Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences

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Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

The graduation plan consists of at least the following data/segments:

Personal information	
Name	Edward John Zammit (together with Lauritz Bohne & Lea Scherer)
Student number	5375797

Studio		
Name / Theme	Explore Lab / -	
Main mentor	Dr. Georg Vrachliotis	Architect, Professor of Theory of Architecture and Digital Culture - Department of Architecture
Second mentor	Ir. Ferry Adema	Building Technology
Research Mentor	Dr.ir. Heidi Sohn	Architect, Associate Professor of Architecture Philosophy and Theory
Argumentation of choice of the studio	We, Lauritz Bohne, Edward Zammit and Lea Scherer, are currently working as a team on our graduation project. Together we share the deep fascination of exploring architecture as site of sensor technology, thus challenging the conventional reading of space to finally come up with an understanding of architecture as a system that is to be explored on the global scale. Explore Lab gave us the freedom to start this project and pursue to work on a subject we are truly passionate about.	

Graduation project	
Title of the graduation project	Sensing Domesticity: Towards A World Interior
Goal	

Location:	Planet Earth // The project acknowledges architecture as a system forming an assemblage of various interrelated locations around the globe. These sites emerge from a dissective analysis of specific 'sensors' found in the home, and range in scale from the mines of the extraction of vital raw metals without which the sensors wouldn't function (Chuquicamata, Chile), to global infrastructural sites that communicate with such sensors (Weather monitoring stations in Antarctica).
The posed problem,	The increasing introduction of sensor technologies into our built environment embeds the house in an ever-growing network of infrastructures. Their material manifestations in the form of radio towers, satellites, weather stations, or material extraction sites evoke the necessity of a re-definition of what we might call 'domestic'. This largely unrecognized development entails a problem of representing and designing the house as a singular entity and testifies to the need for a technical and material understanding of these infrastructural spaces.
research questions and	It becomes clear that a new way of reading, understanding and visualizing the contemporary domestic condition is required, superseding the house as a cultural construct and acknowledging it as part of a dynamic process of constant change. In this regard Sensing Domesticity raises the question: What new spatial articulations of domesticity can be achieved when domestic sensors are instrumentalised as mapping tools, and thus liberated from their background role and integrated directly into the design process?

design assignment in which these result.	Realising the entanglement of the domestic with so-called infrastructure leads to an elaboration of the mechanisms of such systems, both already existing, as well as fictional ones which emerge from the speculation on the future. Existing global connections that have been mapped out in the research are acknowledged, strengthened and rethought within A World Interior. The latter becomes the speculative narrative that instead of reviving ideas of 'the outside' and 'the inside' or 'nature' and 'artificial' understands the world as an anthropogenic construct that is to be designed as such.

Process

Method description

Preliminary research

The preliminary research investigates the genealogy of the sensing system of the house in four historical degrees: from the primitive hut to the contemporary house. The resulting drawings reveal the increasing reliance of the house's sensors on external technical systems and globally sourced materials. Through this method, we come to interpret the house as a node in which multiple global infrastructural systems come together, manifesting into sensors: 'domestic' objects that could be found in any stereotypical western household.

A selection of three of these sensors was made: the wifi router, the camera, and the thermostat. The three objects were chosen as strategies to construct a newfound understanding of the 'sensing house', through notions of communication, security, and comfort, each corresponding to the chosen sensors respectively. The object grows from being a mere object to being the starting point of a method to understanding their spatial agencies.

Dissection

Acknowledging that each of these 3 objects forms part of a larger system, the research dissects each sensor with the aim of revealing its global footprint. Through the process of dissection, we expose the planetary scale of the system that it is part of: the physical extraction of its raw materials, the geopolitical forces behind the sensor's use and the territorial infrastructure that allows the sensor to function, amongst others. This is visualised through the use of world maps, diagrams, and a catalogue of objects that documents the physical agents behind each system, from a scale of 2:1 to 1:200. This methodology aims to address the vast range in scale of the so-called 'World Interior', by repeatedly zooming in and out, from the compact microchips inside the sensors to the wide expansive mines behind the extraction of their raw metals.

As a team of three, the research is constructed as a conversational process that is viewed from three interchanging lenses: Language, Material, and Scale, diving into constant negotiation between the three of us. Teamwork is seen as the pedagogical method to not only increase the quantity but more importantly the quality of work: as an anrichment of complexity in the thought and design process. A shared glossary which is developed alongside the research has helped to exchange, clarify and nuance key terminology between the three of us.

Design method

The shift to the design stage returns to the genealogical degrees in the preliminary research. Informed by the research body gathered as an analysis of the 'fourth degree', the next step asks how current and emerging anthropogenic forces may shape the sensing systems of the 'fifth degree'. It narrates the development of three technologies in a series of speculative fictions, situating them in sites that act as nodes of infrastructure that have already been mapped out in the main research.

These three narratives will interpret three distinct design urgencies: terra-forming, privacy-forming and climate-forming; developed from the initial selection of the three sensors. Being a team of three, each of us will individually tackle an urgency of their own interest, while also being aware of their intersections and interrelations.

Literature and general practical preference

In the following Literature and Practical Preferences are linked to keywords and notions essential to our research and design.

Literature, Documentaries and Lectures

Infrastructure
// Dyer, Sophie, and Eline Benjaminsen . "Spectral Topographies ." Migrant Journal, Wired Capital, 2 (2018): 34–47.
// Easterling, Keller. Enduring Innocence. Cambridge , MA: The MIT Press, 2005.
// Easterling, Keller. Extrastatecraft - The Power of Infrastructure Space . London, UK: Verso, 2014.
// Documentary of World Brain. Arte, 2017. https://www.arte.tv/de/videos/050970-001-A/world-brain/.

Media
// May, John. Signal, Image, Architecture. New York, N.Y: Columbia Books on Architecture and the City, 2019.
// McLuhan, Marshall, and Louis H. Lapham. Understanding Media - the Extensions of Man. Cambridge , MA: MIT Press, 1994.
// McLuhan, Marshall, and Quentin Fiore. The Media Is the Massage. Berkeley, California: Gingko, 2001.
// Parikka, Jussi. A Geology of Media. 46. Vol. 46. Electronic Mediations. Minneapolis: University of Minnesota Press, 2015.
// Önal, Gökce. "Media Ecologies of Remote Sensing." Datapolis Lecture Series. Lecture, May 6, 2021.u

Urbanism on a Planetary Scale and World Interior
// Bratton, Benjamin H. The Terraforming. Moscow, Russia: Strelka Press, 2019.
// Sloterdijk, Peter. Im Weltinnenraum Des Kapitals: Für Eine Philosophische Theorie Der Globalisierung. Frankfurt am Main: Suhrkamp, 2006.

Technology and Spatial Agency
// Crawford, Kate, and Vladan Joler. "Anatomy of an AI System." Anatomy of an AI System. Accessed October 14, 2021. https://anatomyof.ai/.

Theory
// DeLanda, Manuel. "Space: Extensive and Intensive, Actual and Virtual." Essay. In Deleuze and Space. Edinburgh, UK: Edinburgh University Press, 2005. https://edinburgh.universitypressscholarship.com/view/10.3366/edinburgh/9780748618743.001.0001/upso-9780748618743-chapter-5.
// Simondon, Gilbert, and John Rogove. On the Mode of Existence of Technical Objects. Translated by Cecile Malaspina. Minneapolis: Univocal Publishing , 2017.

Practical Preferences

Terraforming
// The Strelka Institute's Terraforming Program

Automated Landscapes
// Our fieldtrip with Professor Georg Vrachiliotis, Media theorist Estelle Blaschke and photographer Armin Linke to Automated Landscapes of the Netherlands.
// Het Nieuwe Instituut, Automated Landscapes

Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?

Having first met and collaborated in the M.Sc. Semester 1 studio ‘Methods & Analysis’, the three of us developed a mutual interest in alternative and experimental methodologies of spatial understanding, most noticeably through the use of digital tools. Having worked as a group yet again in the following semester, in the Datapolis studio under the Chair of Complex Projects, we collaborated on a project that aimed to reveal the intricate spatial systems and infrastructure behind Artificial Intelligence. Through the project, all three of us developed a deep appreciation for systematic thinking, understanding that the most effective way of bringing the digital into architectural discourse, is to trace it back to its material, physical footprint.

Fortunately, we have found ourselves in an academic environment that acknowledges the ongoing paradigm shift in architectural thinking, and the increasing relevance of the digital sphere in the built environment. ExploreLab has given us the opportunity to develop our fascination even further, not only by allowing the three of us to work together and further pollinate each other’s ideas, but also to collaborate with the newly founded chair of Theory of Digital Culture, that shares the same drive for exploring the emerging digital discourse in architecture.

2. What is the relevance of your graduation work in the larger social, professional and scientific framework.

The project departs from the fascination of the nanotechnological power of sensing technologies invading our built environment and reaches the exploration of their global material and thus spatial implications. This testifies not only to the attempt to provoke an understanding of architecture in terms of scale but above all to embed it in a field of tension between technology and media studies - fields that have often been ignored in the architectural discipline.
While subchapters of the research - such as Language, Material and Scale - examine precisely this relationship between technology, media studies and architectural agents, the subsequent perspectives of The Inhabited System, Machine Vision and Interior Weather Maps open up on the social implications:
The former stresses the understanding of infrastructural spaces as inhabited spaces bound to geopolitical actions. The second is a reflection on a new legibility of our environment in terms of machine vision, which overcomes the semiotics tied to our human vision. Finally, the implementation of learning sensors and their connection to the anticipation of human behaviour is discussed.
The project thus forms a constant interdisciplinary dialogue that has also been incorporated practically throughout the research phase: Two field trips to Greenhouses in the Netherlands (Ter Laak Orchids, Priva) not only allowed us to exchange content with data scientists and engineers but also to stress the importance of architecture in these automated landscapes together with architectural photographer Armin Linke.
The design will strengthen the explored relationships of architecture to other fields, and will try to unveil and design the potentials of infrastructural spaces. In overcoming the idea of the house as singular entity the project highlights the necessity of investigating our built environment much more as a relationship as a set of different systems.