of life, operating below the threshold of sensing'.[43] As such, Sæther argues, what these video works ultimately point to is the split between human sense perception and the networked, computational operations of 21st-century media that Mark B.N. Hansen has described, but also the attempt to grasp this split.

Axial tension between horizontality and verticality is at the centre of the following chapter, in which Miriam De Rosa and Wanda Strauven

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43 McCormack, 'Elemental Infrastructures for Atmospheric Media', p. 419.

consider the relation between screenic orientations and production and reception practices across a variety of screen-based devices. More specifically, they investigate examples of how axial repositioning or rearrangements of the screen occur in the passage from production (screen as work surface) to reception (screen as display surface). Using the term 'reorientation' to explain such phenomena, they use various case studies from contemporary filmmaking and visual arts to approach a specifically contemporary form of spatiality in which not only the literal orientation of the screen (and screenic image) matters but also the situations of production and consumption that might take place along different spatial axes. Moving between practical and conceptual terms, the authors suggest that axial reorientation implies a pragmatic shift based upon a reconfiguration of the patterns of use and the space involved but also that this variation in screen usage implies a more profound change mirrored in our ways of conceptualizing the screenic device. To address this, the authors couple their emphasis on the screenic (re) orientation with an inquiry of the new forms of gesturality these screen spaces require and inspire.

In his essay, 'Nothing Will Have Taken Place Except Place: Redefining Place Through Cinema', Tom Gunning begins in 1897, shortly after the emergence of cinema and shortly before the death of Stéphane Mallarmé, who threaded the phrase used in Gunning's chapter title through his culminating work of modern poetry '*Un Coup de Dés*' [A Throw of the Dice]. As Christophe Wall-Romana has shown in his recent work on cine-poetry, Mallarmé was very aware of the new invention the cinématographe. The unique sense of visual movement found in this poem's typography may well reflect his contemplation of the new medium. Michael Snow, commenting on his 1967 film *Wavelength*, another radical work of modernist vision, invokes Mallarmé's phrase and sets us thinking about how the moving image recreates, explores, and questions the nature of place. The radical role of the moving image in providing new modes of our experience of space has been neglected or simply presented as a deviant deconstruction of a dominant commercial narrative cinema. Taking seriously the way the moving image provides new tools for our understanding of our place in a technological world, Gunning discusses moments of camera movement and the mobile frame in cinema practice, both commercial and avant-garde, historical and contemporary, exploring how camera movement affects the viewer's perception of virtual motion in a manner that transforms our relation to the image. The chapter traces how the concepts of space and place can act as guiding points when attempting to understand the image

in motion and what it does to us. Challenging the notion that place signifies rest and space movement, Gunning uses examples from the films *Gravity* (2013), *Vertigo* (1958), and *Wavelength* (1967) to argue that the avant-garde impulse in cinema, similarly to modernist works in other media inspired by the moving image, never simply denies or destroys the impression of 'illusion' or 'realism' that cinema is capable of creating. Rather, the virtue of camera movement is to play with this impression of physical transportation while viewers stay fixed in their positions, thereby complicating and even contradicting the impression of virtual movement.

Moving beyond the framework of the tetragonal screen, Noam M. Elcott in his essay 'The Phantasmagoric Dispositif: An Assembly of Bodies and Images in Real Time and Space' explores spectatorial configurations in which images and spectators appear to share the same time and space, seemingly freed from the material constraints of screens and frames. The coordinated disposition of disparate elements—image space and real space, as well as technical configurations—into a mode of spectatorship that dissolves the experienced spatial and material differences is what Elcott calls the *phantasmagoric dispositif.* The phantasmagoria, or 'assembled ghosts' as the term indicates, was originally an attraction from the late 18th and early 19th century, where spectators were immersed in darkness and ghost-like figures were projected onto translucent screens or clouds of smoke so that they appeared to enter the same space as the spectators. More broadly, as a phenomenon that dissolves the boundaries between images and their surroundings, the phantasmagoric is something that refuses both categorization and medium specificity. Therefore, according to Elcott, neither art history nor film studies—disciplines that until recently have focused on individual media, technologies, genres, artists, movements, styles, or subjects—recognize phantasmagoria as a fundamental configuration of image and spectator. By establishing phantasmagoria as a precise term to describe an assembly of bodies and images in a shared time and space, Elcott locates the deep media archaeological roots and myriad contemporary manifestations of such phenomena, and accordingly points to an expansive history of cinema that has largely been ignored due to the focus on medium specificity in cinema and art alike.

As the above essays demonstrate, this volume centres on the conception that the impingements of the emergent reconfiguration of screen space are by no means demarcated by the edges of the screen. Rather, screen space is seen to partake in an overall reconfiguration of production and perception of space as such.

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