xCoAx 2021 9th Conference on
Computation, Communication, Aesthetics & X

2021.xCoAx.org

New Eyes: Probing the Visual Cultures of the Technosphere

Keywords: Environment, Technosphere, Architecture, Computation, Digital, Media, Visual Culture

Corneel Cannaerts
corneel.cannaerts@kuleuven.be
KU Leuven, Ghent, Belgium

Michiel Helbig
Michiel.helbig@kuleuven.be
KU Leuven, Ghent, Belgium

The emergence of the technosphere, a planetary accidental megastructure comprised of networked emerging technologies, leads to novel ways of seeing and understanding our environments. The paper questions the impact of these new visual cultures on architecture and urban design, practices that rely heavily on visual media. The research is contextualised and framed in contemporary design and artistic practices engaging with digital technologies as means of understanding the complexities of our technologically saturated environments, The paper looks into a series of case studies that probe the visual cultures of the technosphere, looks at emerging technologies as a lens for mapping environments and discuss the medial practices and strategies developed in the work.

1. Introduction

The environments in which we operate as architects are increasingly saturated with digital technologies, resulting in a technological layer spanning the globe which has been described as the technosphere[1], in addition to the geosphere, biosphere, hydrosphere and atmosphere. Emerging technologies impact how we see ourselves and understand our environment, they produce a constantly updating plethora of images, maps an representations of our world. The visual cultures these technologies give rise to are not just representing but actually *producing* the environment in which we operate, i.e. our world is increasingly experienced and made through digital media. This paper questions how architecture, a discipline whose practice relies heavily on the visual media responds to these novel ways of seeing and the visual cultures it produces? Can we develop new ways of understanding and practicing architecture through the novel ways of mapping our world and the visual cultures afforded by digital technologies? The paper addresses these questions by situating the work in the context of the ongoing practice and research projects of fieldstation studio, relating the work to state of the art practices and research, setting up a framework of notions and concepts and demonstrate them through projects. The research is based on a number of case studies consisting of projects, mappings, videos and speculative software developed by fieldstation studio.

2. Context

Fieldstation studio was initiated by Michiel Helbig and Corneel Cannaerts in response to the challenges to architectural practice and culture posed by the emergence of the technosphere, an accidental planetary megastructure of digital technologies. Fieldstation studio was set up as a learning environment confronting research, education and practice with real-world challenges through collaboration with external partners. Fieldstation studio is a node in the international Fieldstations eV[2] network of architects, artists, scientist and activists exploring new models for architecture in relation to the Anthropocene and the technosphere. The network consists of a growing number of local nodes, collectively it organizes workshops, exhibitions and summer schools[3] and lectures.[4] We approach the built reality and architecture as only one of the layers that make up the environments we inhabit, it is embedded within other material and immaterial layers, and it contributes to larger economic, political, material, environmental, technological and infrastructural systems. Within the design studio, this expanded field, this constantly changing, layered and hybrid environment is seen as the context architecture operates in.

1. Peter Half coined the term Technosphere in 2014, referring to all man-made structures, we use a more concise definition of the technosphere as the global infrastructure resulting from digital networked technologies, similar to the accidental megastructure described in Benjamin Bratton's *The Stack*.

2. The Fieldstation network initially had its headquarters at Teufelsberg , an artificial hill constructed from the rubble of Berlin after the second world war, on the site of the Nazi military-technical school designed by Albert.

3. Several workshops and summerschools were organised: Sense, Adapt, Create http://fieldstations.net/sense-adapt-create/, If This(), Then(Keephouse); http://fieldstations.net/wekeephouse/

4. Fieldstation Berlin organises a lecture series at the Deutsches Architektur Zentrum, Michiel Helbig and Corneel Cannaerts, gave a performance lecture in this series on June 29 2019.

Fieldstation studio engages with the complex reality described above by rethinking our modes of operation, the toolbox we use and our position as architects designing embedded in this layered and hybrid environment. The studio investigates the potential of architecture as a medium to explore disrupt and raise questions rather than solving them. We proclaim that architects should proactively engage the complex reality of today rather than passively waiting for design briefs and projects. Students are trained in taking positions within contemporary fields and are the studio provides them with a platform for developing their future practice. Additional elective courses provide students with the necessary critical tools, skills and design media. The tools of choice are design fiction, spatial narratives, speculative media, imagineering, hacking and critical making. The studio operates as a collective practice, students are encouraged to actively participate in the organization and content of the studio, breaking out of the confines of academic architectural education. We undertake fieldwork and actively seeks encounters with practitioners, thinkers, makers, hackers, architects and artists operating in similar fields, to exchange alternative practices, to share experiences and ideas.

3. State of the Art

Architects, both in practice and in academia have generally approached digital technologies as an extension of their toolbox, developing digital means for drawing, modeling, calculating and communicating architectural ideas. Research into the digitalisation of architecture, in the fields of computer aided design, building information modelling, virtual and augmented reality, digital and robotic fabrication... tends to look inward into how technologies impact the use of design media in architecture[5]. Related fields of research look at how digital technologies manifest themselves in the built environment, most of the research into smart cities, smart homes and internet of things pushes a positivists technological agenda and mostly lacks the criticality to assess the spatial impact of these technologies. A relatively small number of practitioners and researchers within architecture and related disciplines critically engage with the emergence of the technosphere, the increasing digitalisation of our environment, beyond the instrumentality of design media and the uncritical pragmatics of all things 'smart'.[6]

Unknown Fields Division,[7] a design studio and research practice run by Liam Young and Kate Davies, undertakes fieldtrips to what they call the 'dark site of the city', the mines, factories, waste dumps, logistics and infrastructures that enable our technologically saturated lifestyles. They use their skills in data

5. An online compilation of paper presented at key CAD conferences in those fields is hosted at CUMINCAD, see http://papers.cumincad.org/

6. See Shannon Mattern, *A City Is Not a Computer*, Places Journal November 2017, see https://placesjournal.org/article/a-city-is-not-a-computer/

7. See http://www.unknownfieldsdivision.com/ consulted on 25/02/2020.

mining, surveying, modelling, storytelling, image production and cinematography, to tell tales from what they call *city everywhere*, and compile these into videos, performances[8] and publications[9]. *Scanlab Projects*[10] is an architectural practice that uses digital scanning, modelling and cinematography to represent environments, landscapes and events into compelling visualisations. *Landskip lab*,[11] a research laboratory and landscape architecture practices specialised in understanding our environment through innovative and traditional surveying technologies, develops tools for collecting, navigating and visualising large data sets and integrating them in urban and landscape design practice. *Territorial Agency*,[12] develops research into territorial and spatial transformation, for example in the Oceans in Transformation, using earth observation, data visualisation to visualise, map and understand the complex layered territories. *Forensic Architecture*[13] uses architecture as a device to undertake investigations into human rights violations, collaborating with activist groups, NGO's and international organisations. Using remote sensing, cross referencing media, material analysis, interviewing and crowdsourcing they construct spatiotemporal forensic models of how events unfolded, exposing state violence and secrecy.[14]

Artistic practices related to architecture deal more directly with the media ecology or new forms of visibility and opaqueness brought forth by the technosphere. In his book the *New Dark Age: Technology and the End of the Future*,[15] James Bridle argues against the belief that increasing computational power and availability of data leads to clearer understanding of the world. Metahaven voices similar concerns focussing on opaqueness and transparency related to surveillance in *Black Transparency: The Right to Know in the Age of Mass Surveillance*.[16] *Vertical Atlas* a project by Digital Earth and Het Nieuwe Instituut,[17] works with over 50 artists, designers and scholars in compiling an atlas of the technosphere, including mappings and narratives from all continents. Trevor Paglen[18] worked on exposing landscapes of surveillance using photography and camera technologies borrowed from disciplines like geography to explore the limits of visibility. Recently he has been looking into imagery produced for machines instead of humans in the development of machine learning and artificial intelligence. In the work From '*Apple*' to '*Anomaly*',[19] he presented a mural consisting of a selection of 30.000 images from imageNet, a data set used to train machine learning models, revealing peculiar associations and biases.

These state of the art examples demonstrate how architects and artists respectively engage with the complexities of the technosphere and approach technologies not as neutral or transparent means for seeing and mapping our world, but as highly politicised infrastructures and territories that hide as much as

8. Liam Young, City Everywhere (https://www.youtube.com/watch?v=rE_c0hmx9Fg)
Hello City (https://www.youtube.com/watch?v=Nx9ydyQsSSk) performances, consulted on 25/02/2020.

9. See Young, Liam & Unknown Fields Division, eds. *Tales from the Dark Side of the City*, AA Publications 2016.

10. See https://scanlabprojects.co.uk/, consulted on 25/02/2020 .

11. See https://www.landskip.ch/, consulted on 25/02/2020.

12. See https://www.territorialagency.com/, consulted on 25/02/2020.

13. See https://forensic-architecture.org/ consulted on 25/02/2020.

14. Weizman, Eyal. *Forensic Architecture: Violence at the Threshold of Detectability*. Brooklyn, NY: Zone Books, 2017.

15. Bridle, James. *New Dark Age: Technology, Knowledge and the End of the Future*. London ; Brooklyn, NY: Verso, 2018.

16. Kruk, Vinca, Daniel van der Velden, and Metahaven, eds. *Black Transparency: The Right to Know in the Age of Mass Surveillance*. Berlin: Sternberg Pr, 2015. »

they reveal. In the architectural examples emerging technologies are used to extend the architectural toolbox to reveal the complexities of our interconnected and mediated world. In other words technology expands not only the architectural design media but also the subject matter and content addressed within these creative practices. Similarly, the projects presented in this paper look at emerging technologies as architectural media and how they enable us to critically engage with the media-ecologies of our technologically saturated world.

4. Probing the Technosphere

> *"The shift in meaning could not be greater: once a reference to an ideal geometric figure of Euclidean space, a harmonic surface spanned by the same distance to a central point – today a functional description of a complex and integrated metabolic system, an endless circulation of energy and matter through shapeless domains, or spheres. Moreover, every one of these messy spheres intermingles with every other. Where does the gaseous atmosphere end? Where is the hydrosphere absent? Where is the planet uninfluenced by the biosphere? Where is the technosphere not at work? How do we approach, let alone construct, this paradoxical notion of a shapeless sphere, not to mention the idea of many spheres blending into one?"*[20]

The technosphere, as coined by Peter Half in 2014[21] encompassing all of humanity and human made artefacts, and thus intersecting the geosphere, biosphere, atmosphere and other spheres as defined in geology. The technosphere intermingles and interacts with other spheres, it cannot be seen in isolation but is entangled with other material and immaterial spheres or layers, which interactions are in constant flux. We use the notion of technosphere in a much narrower sense as the recent global spatial structure emerging through digital technologies, encompassing of its material infrastructures, the data and information that flows through it as well as the cultures it harbours. Notions of the Anthropocene and the technosphere operate on timeframes and scales beyond the disciplinary focus of architecture. One approach to overcoming this might be working transdisciplinary, collaborating with scientific and artistic practices more attuned to handling these issues. Another approach might be looking where these scales and timeframes intersect with the spatial understanding, the vocabulary and toolset of architectural practice and culture. Focussing on the habitual scale and timeframe of an architectural object we might be blind for its entanglements with certain phenomena and fields, while looking on the largest scale, i.e. all of mankind, the planet as a whole, risk depoliticizing and deterritorializing the consequences of the Anthropocene and technosphere. Within

17. See https://verticalatlas.hetnieuweinstituut.nl/en, consulted on 25/02/2020.

18. See Thompson, Nato, Jeffrey Kastner, and Trevor Paglen. Experimental Geography. Brooklyn, N.Y. : New York: Melville House ; Independent Curators International, 2008. and http://www.paglen.com/, consulted on 25/02/2020.

19. Cook, Sarah, Alona Pardo, Trevor Paglen, and Barbican Art Gallery. Trevor Paglen: *From "Apple" to 'Anomaly' : Selections from the ImageNet Database for Object Recognition*, 2019.

20. Orit Halpern, Spheres, See https://archive.anthropocene-curriculum.org/pages/root/resources/spheres/, consulted on 25/02/2020.

21. Haff, Peter. K. Technology as a Geological Phenomenon: Implications for Human Well-Being. Geological Society, London, Special Publications, vol. 395, nr. 1, 2014, pp. 301–09.

fieldstation studio we aim to work on multiple scales simultaneously, we aim to use the spatial understanding present within architecture and related spatial disciplines to unravel complex contemporary phenomena through modelling, mapping and visualising.

The Fifth Tower is a video that found its origin in the increasing digital mapping of our environment, it looks at a technological glitch as an architectural object indicating the emergence of the technosphere and how it reorders powers. More specifically it looks at how towers in the city of Ghent represent various forms of power: from religious and political power represented by the three historical towers to Vande Velde's University Library tower representing the power of science and knowledge.[22] The fifth tower is a glitch in google maps, an accidental architectural volume floating in the skyline of this particular digital representation of the city. The fifth tower represents a shift in economic, political and technological power, the introduction of platform economies, a map owned by google a private tech company, based on military satellite and lidar technology. The University Library consist of a painstakingly and carefully\collected, peer reviewed and debated body of knowledge, which at the moment of making this video was being scanned and digitised as part of the google library project. In contrast, google maps is the result of a technological data capturing and automated mapping process, a kind of blind scanning of our world. This indicates a shift in how we model and map our world, from a scientific model that represents our understanding of the world, to one were we capture enough data to simulate and reliably predict certain phenomena without the need for a human understanding of how that prediction works. Taking this glitch serious as a tower, through its verticalness it indicates centrality and a concentration of power, in the periphery of the city of Ghent the same mapping introduces an new border where the 3D model abruptly becomes a flatland of 2D satellite imagery.[23]

22. Interestingly all three historic towers of Ghent and the University Library of Ghent have a website, indicating their centrality and position within the digital domain: https://www.belfortgent.be/, https://www.sintniklaaskerk.be/de-kerk/, https://sintbaafskathedraal.be/ and https://boekentoren.gent, consulted on 25/02/02.

23. Ian and Erin Besler developed this idea in a project called Resolution Frontiers, see https://www.ianbesler.com/frontiers/, consulted on 25/02/2020.

Fig. 1. The Fifth Tower, video loop.

Stijn Colon's project titled *Fieldstation Google Earth* explored the relationship between the physical earth and google earth as its digital counterpart. Google earth is updated through lidar scans, satellite images and google street view

cars, while lagging behind physical earth the refresh rate of the digital counterpart is increasing. Currently Google Earth operates as a memory for earth, but in response to the increased refresh rate, Stijn speculated on what might happen if google earth would catch up, becoming real-time, or even evolve faster than the physical earth, running simulations of various potential versions of the earth simultaneously. The project resulted in the design of a house that incorporates and materialises various conflicting simulations. Google earth becomes a place for imagination, a place to be colonised, a battle ground for a multitude of ideas that might or might not manifest themselves physically.

Fig. 2. Stijn Colon, Fieldstation Google Earth.

In the paper *Fieldnotes from the Technosphere*[24] we published a first attempt of modelling the structure of the technosphere and how it consists of a stack of interacting layers in the vertical, and a set of dynamically shifting territories and borders in the horizontal. Architectural objects, whether in the form of materialised constructs or buildings, or existing within mediated environments as imagery, as discussed in the examples below, can be seen as probes that interact with and reveal parts of the horizontal a vertical complexities of the technosphere. They reveal the politicised and contested nature of the technological layer and how this interacts with and reorganises existing societal structures.

24. Cannaerts, Corneel and Helbig, Michiel, (2019). *Fieldnotes from the Technosphere*. In: Proceedings of CA²RE Conference for Artistic And Architectural Research. Presented at the CA²RE Conference for Artistic And Architectural Research, Ghent, 04 Oct 2019-06 Oct 2019.

5. Technological Eyes

> *At planetary scale, we see the formation of a vast geocinematic apparatus built from roving satellites, surveillance cameras, geosensing arrays, billions of cell phones etc, producing not one master image but multiple possible composites each of which overflows frames of perception. We have yet to really discover what kinds of cinema we can compose with this already existing apparatus - what durations, what perspectives, what contortions of narrative, what distribution of 'screens' - but the answers will define visual culture: an archive of/for an uncertain future-present.*[25]

25. Bratton, Benjamin H. "Further Trace Effects of the Post-Anthropocene." Architectural Design 89, no. 1 (January 2019): 14–21. https://onlinelibrary.wiley.com/doi/abs/10.1002/ad.2382

The Earthrise (1968) and *Blue Marble* (1972) photographs, taken from Apollo 8 and 17 respectively, coincided with the emergence of the environmental

movement and a more widespread ecological awareness.[26] The photographs demonstrate that our collective imagination can be drastically altered through visual media and points of view afforded by technology. Contemporary digital technologies similarly impact how we see ourselves, and understand our environment: Satellite imagery, laser scanning, the plethora of cell phone and other cameras, surveillance systems, sensor arrays, data logging... produce a constantly updating plethora of maps and images of our world.

In addition to the cold war military apparatus that produced the first images of the planet as a whole, image production and sharing has become accessible to a larger part of the population, its aggregation and propagations is still tied up in political, technological and economic structures. Many of these data streams are not necessarily visual in nature, they are rendered visual through screens targeting our eyes with specific imagery tailored to our personal histories and preferences. The digital nature of these technologies makes them interactive, it is not just our eyes that are looking at the imagery, increasingly technology is looking back, providing novel ways of seeing our world.

The *Prometheus* video is a zoom through the various scales of the technologically saturated environments. The video is reminiscent of the *Powers of Ten*,[27] the film produced by Ray and Charles Eames in 1977, it traverses various scales over a number of sequences: i*nto the screen, extended bodies, augmented interiors, mediated building and numb city*. It was produced during the four day workshop with 90 bachelor students from the Faculty of Architecture KU Leuven. The video is an experiment in how digital media afford collaboration, rather than story boarding and carefully setting up scenes and shots, the video resulted from a collective and blind data logging, scanning our environments through screenshots, smart phone apps and photogrammetry. The final video is compiled and rendered on screen as a camera travels through the collected point clouds.

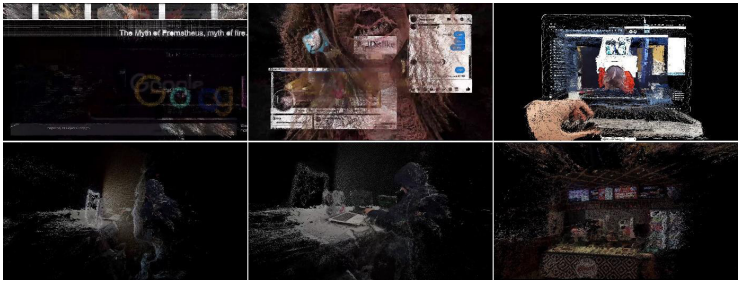

Fig. 3. Prometheus, collaborative video based on photogrammetry.

26. See amongst others: Buckminster Fuller, R. *Operating manual for spaceship Earth* (Clarion books). New York: Simon and Schuster, 1970, and Brand, S. *The last whole earth catalog* (Penguin books 3544). Harmondsworth: Penguin books, 1971.

27. See https://www.youtube.com/watch?v=0fKBhvDjuy0, consulted on 20/08/2019.

The *Artificial Landscapes* project explores the blurring between the natural and the artificial, resulting from the technosphere, the contemporary world that is increasingly saturated with digital technologies, running on data and computation. The videos are a result of an elective course introducing architecture students in programming as a visual medium to engage notion of artificial landscapes: Landscapes of Exploitation models resource extraction through the interaction between terrains, agents and environmental simulations. Machine Vision uses found footage and computer vision to render the vision of a machine navigating a terrain. [E]SC is an android app that uses the smartphones sensors to generate and navigate into an abstract landscape. Tiny Planet renders interaction between several layers of a tiny planet.

Fig. 4. Artificial Landscapes: Machine Vision project tracking motion through computer vision.

Deep Dream of a Self-Driving Car is a video and installation that consist of a surround video projected onto four screens. The video is recorded entirely in google earth, four cameras slowly moving through the familiar but strange landscape, through a process called data-moshing the footage increasingly bleeds and fades into itself, further alienating the landscape. In contrast to conventional cinematography, where scenes are carefully story-boarded and shots framed, google earth is the result of a blind capturing, an automated scanning of the world, providing a seemingly unbiased gaze that records everything with the same resolution. For now the mediality of the technology reveals itself as low-res and full of glitches, this is further emphasised through the use of data-moshing, a manipulation not on the visual content of the video, but on the data structure of the digital file itself.

Fig. 5. Laura Beccu & Batmagnai Altansukh, Deep Dream of a Self-Driving Car, installation.

The technologies for capturing, processing and composing imagery used in the examples descried above – screenshots, photogrammetry, pointclouds, computer vision, video, 360° projections, data moshing – demonstrate digital technologies as specific lens for seeing and visualising our world. A lens that is not neutral or passive, but a medium that actively influences how and what is being seen. Digital media rely on data, which are essentially discrete and finite, in order to capture continuous phenomena, which can be spatial, material or experiential, they are sampled at discrete intervals, digital data always has a resolution: dots per inch, bit depth, sample rate, frame rate... As the Chrono Drawings and *Deep Dream* of a *Self-Driving* Car demonstrates the discrete nature and resolution of digital media is not merely a technicality, it introduces its own qualities that can become part of the design process. The photogrammetry experiments, the use of google earth and the custom computer vision algorithms suggest novel ways of collaborating for producing time-based mappings of our world. There is a clear dissociation between data collection and making it visible through rendering or drawing it on screen, which is demonstrated by the two cameras used in the examples described above, one for capturing and one for rendering. Both cameras work as lenses that introduce their own qualities and forms of estrangement into the mapping of our world.

6. Into the Medium

Architecture as a discipline and a profession has identified itself largely through the tools and media architects use to design, from the start of the profession with the inception of orthographic drawing and the ruler and compass, over the blueprints, sketches and collages to 3D modelling, rendering and image editing. There is an interesting lineage of specific instances of the relationship between architecture and media,[28] from the medial practices of architects, to media as architectural production, to architecture as medium, and the mediation of architecture in other artistic disciplines.

The increasing digitalisation of the practices of architecture and the environments in which we operate, and the emerging ways of seeing and mapping our

28. See Rattenbury, Kester, ed. *This Is Not Architecture: Media Constructions*. London ; New York: Routledge, 2002.

world as outlined above, urges us to reconsider the habitual distinction between architecture and media, between represented and representation: through the advent of 3D scanning and surveying technologies, building information modelling, parametric modelling and environmental simulations, digital and robotic fabrication, virtual and augmented reality, to the consumption of architectural imagery through blogs and social media. These technological evolutions seem to forge novel pathways of exchange between, or even a reversal or collapse of the dichotomy between architecture and media.

We position the work of fieldstation studio explicitly in the lineage of using media in architectural culture by providing students with references of exemplary medial practices and encourage them to experiment with contemporary design media and visual culture developing a language suitable for the project they are working on. In elective courses we go a step further and directly engage the question of what contemporary design media afford for design practice: In the Cinematic Architecture elective, next to an introduction of time based media such as film and animation, students focus on questions of technologically mediated vision, further developing scenarios resulting from the Fieldstation studio. In the Computation and Materiality elective students are introduced into coding as a design medium, developing their own design tools for mapping, modelling and visualising architecture's entanglement.

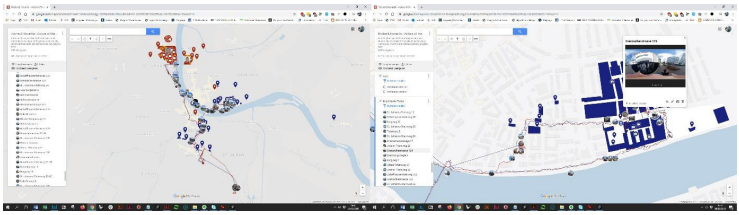

Fig. 6. IFTTT collaborative mapping workshop.

If This Then That was a four days intensive data collecting and mapping workshop organised at the HyperWerk in Basel. For four days participants used their smartphones and laptops to investigate the impact of two of the largest pharmaceutical companies, La Roche and Novartis on the city of Basel. Through scraping data from websites, social media profiles, online videos and walking photographing and filming with sensor logging and gps-tracking enabled smartphones, we looked into the online and physical presence and visibility of these companies. All the gathered data was collected in google maps, using google maps to draw properties and sites of the companies throughout the city, collecting walking tracks through gps and geotagging photos. The walk concentrated on the periphery of the closed of campuses, and the various borders, thresh-

old's and points of entry provided, in the digital map the gathered data was geo-fenced within the boundaries of these campuses.

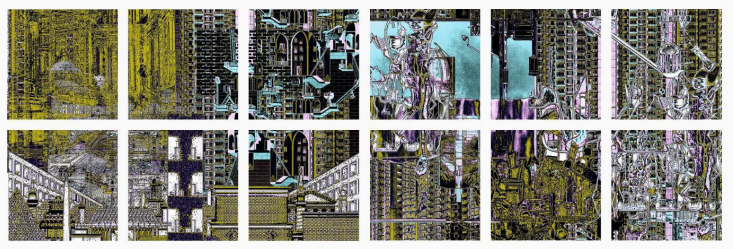

Fig. 7. Catherine Caglan, Compressed City, screenshots of Instagram page.

The project *Compressed City* by Catherine Caglan reflects on compression as a contemporary technological and architectural notion. Compression was approached as a technological concept, the balance between the information and the size of data, and compression as an economic and cultural value, measuring lifestyles in access to data bandwidth. We can also think of compression in an architectural, urban or even environmental sense as the compressing of spaces, functions and experiences. The design exploration looked into the increasing importance of interfaces in our environments as connections between the material and the digital, and speculated on manifestations of compression across various scales, from private, over shared to public and infrastructural spaces. The final work was collected in an Instagram account where several posts made up one large section drawing, a mash-up or collage that samples from historical architectural imagery estranged while familiar. In addition to the large drawing more information and small narratives were revealed using stories. Instagram is both medium and message, as it was used as a convenient medium for compiling and collecting and sharing the work, but also functions as a commentary on the content.

The examples outlined above demonstrate the strategies we use in the studio of working into or against the medium: using or abusing contemporary interfaces, platforms or technologies that form the content of the work as an inspiration for how the work is developed, borrowing or hijacking their visual languages. In the work we can identify several medial strategies: from surrendering to a certain medium and embracing its mediality, over abusing a medium for different use then intended, to subverting a medium by revealing it internal workings. We are interested in how contemporary media allow us to publish and share the work beyond known professional and academic audiences, and take a more provocative, proactive position within the world. Likewise the studio explores

how digital media enable novel ways of collaborating and producing work as a collective. The synergetic relationship between content and media can also be found in the topics addressed and the operation of the studio. While exploring automation and platforms as topics of the studio we also looked into setting up a platform for sharing the work and finding automated ways of collaborating, compiling and discussing the work.

7. Discussion

As our world becomes increasingly digitised resulting in the emergence of the technosphere, a planetary accidental megastructure, that impacts and reorganises the spatial layout of our planet, both vertically by interactions between a stack of various layers or horizontally by forging new territories. The digital technologies that span our planet introduce novel ways of perceiving our environments, particular regimes of visibility and opaqueness, the resulting visual cultures are not neutral but highly politicized and contested. As the examples in the paper demonstrate the emergence of the technosphere urges us as architects to rethink both our medial practices, i.e. the media we use for designing and making architecture, as well as how architecture interfaces with other disciplines and expand the content or subject matter of architectural practice. The paper looked at the body of work produced within Fieldstation Studio and selected a number of projects that demonstrate the potential of emerging technologies to reconsider our position as architects, to see the world through new eyes. The paper demonstrates how architectural projects can be seen as probes revealing or rendering visible some of the complexities of our technology saturated world, how specific technological eyes introduce their own visual languages and showed examples of how architectural practice can interface with the world by working within the medium. The projects presented are work in progress, and the focus on the visual cultures of the technosphere emerged only through developing the work, we hope that the paper and discussion will help us developing a research agenda and conduct further experimentation as the digitalisation of our world unfolds.

References

Bratton, Benjamin H.
The stack: on software and sovereignty. MIT Press, 2015.

Bridle, James.
New Dark Age: Technology, Knowledge and the End of the Future. London ; Brooklyn, NY: Verso, 2018.

Haff, Peter. K.
Technology as a Geological Phenomenon: Implications for Human Well-Being. Geological Society, London, Special Publications, vol. 395, nr. 1, 2014, pp. 301–09.

Kruk, Vinca, Daniel van der Velden, and Metahaven, eds.
Black Transparency: The Right to Know in the Age of Mass Surveillance. Berlin: Sternberg Press, 2015.

Mattern, Shannon.
Code and Clay, Data and Dirt: Five Thousand Years of Urban Media. University of Minnesota Press, 2017.

Mattern, Shanon.
Cloud and Field, On the resurgence of "field guides" in a networked age. Places journal, August 2016

Oosterman, Arjen, Lilet Breddels, and
Leaonardo Dellanoce, eds. Volume 51 - Augmented Technology. Archis, 2017.

Runting, Helen, Frederik Torrison and Erik Siege, eds.
Lo-Res: Architectural Theory, Politics, and Criticism, ISSN 2002-0260, Vol. 1: High-Rise, 2015.

Turpin, Etienne, ed.
Architecture in the Anthropocene: Encounters among Design, Deep Time, Science and Philosophy. Open Humanities Press, 2013.

Weizman, Eyal.
Forensic Architecture: Violence at the Threshold of Detectability. Brooklyn, NY: Zone Books, 2017.

Young, Liam & Unknown Fields Division, eds.
Tales from the Dark Side of the City, AA Publications 2016.