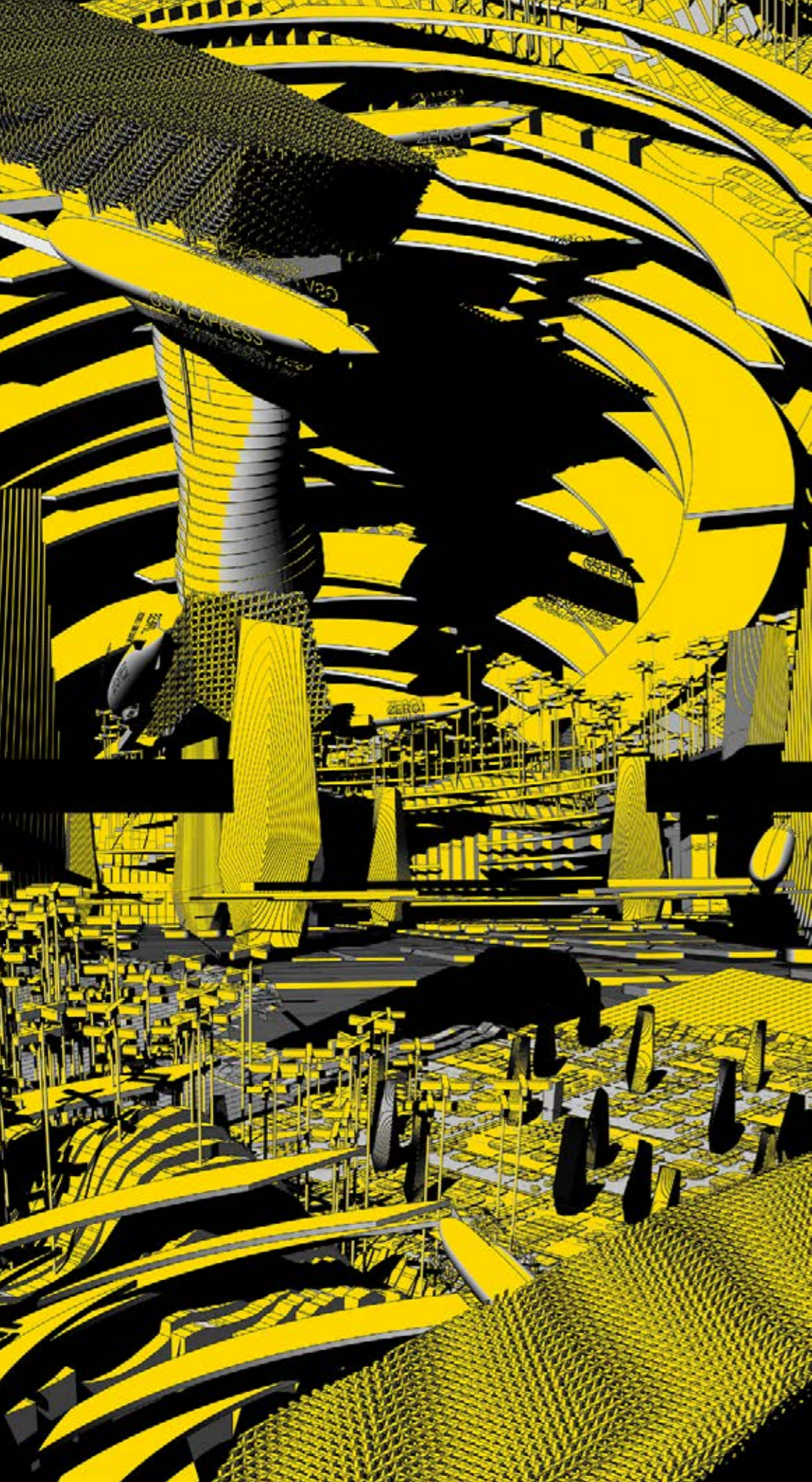


The Chthonopolis

Prof Nic Clear

The Chthonopolis

Prof Nic Clear



Project Description

The Chthonopolis is a speculative architectural design project for a subterranean post-scarcity, post-singularity city that combines elements of architecture, science fiction and research into the Nano-Bio-Info-Cogno (NBIC) technologies (Roco, Bainbridge 2003).

The architecture of the Chthonopolis is created to explore new forms of urban space predicated upon the concept of homo-ludens (Huizinga 1955), where practising the spaces of the city forms part of a vast non-linear emergent network, and citizens interact with each other and their surroundings to create mixed reality labyrinthine spaces.

Project Duration:

2017 - 2019

Funder:

Research funding received from University of Greenwich.

Research Partners, consultants, collaborators:

Project Team:

Project Concept, Exhibition Design and Text: Nic Clear.

Images: Nic Clear, Hyun Jun Park.

Model: Nic Clear, Hyun Jun Park.

Model base machined by Stringer Associates.

Video:

Directed, Written, Edited, Sound, Voice Nic Clear.

Computer animation: Hyun Jun Park.

The Chthonopolis Film: Chronogram
(1 of 3) (2017). Digital Print

Research Aims & Objectives

Research Aims:

- To create a proposal for a utopian underground city of 3 million people conceived as a radical rereading of Le Corbusier's project 'La Ville Contemporaine' (1922), the Chthonic traditions of G.B. Piranesi's 'Carceri d' Invenzione' (1750-1761), and drawing additional inspiration from sources such as the work of artist Sara Sze, the computer game Minecraft and the Mir diamond mine in Siberia.
- To propose an architecture based upon conceptions of homo-ludens alongside the introduction of advanced Nano-Bio-Info-Cogno (NBIC) technology and to imagine a society that questions the neo-liberal fatalism that pervades contemporary market-led architectural discourse by utilising the gamification of everyday life.

Research Objectives:

- To develop a piece of speculative design research that uses the utopian traditions of both architecture and science fiction alongside developments within the advanced Nano-Bio-Info-Cogno (NBIC) technologies to propose a futuristic urban settlement set within a post-scarcity, post-singularity world.
- Develop a critique of contemporary architecture by questioning assumptions of urban design through the development of an underground collectivist urban settlement as an alternative to the dominant architectural models of late-capitalism.
- To propose, a society based upon ludic principles that extends the concept of 'games with a purpose' (GWAP's) into every aspect of everyday life and uses advanced technology to create a network of emergent interactive spaces as part of an advanced cybernetic society
- To develop innovative forms of design research that uses 3D digital design and manufacturing to create drawings, models and animations ,alongside scholarly texts and fictional narratives to communicate futuristic possibilities to a wide and largely non-specialist audience.



The Chthonopolis: Axonometric Section (2017).
Digital Print

Research Context

The Chthonopolis takes as its critical point of departure a number of concepts from a variety of academic sources; Darko Suvin's definition of science fiction as a 'strange newness, a novum' (Suvin 1972), Frederic Jameson's assertion, following Suvin, that the utopian is a sub-genre of science fiction (Jameson 2005), Johan Huizinga concept of homo ludens and B.F. Skinner's description of a utopian society as shown in his novel 'Walden Two' (Skinner 1948).

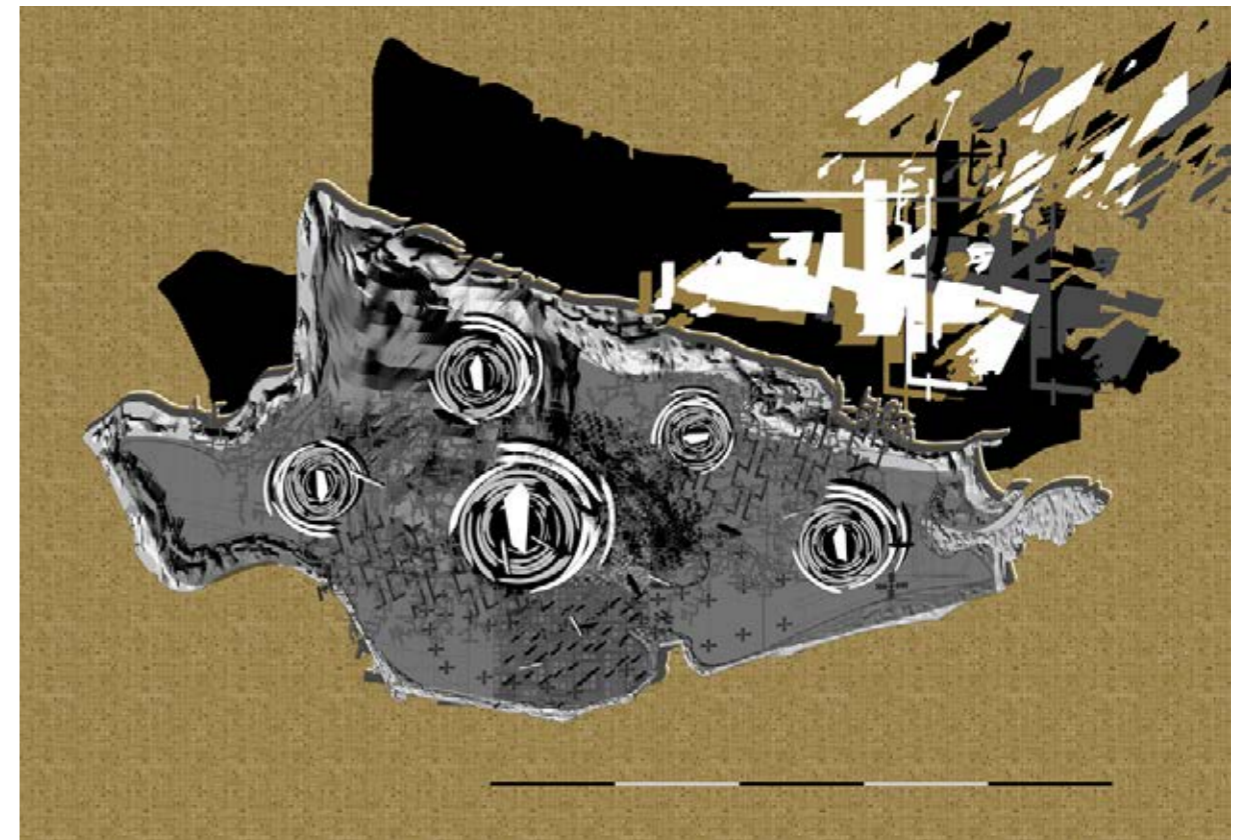
The Chthonopolis is part of on-going architectural research into the relationship of science fiction and architecture, particularly with respect to their mutual utopian traditions, and focusing on immanent developments within the Nano-Bio-Info-Cogno (NBIC) technologies.

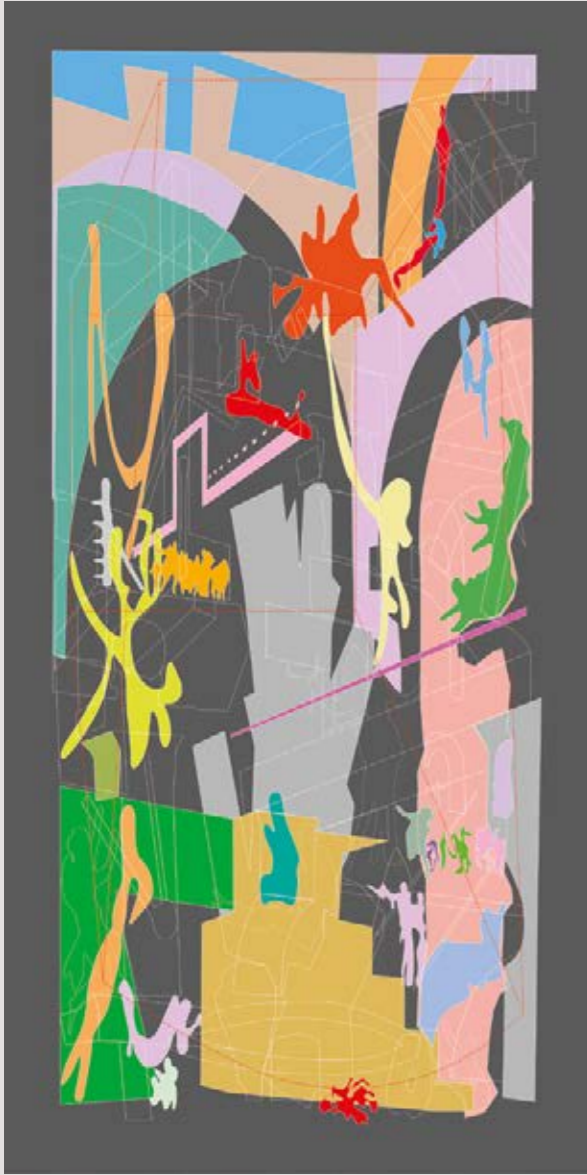
The design of the project draws heavily upon the utopian traditions of 20th-century architecture through a detailed analysis of Le Corbusier's urban projects of the 1920's (Le Corbusier 1987), Giovanni Battista Piranesi's etchings of underground prisons, the 'Carceri d'Invenzione', and Constant Nieuwenhuys' 'New Babylon' project (1955-1971). The design was developed through an iterative process of bricolage, drawing on the work of American artist Sarah Sze, particularly 'The Art of Losing 02' (Sze 2004), alongside ideas around open source software, the development of 'games with a purpose' (GWAPS) such as 'foldit' and video games such as Minecraft.

The Chthonopolis is a ludic society dedicated to developing systems to engage with scientific and philosophical problems, the city is an emergent intelligent system, a single computational network where citizens create the labyrinthine spaces as part of their everyday activities. The Chthonopolis is built within a vast artificial caldera, based in the Mir Diamond mine. The caldera is inhabited by a series of terraces that curve around its edge allowing access to a labyrinth of immersive mixed reality spaces used for a variety of creative and recreational purposes. At its centre is a tower that runs the full height topped by a civic structure that is a reference to El Lissitzky's 'Wokenbugel' (Iron Clouds) (1924).

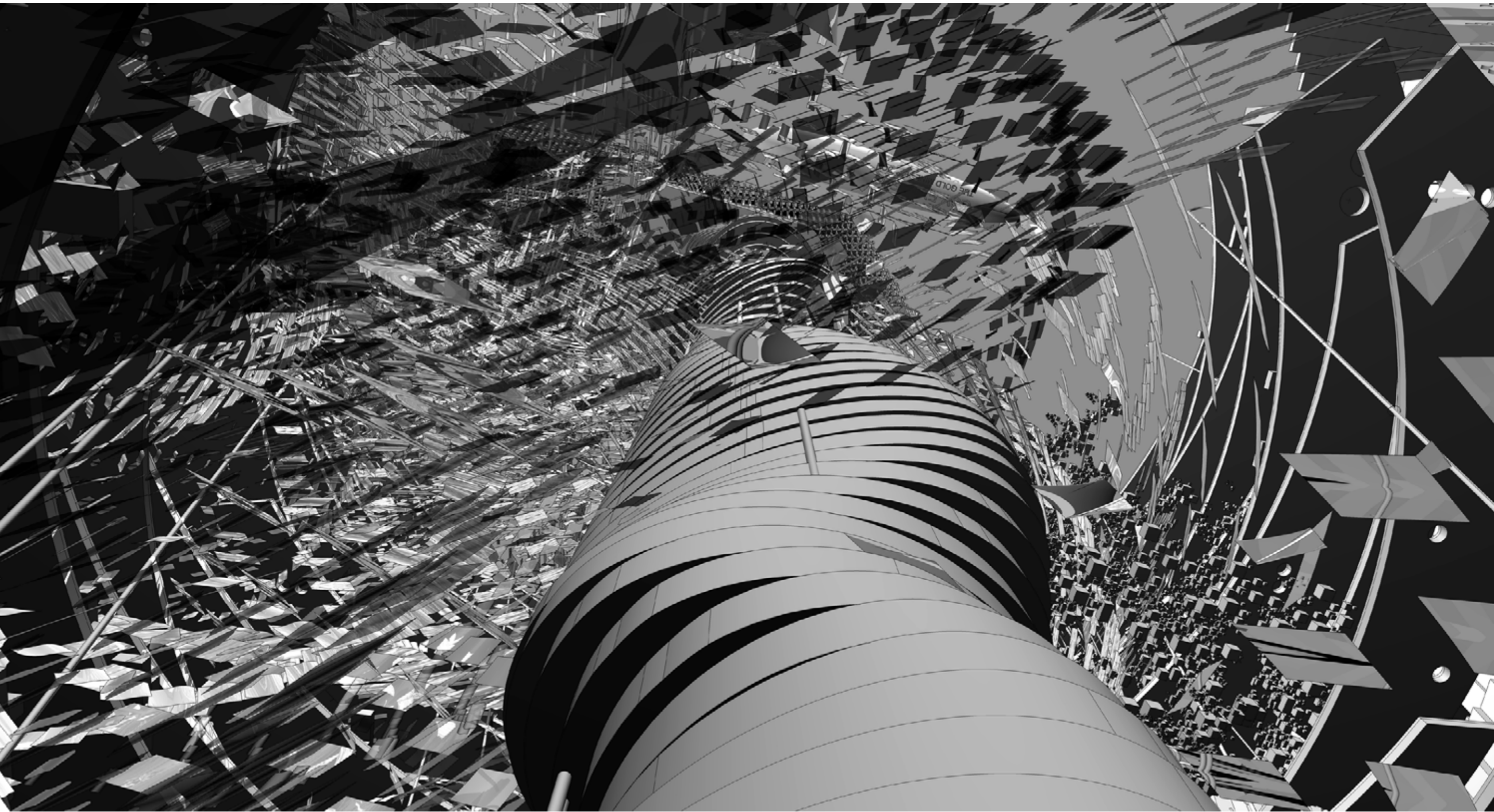
The project follows a current trend that uses science fiction concepts as a way to develop theoretical ideas within non-fictional discourses (Shaviro 2016, Haraway 2017). The Chthonopolis extends those concepts into an architectural proposal. The explicit link to scholarly design fiction in design projects and emerging technologies consciously frames ideas within the framework of science fiction.

The Chthonopolis: Concept Plan
(2017). Digital Print





The Chthonopolis: Dreamspaces (2017).
Digital Print



The Chthonopolis: Perspective (2017). Digital Print

Research Methods & Process

In developing the project, the process of design research was addressed in a number of different ways. Historical research, incorporating the analysis of precedents, was integral to the design development alongside iterative design processes featuring multiple reworkings and examining of the design under critical and aesthetic criteria. Technological research focused upon the incorporation of emerging NBIC technologies within the design proposal. The research includes a number of texts including fictional narratives that seek to situate the work within imagined future.

The Chthonopolis was commissioned for an exhibition that took place in London between 5th May and 23rd June 2017, it was held at 'The Factory' a gallery space in London as part of the London Festival of Architecture. Prior to The Factory exhibition a series of abstract digital paintings called 'Dreamspaces' were shown on lightboxes at the Future Cities 6 exhibition and included in the catalogue alongside a polemical narrative. Versions of these drawings were subsequently shown printed on acetate on the windows at The Factory.

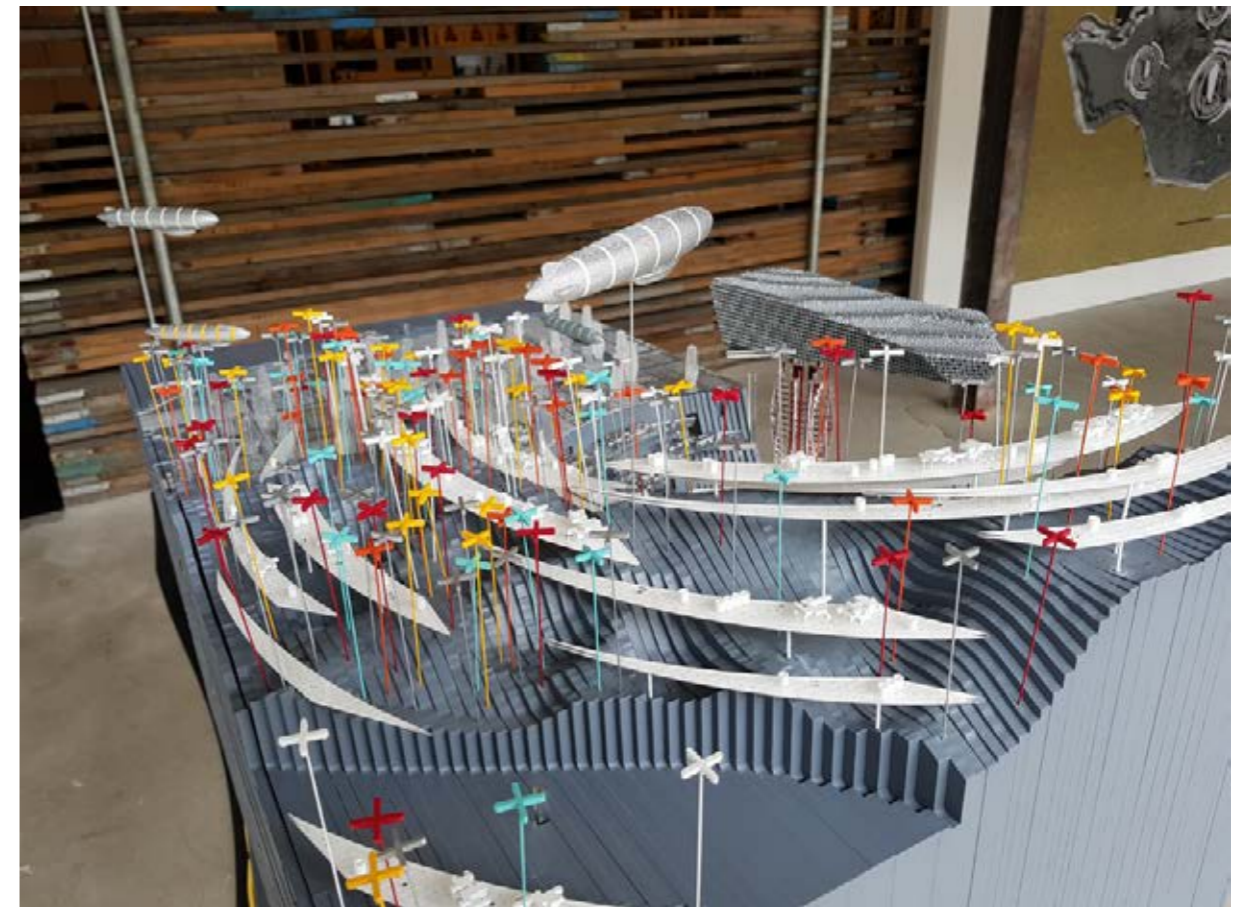
The centrepiece of the exhibition was a sectional model cut through the caldera showing both the complex organisation of the terraces and the layout of the labyrinth spaces. The model was created using a variety of CAD/CAM techniques and was constructed by a commercial fabricator. The model measures 1000x500x500mm and is made of slices of 6mm MDF that are mechanically fixed together using threaded studs. Additional elements were fabricated from a variety of laser cut materials and using 3D printing with other components repurposed from found-objects. Detailed drawings that were developed to enable the manufacture of the model, created using parametric modelling techniques, were converted into rendered drawings many of these were printed onto acetate and suspended in the exhibition space to create an immersive experience as the viewer moves through the gallery.

Photographs of the model from The Factory alongside drawings and a wall-mounted fictional text-piece describing the occupation of the interior spaces were exhibited in a group show in Belgrade titled 'Great War Island'. An animation of the project was entered into the

'59second Film Festival' in Korea where it was awarded first prize, a longer edit of the animation has been exhibited in Greenwich, Huddersfield and at SUSAS in Shanghai.

The variety of work has been an attempt to explore the project under a number of different tropes that combine methodologies from architecture, science fiction and art practice.

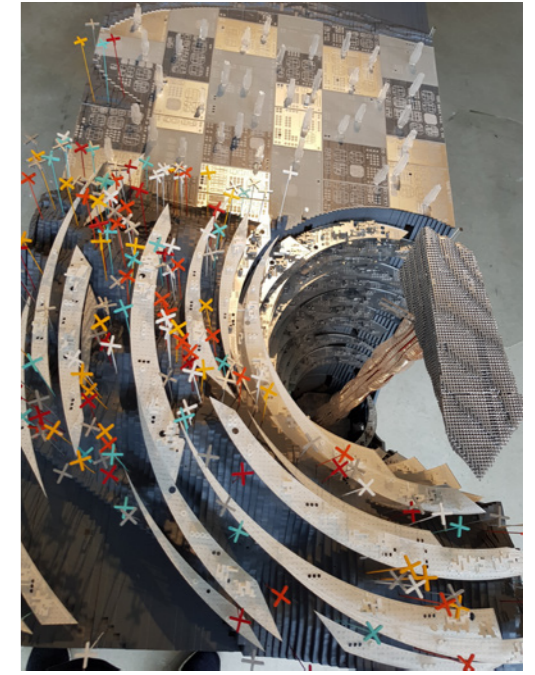
The Chthonopolis: The Factory
Gallery, London. Installation
views (2017). Mixed Media



The Chthonopolis: The Factory Gallery, London.
3D installation scan (2017). Digital Print



The Chthonopolis: The Factory Gallery, London.
Installation views (2017). Mixed Media

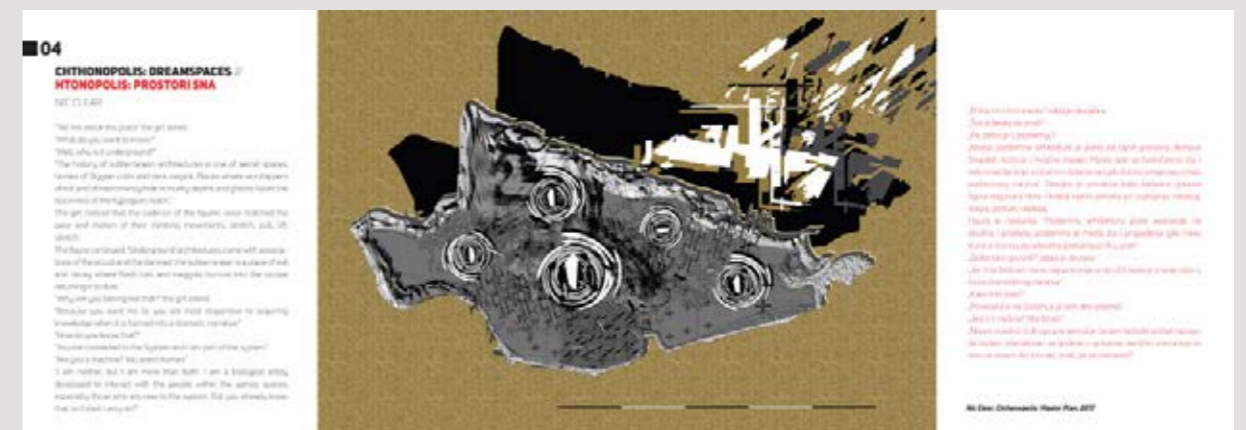


Research Outcomes & Dissemination

The work of the Chthonopolis has been exhibited at eight public exhibitions (three of them international), and has featured in five publications and been the central theme of five public presentations.

The principle drawings and model were commissioned for The Factory exhibition in South London, although a number of the drawings had been previously exhibited at the University of Greenwich as part of the Future Cities 6 conference and exhibition. The exhibition catalogue featuring a polemical text. As part of the 'The Great War Island Exhibition' in Belgrade in the summer 2017, a fictional text was also exhibited alongside photographs of the model and drawings.

A book chapter outlining the utopian ambitions of the project featured in an issue of *Architectural Design Celebrating the Marvelous: Surrealism and Architecture* edited by Neil Spiller in 2018. The model was selected for the 2018 Royal Academy Summer Show and the work was exhibited as part of a group show at the Shanghai Urban Space Art Season.

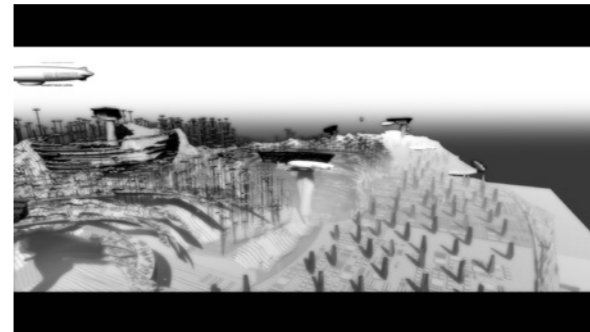
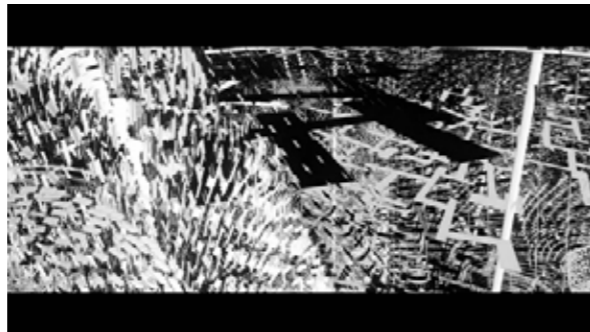
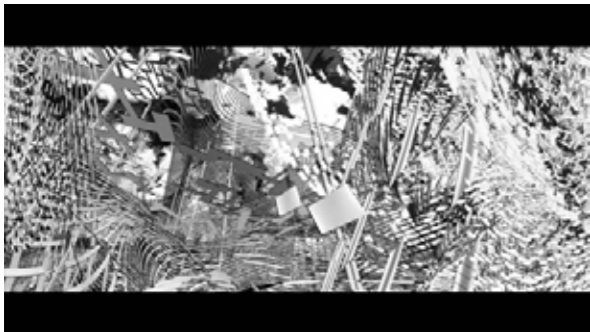
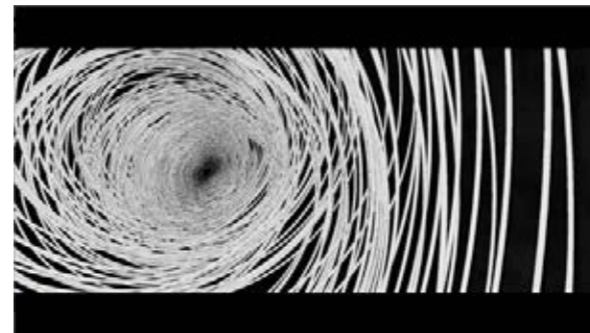
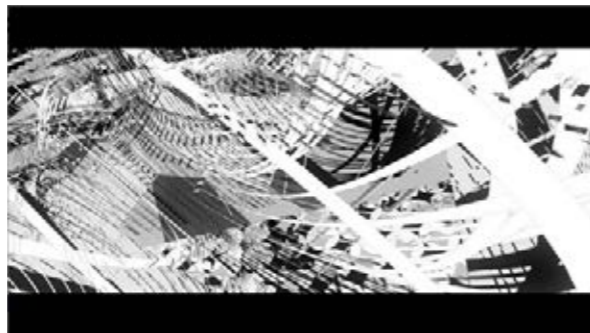
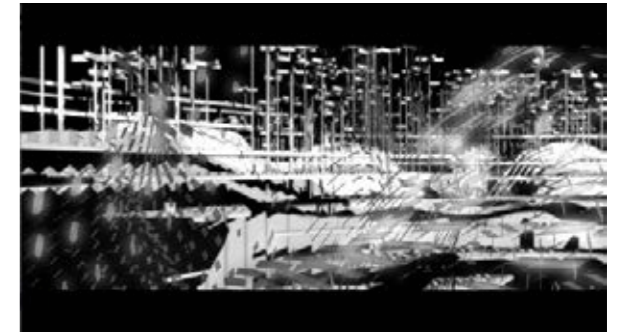
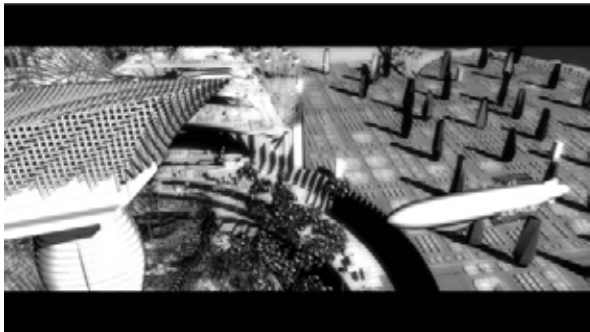
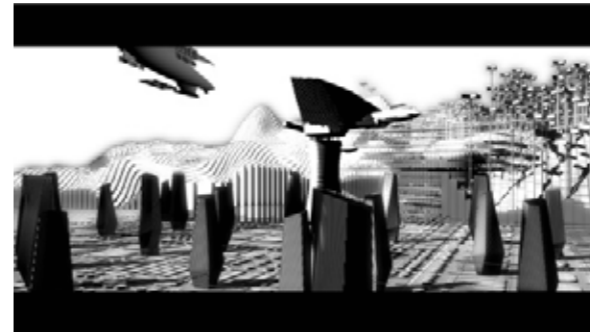
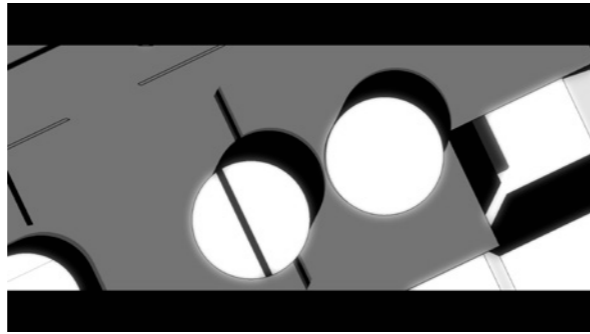
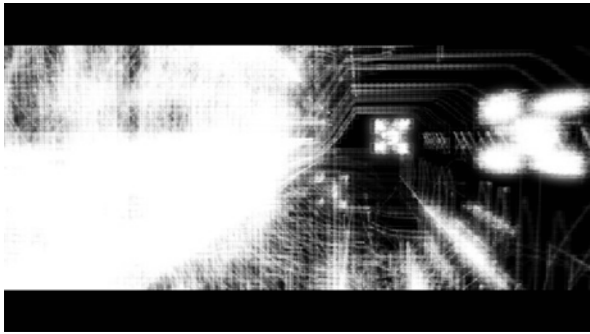


Great War Island: Magacin u Kraljevica, Belgrade.
The Chthonopolis catalogue pages (2017)

Publications:	2017	<p>The Chthonopolis: Labyrinths and Dream Spaces' in Clear, N., Spiller, N. (eds). 'Future Cities 6: Marvelous', London: AVATAR Editions. (p17 to 21)</p> <p>'Dreamspaces' in Great War Island: Desert Fictions, (Ed) Jobst, M., Exhibition Catalogue, Magacin u Kraljevica Marka, Belgrade, Serbia.</p> <p>'Chthonopolis' in 'RIBA Presidents Awards for Research 2017 – Book of Abstracts', RIBA, London.</p> <p>Journal article, 'The Chthonopolis Exhibition'. Science Fiction Studies, 44(3), 637-639. doi:10.5621/sciefictstud.44.3.0637 (p637 -639).</p>
	2018	<p>'Subterranean Speculations: The Chthonopolis', in, Spiller, N., (ed) Architectural Design Vol 252, 'Celebrating the Marvelous: Surrealism and Architecture'. Chichester: John Wiley & Sons, (p120 to 127)</p>

Exhibitions:	2017	<p>Curator / Exhibitor: 'Marvellous', 'Future Cities 6', Project Space, University of Greenwich, London. (April 22nd - May 18th)</p> <p>Solo Exhibition: 'Chthonopolis', The Factory Gallery, London. (5th May – 23rd June)</p> <p>Group Show: 'Great War Island', Magacin u Kraljevica, Belgrade, Serbia. (5th – 20th July)</p> <p>Group Show: 'The Chthonopolis', 59 sec Science Future Film Festival Korea, Gwacheon National Science Museum and Seoul Institute of the Arts, Seoul, Korea (October) (Winner of Best Film Award)</p> <p>Group Show: 'Project Space', University of Greenwich Galleries, London. (27th Nov - 26th Dec)</p>
	2018	<p>Group Show: Royal Academy Summer Show 2018, Royal Academy, London. (12th June – 19th August)</p>
	2019	<p>Group Show: Sensorium 2, Shanghai Urban Space Art Season, Room 204, Green Hill, 1500 Yangshupu Road, Yangpu District, Shanghai, China. (5th October - 30th November)</p> <p>Group Show: The Persistence of Utopia, Cosmia Arts Festival, Market Gallery, Huddersfield. (23rd October – 9th November)</p>

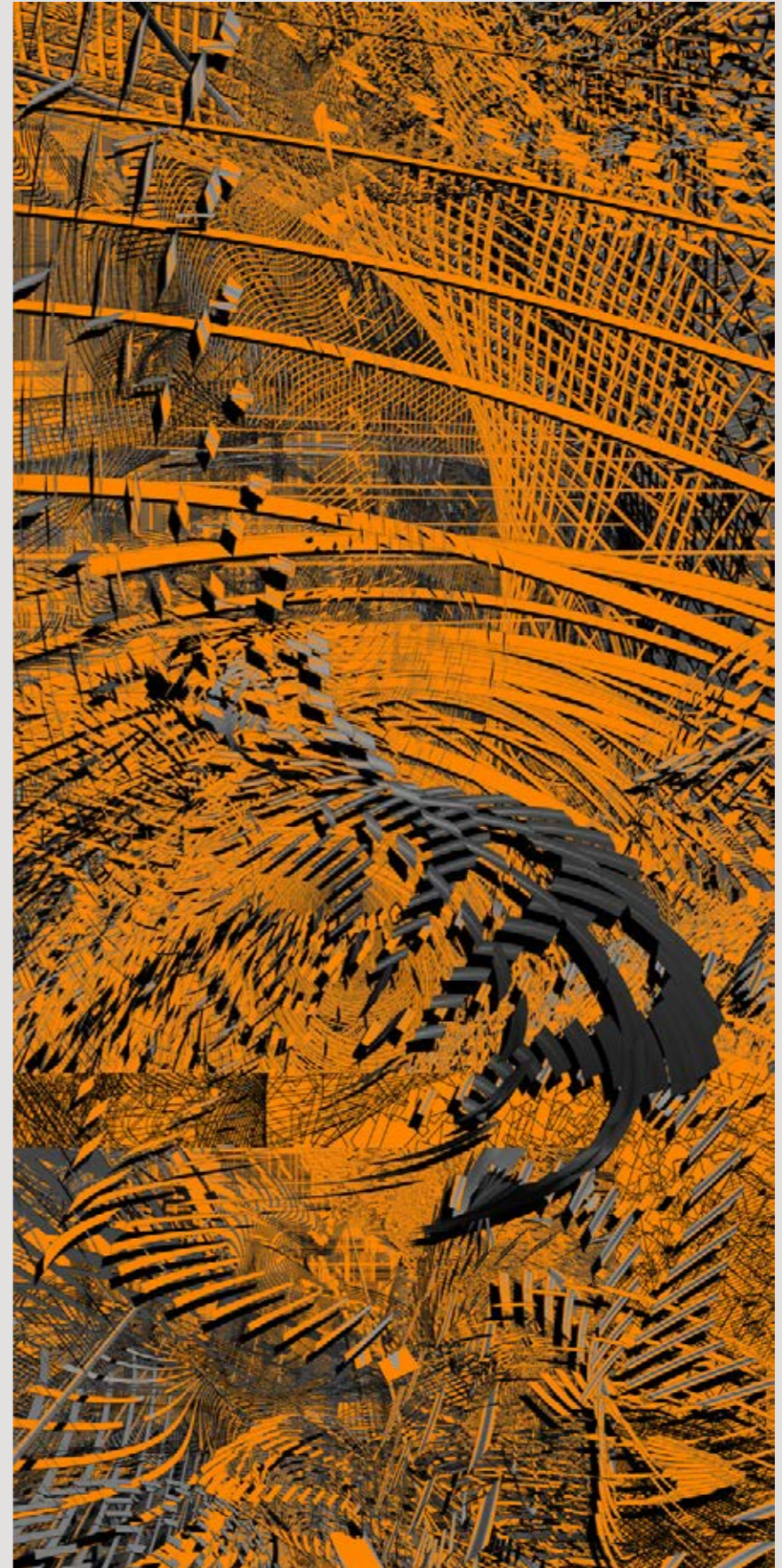
Talks / Presentations:	<p>Conference Paper: 'Dreamspaces": Future Cities 6, University of Greenwich, London. (21st April 2017)</p> <p>Gallery Talk: The Chthonopolis, The Factory, London. (May 2017)</p> <p>Paper: 'Chthonopolis', in 'Organic Systems', London Science Fiction Research Community, Birkbeck, London. (16th September 2017)</p> <p>Public Lecture: 'F.U.N: A City of Tomorrow', Institute for Art and Architecture, Academy of Fine Arts, Vienna. (8th October 2017)</p> <p>Invited Lecture: F.U.N: Future Urban Networks', Innovators Talk, ARUPS, London. (16th November 2017)</p>
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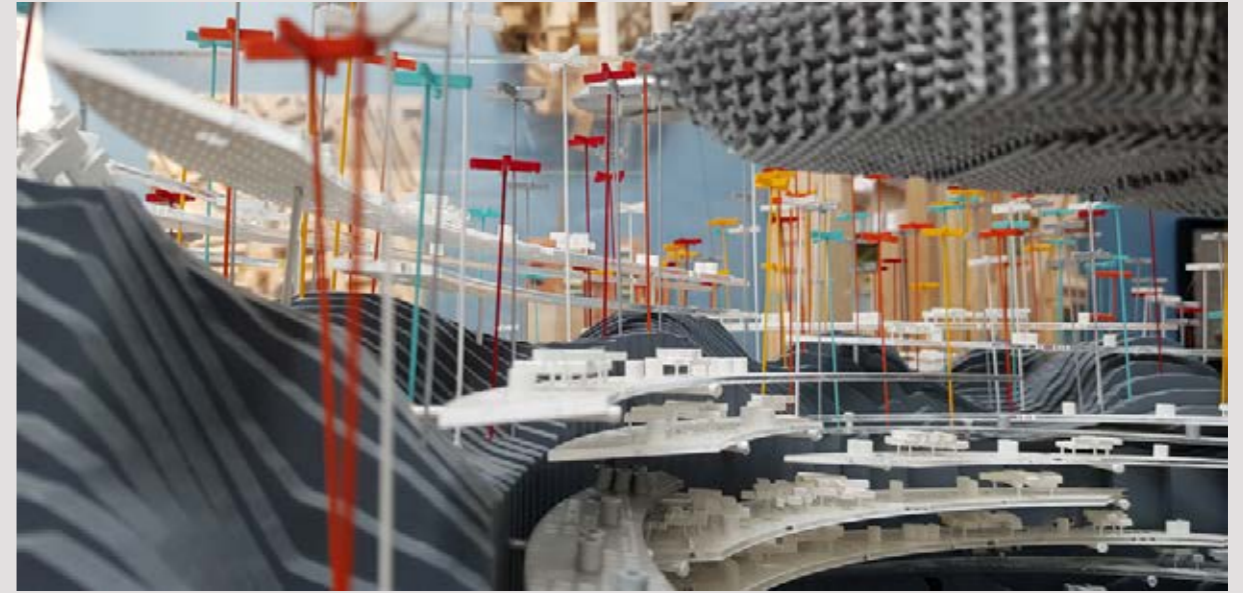
The Chthonopolis: Film Stills (Dir Nic Clear 2017).
Digital video.



Project Space: University of Greenwich.
The Chthonopolis film installation view (2017).
Mixed Media



(Right) *The Chthonopolis* Film: Chronogram (3 of 3)
(2017). Digital Print





Sensorium: Shanghai Urban Space Art Season.
The Chthonopolis (2018). Mixed Media



(Above) *The Persistence of Utopia*: Market Gallery, Huddersfield. *The Chthonopolis* (2018). Mixed Media

(Right) *The Persistence of Utopia*: Market Gallery, Huddersfield. *The Chthonopolis* Poster (2018). Digital Print



Conclusion

The Chthonopolis is an elaboration upon an earlier design project albeit with a new focus and original outcomes. Like the earlier project it is underpinned by ideas developed in the authors theoretical writings, namely that utopian architectures should be seen 'as' science fictions (Clear 2014).

The development of the Chthonopolis uses precedents from architecture and science fiction to inform the iterative design process while examining the social and cultural impact of advanced Nano-Bio-Info-Cogno technologies and emergent networks on future urban formations. The project develops formal innovation by examining the Chthonic traditions of architecture and explores the possibility of a ludic society through the integration of gaming technologies.

The Chthonopolis speculates on important issues around reinvigorating concepts of utopia at a time when neo-liberal ideologies have contested the possibility of alternatives to capitalism (Jameson 2003), and the ethical use of resources organised around a themes post-scarcity through the implementation of post-singularity technology.

The Chthonopolis consists of a wide variety of research outputs: architectural drawings, digital paintings, a detailed sectional model, an award-winning animation and a number of texts, both scholarly and fictional. The project draws upon tactics taken from a variety of disciplines to support its ambitions to appeal to a wide constituency of viewers.



Nic Clear

The history of urbanism...
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 The history of urbanism...

The Chthonopolis Labyrinths and Dream Spaces

017...

Nic Clear

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The Chthonopolis: Labyrinths and Dream Spaces' in Clear, N., Spiller, N. (eds). 'Future Cities 6: Marvellous', London: AVATAR Editions. (p17 to 21)



The Chthonopolis Exhibition. Between 5 May and 23 June 2017, the Chthonopolis exhibition was held in London at "The Factory," a gallery space run by the design company Factory Fifteen. Drawing on my ongoing design research into the relationship of science fiction and architecture, especially to the Nano-Bio-Info-Cogno (NBIC) technologies of a post-scarcity and post-singularity world, Chthonopolis is a speculative design for a futuristic city located in the Thames Estuary fifty miles from London and situated within a vast artificial crater one kilometer across at the top and one kilometer deep. A series of terraces curve around the crater, giving access to a labyrinth of immersive mixed-reality spaces used for a variety of creative purposes. This is a ludic society dedicated to developing gaming systems to engage with scientific and philosophical problems, an emergent intelligent system, and a single computational network where citizens create the labyrinthine spaces as part of their everyday activities.



Model: aerial view

The centerpiece of the exhibition was a sectional model cut through the crater showing both the complex organization of the terraces and the organization of the labyrinth spaces. The initial work, supported by University research funds, enabled the fabrication of the body of a model created using a variety of CAD/CAM techniques by a commercial fabricator. The main bulk

of the model measures 1000 by 500 by 500 millimeters and is made of 84 slices of 6 mm MDF. Additional elements were laser-cut from a variety of materials and printed using 3D printing. Many of these drawings were printed on acetate and suspended from the ceiling of the exhibition space to create an immersive experience as the viewer moved through the gallery.

The Chthonopolis takes as its critical points of departure a number of concepts: Darko Suvin's definition of science fiction as "novum," Adam Roberts's terminology of technology fiction rather than science fiction, the idea of Fredric Jameson (following Suvin) that the utopian is a subset of science fiction, Johan Huizinga's concept of *homo ludens*, B.F. Skinner's description of a utopian society based on behavioral conditioning, Donna Haraway's recent work around kinship, and Iain M. Banks's space-faring anarcho-libertarian civilization, "The Culture."

The design draws on the utopian traditions of the early 20th century, particularly the Futurist Antonio Sant'Elia's "La Città Nuova" (1912-14), the Russian Constructivist Iakov Chernikov's "architectural fantasies" (1933), and the urban proposals of Le Corbusier's "Une Ville Contemporaine" (1922) and the "Plan Voisin" (1925). Formally it is inspired by the work of contemporary artist Sarah Sze, the New Babylon project of Constant Nieuwenhuis (1920-2005), Kurt Schwitters's Merzbau (1923-37), and Giovanni Battista Piranesi's imaginary prisons or "Carceri" (1750-61). The project also draws on current ideas around open-source software and the development of "games with a purpose" (GWAPS) such as "foldit." The project aimed to question the market-led fatalism that pervades contemporary architectural thinking and also to wonder why, given the conceptions of utopia as a subgenre of the wider discourse of sf, the utopian tradition in architecture is not a more recognized part of sf scholarship.¹ The scale and scope is based on Le Corbusier's "Une Ville Contemporaine," mentioned above, a city of three million people. The decision to locate the city underground was influenced by the computer game "Minecraft" and the idea of an architecture created as much by subtraction as by additive methods.

The central aim of Chthonopolis is to be a provocation, questioning any view of the city overly dominated by the ideologies of neo-liberalism. By positing the project in a world of abundance, contemporary issues around the use of resources are also thrown into question. The project follows a current trend of using sf narratives to explore themes and ideas within non-fictional discourses. Theorists such as Steven Shaviro (*Discognition*) and Donna Haraway (*Staying with the Trouble*, 2016) use science fiction as a way to develop theoretical concepts; as Shaviro states: "perhaps we will be able to imagine what we are unable to know" (8). Using science fiction can also help in the dissemination and understanding of ideas to a non-specialist audience. The work in the exhibition is an elaboration on an earlier design project, "The Gold Mine," exhibited at the 72nd World Science Fiction convention (London, 2014) and selected for the 2015 Royal Academy Summer Exhibition.

The Chthonopolis exhibition was commissioned as part of the London Festival of Architecture; some of the drawings were exhibited at the University

of Greenwich as part of the Future Cities 6 conference and exhibition. A more conventionally fictional element was exhibited as part of the "The Great War Island Exhibition" in Belgrade in Summer 2017. A detailed article on the utopian ambitions of the project will feature in an upcoming issue of *Architectural Design* to be published in 2018.—Nic Clear, School of Architecture, University of Greenwich; Designer and Curator, Chthonopolis


NOTE

1. For more on the idea of architecture as sf, see my entry in Latham (277-90).


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- Latham, Rob, ed. *The Oxford Handbook of Science Fiction*. New York: Oxford UP, 2014.
Shaviro, Steven. *Discognition*. New York: Repeater, 2016.

PRESIDENTS AWARDS FOR RESEARCH 2017



Book of Abstracts

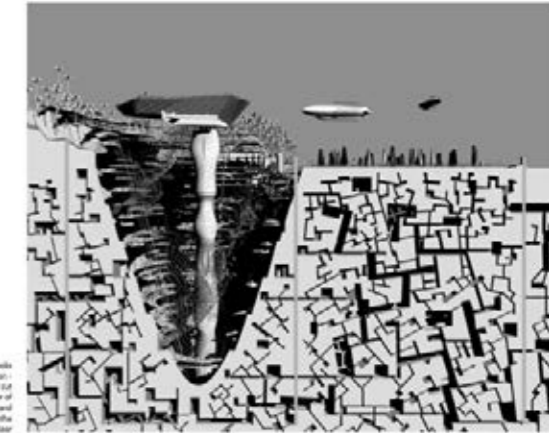
RIBA 
Architecture.com

Chthonopolis

Nic Clear & Hyun Jun Park, University of Greenwich, UK

Chthonopolis is a speculative design project for a subterranean post-singularity city, located in the northern part of the Thames Estuary in the year 2165. The project attempts to imagine a utopian city based upon ludic principles. The Chthonopolis is built in an artificial crater 1km wide at the top and 1km deep; it is home to around three million people and created for the purpose of allowing access to a labyrinthine network of underground spaces that form a vast computational system. The Chthonopolis is a settlement predicated on the idea of using the city space as an augmented game space that is part of a mixed-reality computational system whose practicing the space of the city and completing complex spatial problems feeds into an information network and allows the system to develop a variety of socially beneficial outcomes. The Chthonopolis project currently exists

in three forms: the principal output is a speculative architectural design proposal that currently includes drawings and a physical model and is being exhibited as part of the London Festival of Architecture. The second part of the research takes the form of traditional architecture / science fiction scholarship engaging with the relational top of architecture and science fiction particularly the utopian tradition. The final part of the research is a fictional text that helps embody the story within a traditional science-fiction narrative, a part of this text along with some of the drawings will be developed as part of another exhibition this Summer. Chthonopolis is an extension to an earlier speculative design research project, which was exhibited at London 3, the 72nd World Science Fiction Convention in 2014 and was selected for the Royal Academy Summer Show in 2015.



Chthonopolis
Section -
showing interior of
central core and
detail of labyrinthine
© Nic Clear

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Output Type:

Chapters in edited books, curation of exhibition, solo exhibitions, contribution to collaborative group exhibitions, architectural design, film