MAPPING UNCERTAINTY

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The issue of exactitude in mapping the physical world has been debated extensively in science and has influenced the formulation of scientific paradigms. New types of site-specific digital art are developing for creatively investigating the intersection between various types of reality and their exchanges. This paper focuses on how it is possible to trace and interact with the emerging paradoxes, through innovative modes of spatial intervention.

The issue of exactitude in mapping the physical world has been debated extensively in science and has deeply influenced the development of scientific paradigms. According to Lev Manovich, a fundamental paradigm shift characterises the transition from Modernist reduction and abstraction to complexity in art and science. [1] As we pass from Modernist mathematical formalism to complexity, uncertainty and complementarity, our perception and understanding of the relationship between physical and virtual worlds are changing in the most unexpected ways. The developments in Quantum physics and scientific visualisation have revealed an emerging kind of multiple dimensionality that characterises the fuzzy boundaries between reality and virtuality. As a result, a new understanding of space and reality in general, as well as of the limitations of science, is developing. A closer investigation of what is understood as paradigm shifts, may show certain ambiguous interchanges between reduction, abstraction, complexity and complementarity, in a context where not even a single definition of complexity seems to be universally accepted. This situation is most revealing of the inevitable limitations and shortcomings that characterise our attempt to study and map reality.

The creation of algorithms is part of the development of mathematical formalism that has been based on the probabilistic relationships between predetermined abstract sets marking the transition to the 20th century rationalism, the abstract vision of Modernism, the excessive trust and over-confidence in digital technology and visualisation. Data visualisation and scientific simulation have been largely used in science and across disciplines for visualising and investigating the co-ordinates of the real world. Despite early hopes however, new technology has not eliminated indeterminacy. The workings of Virtual Reality (VR) itself are inconsistent. Based on software engineering and media theory e.g. Friedrich Kittler's writings, although programmers struggle to remedy noise – the inherent side-effect of the chip, which may include diffusion, quantum mechanical characteristics, etc. – machine reduction and constraints, an inherent degree of randomness and the increasing incompatibility between the diverse computational levels haunt digital technology even more. [2] Simulation includes processes of analysis as well as of synthesis. The algorithmic infrastructure of digital visualisation systems is characterised by precarious interplays between abstraction and complexity. New ambiguous relationships between part and whole emerge due to such interplays. The world appears to be unconnected, diffused and uncertain, as it is visualised through the algorithmic veil of digital geometry that is not only abstract but also unstable and paradoxical. [3]

Instead of seeking to achieve the unattainable, that is, to map the changing reality with exactitude and certainty, the most relevant challenge would be to map the boundaries and uncertainties of our knowledge and its applications. The use of data visualisation, scientific simulation etc., can be contradictory. On the one hand, digital visualisation is used as a means for analysing, simulating and predicting reality, evoking thus, a sense of objectivity, certainty and control, as the probabilistic space of VR is forced to

look real; as possibility becomes a kind of reality. On the other hand, it is broadly acknowledged that emergence derives from complexity; from invisible, interacting and unsettling potentiality fields. Complicated beginnings emerge as there is no ground zero, while elliptical ends occur due to a constant asymmetry that causes new fields of creative possibilities to appear. Such a condition of emergence calls for new modes of presentation, interaction and aesthetics, in relation not only to the issue of boundary but also of understanding reality per se. Instead of ignoring or introducing unpredictability and uncertainty, their hidden existence in digital visualisation systems can be creatively revealed and explored in depth. In this way, new modes of innovative practice that do not comply with the established doctrines of representation, formalism, constructivism and their opposites, can be developed.

In contemporary art, architecture and the related disciplines, the changing relationships between data flows and data matrices inspire new types of spatial research and practice. As a designed environment, built space can be perceived as a fragment of an excessive superimposition of dynamically interacting algorithmic, geometrical, topological and structural grids. A creative exploration of the data that flows into, from and within the physical structures of the built environment, challenges our common assumptions about space and our experience of it.

Instead of perceiving it as neutral and stable, space is heterogeneous and uncontrollably evolving due to its multiple layers of virtuality and reality. As Lev Manovich states, the influence of Quantum Physics and Manuel Castell's concept of informationalism is particularly evident in the development of digital and media art, while the most interesting and challenging art is created through the interactions between the various layers of space. [4] In this way, it is possible to surpass the limitations of producing a neat and settled hyperspace that is characterised by the unity and continuity of spatial augmentation. One of the most challenging possibilities arising, is to creatively reveal various interstitial spaces of emergence that derives from complexity; from the invisible and unsettling potentiality fields between the transitional states of spatial transformation and exchange. Imperceptibles and intermediates would emerge, as we unravel what is observable. The latter can be perceived as the outcome of the various intersections of interacting fields and the ruptures that emerge from the changing and heterogeneous nature of the layers of space. An oscillation between atopias, utopias and dystopias may challenge the established borderlines between a plan, a map and a building, as well as their meaning.

The opportunity to reveal and challenge the relationships between diverse kinds of reality and perception, can be realised through exploring various types of interstitial space, by creating innovative and unsettling spatial interventions. Certain emerging types of digital site-specific art enable the creative investigation of the intersections between various types of reality and their exchanges. For instance, Pablo Valbuena uses mutually interacting digital input and output processes for enabling in-situ spatial projections, injections and incisions, so that para-sites are revealed through light-based drawing. [5]

Creating inter-passages between digital and actual spaces forms part of the author's practice. The emphasis is placed on how interstitial spaces, in terms of code and maths, can be revealed in a physical space, where perception levels can be crossed. New modes of site-specific drawing are developed for tracing and interacting with the half- and by-products of algorithmic flows that remain unbuilt, their meta-dimensionality and the emerging paradoxes, through different modes of innovative spatial intervention. Instead of creating a singularity e.g. translating a digital design into a building, or developing progressions and sequences as in animation, the aim is to create inter-passages between the unsettling heterogeneous and interacting layers of architectural space. Interstitial spaces can be creatively revealed through the use of material/immaterial mediums such as light and line as well as through the

processes of drawing and diagramming, for opening up the interfaces of thought, VR and built architecture. Innovative spatial interventions can be realised through a) site-specific drawing of and onto the actual site, b) interactive spatial diagramming as realised in a site-specific semi-immersive virtual environment. When entering interstitial spaces, viewers encounter neither a mere place, nor an absolute or utopian space, but a kind of inter-passage between real conditions, VR and thought, where an unprecedented kind of spatial experience emerges. Inter-spatiality enables a new philosophical understanding, experience and perception of space, inspiring new types of spatial research and practice in art, architecture and the related fields.

References and Notes:

1. Lev Manovich, "Abstraction and Complexity," NeMe, article no. 94 (2005), http://www.neme. org/main/94/abstraction-and-complexity (accessed November 8, 2010).
2. Friedrich Kittler, "There is No Software," Ctheory, article no. a032 (1995), http://www.ctheory. net/articles.aspx?id=74 (accessed September 7, 2010).
3. Eugenia Fratzeskou, Visualising Boolean Set Operations: Real & Virtual Boundaries in Contemporary Site-Specific Art (Saarbrücken: LAP – Lambert Academic Publishing, 2009), 73–75, 78.
4. Lev Manovich's official Web Site, "The Poetics of Augmented Space," 2005, http://www. manovich.net/DOCS/Augmented_2005.doc (accessed September 17, 2010).
5. LABoral: Centro d'Arte y Creation Industrial, "Pablo Valbuena. Para-Sites," LABoral, http://www. laboralcentrodearte.org/exhibitions/show/135 (accessed January 28, 2011).