Drawing Futures

Speculations in Contemporary Drawing for Art and Architecture

Edited by Laura Allen and Luke Caspar Pearson

Drawing the Digital: From 'Virtual' Experiences of Spaces to 'Real' Drawings

Sophia Banou

The technological, social and economic commercial changes ushered in at the end of the nineteenth century led for the first time to a proliferation of images in our environments. This mediated reality, which has only increased over time, has deeply affected human behaviour. The origins of this displacement from a positively defined 'real' to an expanding virtual can be traced back to the emergence of the modernist space-time paradigm. The expansion of the capabilities of vision, the dissemination of photography and the cinematograph and the experiments of modern scientists contributed to an understanding of space that shifted from the idea of an *a priori* extensity of vacuum-versus-matter to a dynamic multiplicity of relations. Within this frame, new theories of visual perception posed a challenge to modernist artists, which resulted in new paradigms of visual representation (from Impressionism to Suprematism, Futurism and Cubism). But if modernist art extracted from modernity the dynamism of speed and novelty, architectural thought of the time was inspired by the rationalism of functionalist efficiency.

Despite the fixity suggested by longstanding convention, with its core principles holding from at least the fifteenth century, architectural drawing – a form of writing in its own right – can be considered itself a transition: the complex oscillation between the real and the conceptual takes place in it through a negotiation between convention and subjectivity. Architectural drawing convention historically appears not only to normalise the contingent multiplicities of architecture's objects, but also to fix the mobility of drawing's very subjectivity. However, this fixing of architectural representation is in essence phenomenal and antithetical to the ways architectural drawing and thinking proceed. Following the deconstructive and cartographic approaches of the latter half of the twentieth century, this paper will engage with the idea of drawing as a creative agent rather than a systematic language, and as a representational field of action rather than an order. The question of performativity that such an understanding suggests, although rooted in the experimentations of modernity, is not only pertinent, but is put under new pressure via digital modes of representation. In the emergence of architectural space as a space systematically and increasingly mediated by representations and the privileging of the image as simulation rather than representation, architectural drawing conventions are faced with the inadequacy of their codes in articulating new perceptions of spaces. Most importantly, however, what is challenged is the operation of drawing not as image or object, but as a distinct spatiality that mediates between the tangible reality of figuration and the speculative spatiality of projection.

TRIPS TO VIRTUALITY

Although the new perception of space had a direct impact on the representational arts, it was probably cinema that, through its inherent association with time and movement, best articulated the new paradigm. In his 1907 essay 'Creative Evolution', Henri Bergson discussed cinema as a model for human perception:

> "We take snapshots […] of the passing reality, and, as these are characteristic of the reality, we have only to string them on a becoming, abstract, uniform and invisible, situated at the back of the apparatus of knowledge, in order to imitate what there is that is characteristic in this becoming itself. Whether we would think becoming, or express it, or even perceive it, we hardly do anything else than set going a kind of cinematograph inside us."[1]

If Bergson's analogy highlights the similarities between the mechanism of human perception and the cinematograph as mechanical means in the early days of the medium, works such as Dziga Vertov's *Man with A Movie Camera* saw cinema as the 'kino-eye' (an almost cybernetic fusion between man and camera); and with this, the possibility of the expansion of perception from mere observation to the construction of reality.[2] The focus of Vertov's 1929 film ranges from the daily life of the city's population to the labour of the cameraman, the film editor and even the spectators. The film presents a metanarrative of the semiotic function of cinema rather than a 'realist' narration. The laying bare of the commonly naturalised techniques of cinematic production[3] breaks the illusion of identification between cinematographer and spectator, dispersing subjectivity among multiple vantage points.[4]

Drawing from Bergson's concept of the *image*, Gilles Deleuze remarks on cinema's ability to produce *consciousness*:

> "Bergson was writing *Matter and Memory* in 1896: it was the diagnosis of a crisis in psychology. Movement, as physical reality in the external world, and the image, as psychic reality in consciousness, could no longer be opposed […] The great directors of the cinema may be compared, in our view, not merely with painters, architects and musicians, but also with thinkers. They think with movement-images and time-images instead of concepts."[5]

Deleuze collates Bergson's *images* with the semiotics of Charles Peirce in order to interpret through the 'pre-verbal signs' of cinematic imagery the emergence of a conceptual discourse.[6] As he argues, semiology proceeds in cinema through a 'double transformation',

which involves the reduction of the image to analogical utterance and the codification of the signs into a 'digital' structure. The assimilation of cinema to language can, then, only be an approximation that introduces false appearances through the analogical consideration of images as utterances. To the semiotic model of resemblance and codification, Deleuze then proposes *modulation* as enabling resemblance and code (figure and notation) by bringing them together into something new that exceeds both.[7]

According to Deleuze, rather than a language, cinema is the 'system' of this modulating image, which proceeds through processes of differentiation and specification.[8] Although 'utterable', it is independent from language, yet – due to its semiotic function – liable to transformations introduced by language.[9] In post-war cinema, Deleuze sees a transition from the analogical to the digital, and from actuality to consciousness, whereby the articulation of time as continuity overtakes space as the sum of intervals. Images no longer imitate a perception guided by consciousness, but through representations create a new present consciousness by blurring the distinction between the actual and the virtual. From a replica of the apparatus of human knowledge, cinema becomes "the organ for perfecting the new reality".[10]

Cinematography offered a new way of representing perception, through the active deconstruction and recomposition of the visual, laying the groundwork for the creation of new realities. Jonathan Beller's proposition that cinema and its 'succeeding' media, such as television, radio and the internet, function as 'deterritorialised' factories of visual labour, suggests that these modes of virtuality operate with regard to the structuring of consciousness and ideology in a similar way to cinema.[11] This further proposes that the modes of social relations emerging from these media transform visual perception from immediate experience into a form of 'alienated labour', which is not only external to the subject but also dissociated from 'natural language'.[12] Looking, constructed between the viewer and the medium, is no more a conquering, but instead the never-conquering of the 'real', as *visuality*[13] registers as the primary mode of experience. In this 'cinematised' society, natural notions of language become inadequate when the appearance and experience of reality is overwhelmed by the proliferation of imagery through cinematic modes of representation which are 'incompatible' with the linguistic model of representation.[14]

Beller's idea of the cinematised society finds justification in today's digital augmentation of the visual. The cybernetic 'kino-eye' is ubiquitous, through the mobile web, video and photography. The individual not only invokes but also encourages the visual labour of others through the mass production of idealised imagery. As the power of the individual over space is substituted for power over the image, this recourse to 'fantasy' suggests a virtuality which does not enrich but contests the comprehension of reality. If the cinematic, emerging

from the processes of early modernity, signified a return to the pre-verbal, its digital successors, culminating in the postmodern, suggest a return to the pre-representational. Within the virtual manifestations of space and time that they produce, the privileging of the image as simulation contests notions of representation as semiotic abstraction. It is therefore possible to suggest that within our extended (post)modernity not only the object but also the subject of architecture have been displaced. Architectural space emerges as a place not, as Diana Agrest has suggested, *of* representation,[15] but rather a place where both the subject and pre-existing orders of signification, such as language and drawing, are constantly required to redefine their position towards and within the 'real'.

THE SPACE OF DRAWING

In the 1960s, this crisis was expressed in philosophical discourse at the intersection of a linguistic post-structuralism and conditions of spatiality. This is perhaps most clearly illustrated in the theory of Henri Lefebvre, whose triadic conception of the production of space placed its focus on the interrelationship between spatiality and the representational expressions of knowledge and power. In his theory, the pre-verbal 'lived' and 'perceived' spaces are placed alongside the purely representational 'conceived' (directly associated with architectural conceptions and representations) as equally indispensable conditions of space.[16] There is therefore an expression of language to be discovered in the pre-verbal in the same way that there is a concrete spatiality emerging from the immateriality and ephemerality of experience.

In architecture, the emergence of new conceptions of spaces was perhaps most clearly expressed in the utopian architectures of the 1960s. Yet it was only in later speculative projects such as Bernard Tschumi's *The Manhattan Transcripts*[17] that the potential entailed in the representational interplay between actuality and virtuality would emerge as more than a questioning of architecture's object, through the grafting onto architectural drawings of diagrams akin to dance notations, and photographic elements that functioned/posed as fragments of an immediate reality. Such postmodern fusing of high and low culture, of actuality and virtuality, then opened the way for the contamination of convention.

Mark Dorrian develops a genealogy of the beginnings of these 'contaminations' by defining architecture's 'Cartographic Turn' as the implementation of cartographic strategies as generative tools for architectural design.[18] Dorrian challenges the idea of representation as a direct transcription of a mental image, arguing that the architectural image is constructed at the intersection of the conceptual intentions of an authority and a series of mental, material and performative modes.[19] These 'interferences' between the author/designer and the image produce, he suggests, alienation effects that mark the failure of representation as a direct projection of the

mental to the material, yet evoke acts of interpretation and thus open up room for speculation.[20] Representation shifts from reterritorialisation to deterritorialisation,[21] shifting the focus from object to process and revealing the intertextual nature of architectural design.[22] The cartographic thus pursues a representation that is not effective in rationally representing, but in discovering, accumulating and excavating a density of knowledge that produces meaning and gains momentum from its origins as well as its transformations.

Dorrian explores this through the work of Daniel Libeskind and Peter Eisenman. Like Tschumi, his contemporaries Libeskind and Eisenman confront the exhaustion of functionalism in the context of a post-structuralist refusal of 'subjectification',[23] employing cartographic strategies to unground architecture from ideas of site and origin as understood in traditional architectural discourse. In his earlier works, such as *Micromegas*, Libeskind moves from the formative powers of geometric orders to the 'intuition of geometric structure' as a pre-objective experience. In Libeskind's terms, both architecture and its representations demand a 'participatory experience.'[24] which is fulfilled through dedication to the craft of making and the transcendence of a textual script which is through an 'authentic abstraction' capable of creating an experience of transgression:

"These 'plans', the intention of making visible the abolished distance of architecture's reality, bring me no closer to building, yet nearer to dwelling. They show me that in abolishing distance and space, the realm between representation and participation – the awesome and unsettling nature of architecture comes into focus."[25]

By 'reclaiming' the self-referential nature of representation through metaphor, drawing emerges not as a mechanistic process of transcription but as an experience of participation: of dwelling in the real from within the virtual. Similarly, Eisenman's cartographic projects are defined, according to Dorrian, by the transition from the volumetric to the surface, through a series of operational strategies that are inventive, yet native to representation (superposition, repetition, scaling, nesting, etc).[26] The dispersal of the subject through sequential effects of alienation eventually leads to the 'unmotivation of the sign'[27] and an architecture liberated from any teleology.[28]

The abstraction of representation as mere technique foregrounds the operations of architectural design, merging the real and the virtual and therefore expanding both. As a place of action, of dwelling and transcendence, drawing emerges from the post-functionalist cartographic practice as a space just as important as the built space of architecture. Function within drawing concerns not the utility of an external space, but the act of signification. This involves the ability of the architect to engage in an intertextual cohabitation of spaces, where meaning is derived from a collective subjectivity that is only possible through the transcendence into the virtuality of representation.

Fig. 1: Metis, *Mimetic Urbanism: Restructuring of the ex-Magazzini Generalli area of Verona,* 2000. Aerial view maps, digital image editing and CAD modelling contribute to the making of a combined-view drawing.

The uncovering of drawing's instrumental metanarrative, the revealing of its figure as the image of a Bergsonian objectified process[29] rather than a fixed destination, can also be found in Dorrian's own practice with Adrian Hawker in the context of their research design atelier Metis. Like Eisenman, they use an archival approach to reality, but rather than seeking the real in representation, they seem to seek the representational within the real (Fig. 1). While investigating the hidden potential of the real, they survey with equal rigour the possibilities of representation, creating opportunities out of its biases and limitations.[30] Metis reappropriate cartography to make use of the difference produced by the unsettling of pre-existing imaginaries, which they then inhabit by reperforming. The 'inhabitation' of these spaces occurs through making as well as reading, illustrating the performativity of representation. They therefore expand drawing into the physical space of the architect/performer, from the drawing board to the studio.[31] Like Libeskind, they aim for transcendence, but only to get a better view of the *real* by dwelling in true abstraction: stripping the sign of its dominant meanings in order to make it mean *more*.

Cartographic attitudes rely on the fecundity of mapping, the dynamics of symbolic signification and the performativity entailed in drawing as a creative practice rather than a mere transcription. The result is indeed, as Dorrian points out, a return to figuration through the formalisation of the diagram,[32] but it is also the arrival at a kind of form that, within the intentionality of representation, constitutes itself a kind of text. This textual culture, or at least the understanding of drawing as textual, is what makes the transcription valid and possible through the emancipation of the signifier from the signified.[33]

NON-DRAWINGS AND OTHER VARIATIONS

Rather than cartography, David Gissen looks into the influence of geography on architecture.[34] Gissen's geographic approach differs significantly from the cartographic one. This difference is most accurately illustrated in his choice of words, which suggests a consciousness of representation, of writing the *map* (*la carta*)*,* rather than the *land* (the gaia), as a datum of measuring, fixing and legitimising the image of a quantifiable territory. Gissen's engagement with the geographic 'turns' of architecture is wide and varied. On the one hand, it appears to refer to an architecture that calls on the performative aspects of mapping; on the other, it appears to rely on a quasi-realism revealed in concepts such as 'datascapes' and the ambiguous term 'research architecture', suggesting a kind of research limited to strictly quantitative processes of enquiry.[35] in this sense, it is easier to locate it in the work of architects such as the Dutch practices OMA, MVRDV and UN Studio and their engagement with visualisations of elements of programme and inhabitation, as well as with practices such as Foreign Office Architecture and their 'new pragmatist' studies of natural phenomena.[36] OMA and MVRDV are seen by Gissen as representatives of a geographic 'research architecture'. Although representation is still crucial to the development of the architectural projects, the geographic concern does not seem to entail the representational practices it is historically attached to, but a form of positivist research.

For Gissen, the potential that arises from the geographic is an architecture that, by holding onto the ground of reality and reason, would offer the possibility of a new 'cartographic reality'.[37] What is at stake, then, is once more a reconsideration of architectural drawing. But rather than resolving to a proliferation of signification, the attention this time seems to be shifting from representation to an act of simulation that fixes meaning. An example of this can be found in the work of UN Studio, where the diagram, originally derived from the writings of Deleuze,[38] was a key tool for what was meant to be a widely inclusive form of architecture.[39] Their representations were initially enhanced by, but later increasingly based on, digital technologies, as a means of modelling for both visualisation and surveying, resulting in the production of formally compelling imagery, completely distanced, however, from the symbolic abstraction of mapping or normative architectural representations.[40] What Gissen defines as the 'Geographic Turn' can therefore be considered to relate more to the digital or computational turn than to the cartographic. The mismatch between the cartographic and the geographic is discussed in Mark Foster Gage's response to Gissen.[41] Responding to Gissen, Gage writes 'in defence of design', making the point that by consistently seeking the phenomenal rationalisation that such 'geographic' practices suggest, what is questioned and unhinged is the symbolic and conceptual autonomy of architectural design; and that this is marked by a loss of the critical in favour of a deterministic architecture of problem-solving:[42] Gage's claim is that such 'research architecture' in fact bypasses design rather than addressing it. Clearly, what he protests is the lack of invention and intuition: the lack of difference. Gage's interpretation suggests a saturation of information that substitutes the speculative spatiality of architectural representation for the stability of iconic imagery.

The quasi-scientific 'suspended empiricism' of the geographic, particularly in its digital instantiations, still reflects an architecture that dismisses the abstraction of its own symbolic order for visualisations: no longer drawings but models of a territory, which they fix rather than *remake*.[43] This suggests an abstraction that stabilises and therefore disarms the potentiality of drawing as architectural image. What is lost is the dual register of the drawing as symbol and icon. This separation of the spatiality of the real from the spatiality of representation occurs by either removing the notational function or removing the attachment to a referent spatiality for the sake of a purely virtual imaginary (digital modelling), but also by removing the figure function of the drawing by reducing spatial relations to forms of notation that remain extra-spatial (non-narrative text, statistical charts, etc). The loss of invention suggests the loss of 'language' as a passage to signification; it is the loss of the dwelling in the drawing as space and as event.

Digital technologies today, from Google Earth to GIS, GPS, large-scale 3D scanning and drone image capturing, offer an abundance of ways to observe and record the world. At the same time, parametric processes of fabrication and 'morphogenesis' seem to question the very relevance of architectural drawing, considering it merely a definitive instrument of prescription. However, I would like to argue that the real pressure for architectural drawing is not the 'threat' of the substitution of architectural drawing with 'automated' processes of visualisation, but rather the disassociation of its codes of convention from both its objects and its variously distinct conditions of subjectivity as they emerge in the consideration of drawing as a distinct field of action. In the 'digitised' context, notions historically associated with maintaining the integrity of both design and drawing, such as the 'real', the 'true' or the 'rational', become highly contested, challenging not simply the object of drawing but of architecture altogether. The digitally produced imagery that has lately dominated architectural practice and press commonly involves representations that seek to imitate either the 'threat' of the 'neatness'[44] of normative architectural projections (CAD drawings and section-like slicings of 3D models), the 'precision' of perspectival representations and photographs or the representations emerging from computational processes of modelling/design.[45] The first two constitute skeuomorphic imitations of previously known modes of representation, in that they imitate the appearance of plans, sections or photorealistic renderings, forgoing, however, the performative and productive aspects of architectural representation through the efficiency of a quickly attainable 'finished' look. As such, they have very little to do with either drawing conventions or the performative potency of drawing as a distinct space of creative transgression. The latter represents an entirely different

Fig. 2: Perry Kulper, *Spatial Blooms: Proto-formal drawing*, 2009, digital print, cut paper and transfer letters. Kulper consistently questions the 'languages of architecture and representation', experimenting with the speculative contingency embedded within the agency of drawing media and techniques, both in manual and digitally produced drawings.

approach: a computational process of invention grounded in geometric operations, but performed in simulated space rather than on a projective surface.

Architectural historian Mario Carpo finds in the history of architectural drawing, from the fifthteenth century until the recent 'digital turn', a 'truism' that suggests that architecture can be reduced to an endless reproduction of identical forms.[46] This limitation, marking the separation of design and building by means of the drawing as a definitive prescriptive tool, he traces to the Albertian notion of the *disegno*, fostering an inevitably allographic practice of architecture. For Carpo, the opportunity that then emerges from the parametric digital is this: the possibility of the infinitely non-standard that is produced from an open-ended design process, freed from the fixity of representation.[47] Carpo's discussion of the digital, and specifically the parametric, as a process capable of producing difference by escaping the mediation of representation for the participatory 'subjectivity' of the digital, points out the historically anthropocentric character of architecture. Nevertheless, it contradicts the ethos of productivity and the cumulative subjectivity emerging in the deconstructivist cartographic strategies examined, as well as in more recent paradigms such as Metis' representational 'excursions' (Figs. 1 and 3) or Perry Kulper's relational drawings (Figs. 2 and 4), which
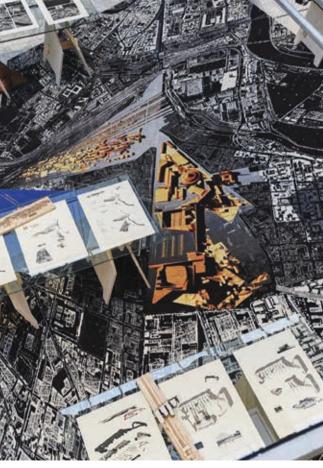

Fig. 3: Metis, *On the Surface*, 2014, digital-print textile floor drawing. Arkitektskolen Aarhus, Denmark: 10 October–14 November 2014. The *Mimetic Urbanism* drawing is resited and transcribed into the immersive installation of the 'On the Surface' exhibition in Aarhus.

eventually find their way into digital fields of production. Carpo's understanding of variation as difference, as well as the association of the parametric with the Deleuzian notion of the *fold*,[48] tie these forms of architectural production to the postmodern concept of deconstruction. Yet, this suggests a deconstruction more akin to Mark Wigley's early definition,[49] regarding an ungrounding of structure as form, as opposed to the one found in his later writings. There, drawing from Derrida's use of the term, he approaches deconstruction as a 'non-method' of semiotic inquiry within architecture as a form of representational thinking.[50] Derrida's idea of deconstruction reveals the instability of representation and consequently the question of language within architectural practice. The point of departure, for Derrida, is not form as figure but as sign: an inherently unstable writing whose reading reveals the slippage between form and content, rendering the opposition between the two – as the signifier and the signified – unsustainable.[51]

The fallacy, then, in these skeuomorphic digital resemblances of drawings is not a fault of the technology but rather of the misconception of the act of drawing itself as a tool of prescription as opposed to a field of architectural invention. Seen through the cartographic, drawing emerges out of the cinematic as a 'cybernetic' event: taking advantage of new media and available perceptions of spaces to expand both its scope and its codes by grafting its intentional mutability onto the media, as opposed to merely succumbing to their own practical efficiencies. This suggests what Catherine Ingraham describes as the 'domesticating' capability of both architecture and its linear drawing convention: the ability to import and appropriate materials from other discourses and disciplines.[52] Unlike Carpo's suggestion, drawing seen as such does not constitute an alienation from the craft; rather, as Libeskind illustrates, it is drawing itself that is revealed as craft.

In what can be considered, then, the digital challenge – and I would like to argue not-yet-turn – of architectural drawing, the pressing matter is not drawing's relevance (inevitably tied to architecture's representational operations). Rather, what is at stake is the understanding of the possibilities offered by the digital as a new field of performance, in which expanded forms of drawing are defined neither by the resemblance to the process nor to the result (building or impression) of architectural representation, but instead by their capabilities of invention. How drawing 'under' the digital may look, then, as object and process, should be as unpredictable as the result of any design process. Yet what would maintain its operation as 'drawing' should be its function as an act of 'writing': of constituting a hypertextual space where both architectural convention and the architect can perform, produce and reproduce within the computational, immersive, visual and material capabilities offered (Fig. 5). The discovery of the interiority of architectural drawing, as a distinct space of performance within which new meaning is produced, anticipates drawing as itself an immersive spatial practice: a 'real' experience within the

representational virtual. Considering drawing in this way, rather than constituting its redundancy, this crisis of drawing within the digital may entail its proliferation through the informing of a longstanding but mutable convention and the expansion of the practice into the conquering of new experiences of representational spaces, both material (fabrication) and immaterial (visualisation and augmentation). What we can expect from the combining of architectural drawing with digital media should be drawing, but with a difference – as opposed to 'variations' of drawing.

Fig. 4: Perry Kulper, *Spatial Blooms: Test Tube Berm*, 2009, exhibition digital print. Even when working strictly within the digital realm, Kulper's 'architectural language', found both in his use of forms and framing, maintains the abstraction of architectural drawing while taking advantage of the precise formative capabilities of digital tools.

Fig. 5: Sophia Banou, *Draw of a Drawing: Unfolded view detail*, 2014, laser-engraved wooden box with gold leaf, acrylic and brass details. CAD-drawn elements are laser-engraved onto the surface, prompting further 'drawing' decisions as a response to the material transformations of the box and the behaviour of the laser-cutting machine.

1   Henri Bergson, *Creative Evolution*, trans. Arthur Mitchell (New York: Henry Holt, 1911), 306.
2   Dziga Vertov, "The Council of Three" (1923), in Annete Michelson (ed.), *Kinoeye: The Writings of Dziga Vertov* (Berkeley and Los Angeles: University of California Press, 1992), 17.
3   Judith Mayne, "Kino-Truth and Kino-Praxis: Vertov's Man with the Movie Camera", *Cine-Tracts* 2 (1977), 82.
4   Ibid., 83.
5   Gilles Deleuze, *Cinema 1: The Movement-Image* (1983), trans. Hugh Tomlinson and Barbara Habberjam (London and New York: Continuum, 2005), xiv.
6   Ibid., ix.
7   Gilles Deleuze, *Cinema 2: The Time-Image* (1985), trans. Hugh Tomlinson and Robert Galeta (London and New York: Continuum, 2005), 27.
8   Ibid., 26.
9   Ibid., 28.
10 Deleuze, *Cinema 1: The Movement-Image*, 8.
11 Jonathan Beller, "KINO-I, KINO-WORLD: Notes on the Cinematic Mode of Production", in *The Visual Culture Reader: Second revised edition,* ed. Nicholas Mirzoeff (New York and London: Routledge, 2002), 60.
12 Ibid., 63.
13 Ibid., 63.
14 Ibid., 68.
15 Diana Agrest, "The City as the Place of Representation", *Design Quarterly* 113/114 (1980), 8–13.
16 Henri Lefebvre, *The Production of Space* (1974), trans. Donald Nicholson-Smith (Oxford and Cambridge, Mass.: Blackwell, 1991).
17 Bernard Tschumi, *The Manhattan Transcripts* (London: Academy Editions, 1994).
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19 Ibid., 62.
20 Ibid., 62–63.

21 Gilles Deleuze and Felix Guattari, *A Thousand Plateaus: Capitalism and Scizophrenia*, trans. Brian Massumi (Minneapolis and London: University of Minnesota Press, 1987).
22 Dorrian, "Architecture's Cartographic Turn", 63.
23 Ibid., 61.
24 See Daniel Libeskind, "The Pilgrimage of Absolute Architecture", in *Countersign* (New York: Rizzoli, 1991), 37–45.
25 Daniel Libeskind, "Versus the Old-established Language", *Daidalos* 1 (1981), 98–99.
26 Peter Eisenman, *Diagram Diaries* (London: Thames & Hudson, 2001), 238–293.
27 Peter Eisenman, "Autonomy and the Will to the Critical", *Assemblage* 41 (April 2000), 90.
28 Dorrian, "Architecture's Cartographic Turn", 67.
29 Bergson, *Time and Free Will* (New York: Dover, 2001).
30 Mark Dorrian and Adrian Hawker, 'Postscript as Pretext', in *Metis: Urban Cartographies* (London: Black Dog Publishing, 2002), 9.
31 See also Mark Dorrian, "Architectural Design Opening A: Architectural Forensics" [unpublished studio brief], M.Arch. Year 1, 2007–09 (Edinburgh: School of Architecture, University of Edinburgh, 2007).
32 Dorrian, "Architecture's Cartographic Turn", 62.
33 Jacques Derrida, *Of Grammatology* (1967) (Baltimore: Jons Hopkins University Press, 1997), 20.
34 David Gissen, "Architecture's Geographic Turns", *Log* 12 (2008), 59–67.
35 See James Corner, 'Eidetic Operations and New Landscapes', in James Corner (ed.), *Recovering Landscape: Essays in Contemporary Landscape Theory* (New York: Princeton Architectural Press, 1999), 165.
36 See William S. Saunders, *The New Architectural Pragmatism: A Harvard Design Magazine Reader* (Minneapolis: University of Minnesota Press, 2007).
37 Gissen, "Architecture's Geographic Turns", 67.
38 Gilles Deleuze, *Foucault*, trans. Sean Hand (London and New York: Continuum Press, 1999), 44.

39 Ben Van Berkel and Caroline Bos, 'Diagrams', in *MOVE, Vol. 2: Techniques* (Amsterdam: Goose Press, 1999), 19–22.
40 See Ben Van Berkel, Ben, 'Navigating the Computational Turn', in *AD Computation Works: The Building of Algorithmic Thought*, eds. Xavier De Kestelier and Brady Peters (London: Wiley, 2013), 82–95.
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43 Corner, "The Agency of Mapping", in *Mappings,* ed. Dennis Cosgrove (London: Reaktion Books, 1999), 213.
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46 Mario Carpo, *The Alphabet and the Algorithm* (Cambridge, MA: MIT Press, 2011), 26.
47 Ibid., 45.
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YOU + PEA is a London-based architectural design practice founded by Sandra Youkhana and Luke Caspar Pearson. You + Pea has a fascination with the media that define modern cities. These forms of representation lead to work that examines the potential varying resolutions of architecture today. Their proposals celebrate the graphic and the immediate, and demand attention through a vibrant conversation both with local context and further afield. Their work encompasses different fields of architectural media, including drawing, digital fabrication and videogame development. Sandra and Luke teach on undergraduate and masters programmes at The Bartlett School of Architecture, UCL, where they both studied. They were the curators of UP-POP at the London Festival of Architecture 2015. Their research work has been featured in publications such as *Blueprint*, *Architect's Sketchbooks*, *CLOG*, *Architecture Research Quarterly* and *Interstices* and exhibited at the RIBA, Peckham Levels, Architecture Foundation and Royal Academy.

EMMANOUIL ZAROUKAS is an architect and lecturer on the MArch Urban Design programme at The Bartlett School of Architecture, UCL, where he teaches theories related to morphogenetic processes in the urban realm. Emmanouil holds a postgraduate degree in Digital Architecture Production from the Institute of Advanced Architecture of Catalonia (IAAC), Spain. He has co-taught the MSc Architecture: Computing and Design in the School of Architecture, Computing and Engineering, University of East London since 2011. He is a PhD candidate at the University of East London, UK, where his research on artificial cognitive processes and neural networks allows him computationally and theoretically to explore the possibility of creativity and novelty in non-human, non-neuronal cognitive processes, towards an alien ontogenesis of architectural form.

SNEZANA ZLATKOVIC is an architect and a PhD student at the University of Belgrade Faculty of Architecture, where she obtained her Masters in Architecture in 2012. Her diploma project, 'Extension of the Museum of Contemporary Art, Belgrade', was awarded first prize in the Sestre Bulajić Foundation's Student Graduates Awards Competition. After graduation, her portfolio was selected as one of the 33 best portfolios of young Serbian architects under the age of 33 by the journal *Arhitekton*'s Portfolio 33 competition. Along with her PhD research, she has been involved in international projects and architectural interventions as an architect with Energoprojekt, and has taken part in various international and national architectural competitions, conferences and exhibitions.