Workshop

Biased Drawing., Representation Bias" in Spatial Orders from the 1950s to the 1980s

Date 31.03. - 01.04.2022

Place

Werner Oechslin Library Foundation Einsiedeln, Switzerland

Abstracts

How to Compute Ugliness: Eisenman vs. Alexander, ca. 1982

Can subjective experience be quantified and objectively represented during the design process? This paper examines the debate between Christopher Alexander and Peter Eisenman in 1982 and preceding developments in computational design and representation to show how this question was sidestepped in the early years of computational design in the 1960s, and how it had become central to divergent agendas for the discipline by the 1980s.

Matthew Allen (Pratt Institut) researches the history architecture, computation, and aesthetic subcultures. He is the author of the forthcoming book, "Architecture becomes Programming: Modernism and the Computer, 1960-1990", and essays in venues such as Log, Domus, and the Journal of the Society of Architectural Historians, He holds a PhD and a Master of Architecture degree from Harvard University, and he has worked for MOS, Preston Scott Cohen, and other firms at the leading edge of contemporary practice.

Languages of expertise: shifting abstraction in architecture programming

The second boom (1980-1987) of artificial intelligence (AI) saw the rise of expert systems, computer programs capable of answering questions relative to specific domains of knowledge. Their development was underlined by a key theoretical shift: the transformation of the belief that intelligence comes from the structure of thinking into the belief that it comes from acquiring expertise. In order to enable experts from all fields to state their knowledge in the form of computer programming, languages underwent a drastic paradigmatic change, from imperative programming to programming with predicates. The field of computational architecture, that grew in large part out of the field of AI, has always heavily relied on its technical and philosophical breakthroughs. The hypothesis is thus that the drastic change of the 1980s in Al bore major consequences in the methods of spatial abstraction and in the manipulation of digital representations in computational architectural design. With the help of a series of projects from USA, Australia and Europe, produced between 1965 and 1989, the presentation will explore that hypothesis and discuss the position as expert of the architect in computational procedures.

Nadja Gaudillière-Jami (TU Darmstadt) holds a Master of Architecture from the ENSA Paris-Malaguais, is a co-founder of XtreeE the large-scale 3D, and the president of the NGO thr34d5. After working several years as a project manager at XtreeE and as a Graduate Research and Teaching Assistant at the ENSA Paris-Malaquais, she is now a postdoc researcher at the Digital Design Unit (TU Darmstadt) and succesfully defended her Ph.D in Architecture at Université Paris-Est in February 2022. A specialist of the digital in architecture, she focuses on two main research axes: the industrialisation and environmental impact of architectural robotics and the history and epistemology of the computational field in architecture.

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Depth, Distance, and the Limits of Perception in Graphical Simulation Distance has always posed a unique challenge for computer graphics, as it requires a negotiation with the limits of what is seen and may therefore be simulated. This talk traces a history of this problem in order to identify the modes of mediation that inform the z-axis as a vector for the simulation of vision, asking what a historical examination of depth and distance in computer simulation can tell us about the ways we computationally produce and restrict visual knowledge today.

Jacob Gabourv (University of California at Berkelev) is an Associate Professor of Film & Media at the University of California at Berkeley, specializing in the seventy-year history of digital image technologies and their impact on our contemporary visual culture. His first book is titled "Image Objects: An Archaeology of Computer Graphics" (MIT Press 2021), and it traces a material history of early computer graphics through a set of five objects that structure the production and circulation of nearly all digital images today.

Geometric Representation. Data, graphs and operations

(Contribution in German)

Drawing grids and graphs is part of the basic course at the Hochschule für Gestaltung (HfG) Ulm. The exercises are intended to serve the recognition of geometric systems of order in plane and space as an essential basis of architectural design. When analyzing and classifying, topological structures mix with data and signs to form a three-dimensional abstraction of architecture. Using these drawings, I question the function of geometric representation it plays in the simulation of non-visible, operative processes in the context of mathematics, cybernetics, and operational research at the HfG in the mid-1970s. Chris Dähne (Goethe University Frankfurt a. M.) is an architect and researcher

in the interdisciplinary LOEWE cluster "Architectures of Order" and in the DFG founded project BAUdigital at TU Darmstadt. She holds a PhD and a Master of Architecture degree from Delft University of Technology, and she has taught at various universities. Forthcoming is the anthology "Utopia Computer. The ,New' in Architecture?" (ed. w. Nathalie Bredella and Frederike Lausch, Universitätsverlag der TU Berlin 2022)

[Un]possible Representations of Architecture in the Computer and the [Un]conceivable of Artificial Intelligence (Contribution in German)

The talk will outline how architectural information can be digitally formalized to create semantic fingerprints of buildings that can be used to identify spatial configurations, just as we use actual fingerprints to identify people. To map the topological information of spaces to data structures, knowledge graphs, Case Based Reasoning (CBR), and Deep Learning (DL) approaches are shown to represent spaces and their connections, orientation, or urban integration. Christoph Langenhan (TU Munich) is an architect interested in knowledgebased design methods. He studied architecture at the Bauhaus University Weimar and received his PhD from the Technical University of Munich in 2017. There he teaches building information modeling (BIM), parametric design or digital fabrication, among others, and works as a research group leader on topics in artificial intelligence, semantic technologies, and user interfaces in architecture. Currently, Christoph Langenhan also headed the central BIM steering unit at the Bavarian State Ministry of Housing, Construction and Transport.

Here we go! (Contribution in German)

In 1989, comic strip artist Richard McGuire chooses to narrate the story of one corner of a room in an American house in earth-historical perspective by resorting to a multitude of nested panels across six pages, thus confronting the effects of the Microsoft Windows graphical user interface. The emphasis on the imaginary space that lies behind the three drawing formats (Evans) at the time of the popularization of the home computer is tackled as part of the existing tradition of works on the relationship between light projection and drawing (Flavin, Turrell).

Rembert Hüser (Goethe University Frankfurt a. M.) is Professor of Media Studies, latest publication: "Geht doch", Verbrecher Verlag, 2021

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Statistic Circuits. Norbert Wiener's Diagrammatic City, 1950

In 1950, Norbert Wiener presents an urban evacuation project in LIFE Magazine. Infrastructural "life belts" are supposed to facilitate escape in the event of nuclear attack. Surprisingly, the form he chooses even resembles a crosshair: The drawings show huge circular freeways through which life support structures should be upheld. This form raises the question of the project's symbolic surplus: How do drawing practices from urban planning, risk statistics, and cybernetics entangle in the pressure vessel of the Cold War?

Sina Brückner-Amin (Goethe University Frankfurt a. M.) works at the intersections of architectural history and cultural studies and joined the LOEWE cluster, Architectures of Order" in January 2020. From 2018-2021, she was a research associate at the Architekturmuseum der TU München. After studying Art History, American Studies, and Media Studies in Frankfurt am Main, she completed a master's degree in Curatorial Studies at the Städelschule. Her research interests lie in the intersections of bureaucracies and architecture, large-scale planning projects and buildings, and historical urban studies.

Szilvia Gellai (University of Vienna) joined the Department of German Studies at the University of Vienna as a postdoctoral researcher in March 2020, where she works in the intersection of literary, media, and cultural studies. Previously, she worked at the Karlsruhe Institute of Technology, where she received her PhD in 2017 with a study on network poetics in contemporary literature. Her research interests lie in the areas of dispositif and spatial theory, as well as the study of cultures of glass and transparency. During the winter term 2020/21, she was a fellow in the LOEWE research cluster "Architectures of Order."

Data and Politics: Planning cultures during the post-war period

In 1964 Greek architect and urbanist Constantinos Doxiadis established the Doxiadis Associates Computer Center (DACC) in Athens, allowing his office to extend its consulting und planning services. Exerting influence by means of planning during the post-war period, governments and aid organizations financed Doxiadis Associates urban projects in the Global South, Asia and the Middle East and thus the office's investment in computational techniques. I am interested in the office's computerized analysis asking which knowledge it provided about the interdependencies between designs, resources, people, and settlements. Looking at the different technical formats in the production, storage, and transmission of data I concentrate on how the formulaic solutions of computation played out on the ground situating them in the political economic context.

Nathalie Bredella (KIT Karlsruhe) is visiting professor of architectural theory at the Karlsruhe Institute of Technology. Her research focuses on the history and theory of architecture, and on media- and technology studies. Forthcoming is her book "The Architectural Imagination at the Digital Turn", in the Routledge Research in Design, Technology and Society series.

Analog and Amorphous. Photogrammetry in the Design Process of Frei Otto The fluid form of Frei Otto's buildings does appeal like a computer based design, but it actually is physical morphology found by means of experimental models, which he parametrized with the aid of photogrammetry. Photography was already during the long 19th century used as a measurement tool for non-euclidean geometries, like clouds or water. The lecture follows the questions: How does the mediality of photogrammetry take presence in the work of Frei Otto? Could Otto's work be seen as a proto-digital image practice?

Sara Hillnhuetter (Goethe University Frankfurt a. M.) is working as a research associate at LOEWE cluster "Architectures of Order" in the sub-project "Axonometry as symbolic form," led by Barbara Wittmann since April 2020. She studied art history, philosophy and comparative literature in Berlin, Madrid, and New York. Between 2012 and 2018, she took part as a research and teaching assistant in the group "Das Technische Bild" (The Technical Image) at the Institute of Art and Visual History at Humboldt University of Berlin. She taught

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classes in the history of perspective painting, photography, and the role of images within the history of science and the humanities. Furthermore, she was a member of the editorial board for the periodical "Bildwelten des Wissens". Since 2015, she has been working on her doctorate at Humboldt University, focusing on Albrecht Meydenbauer's (1834-1921) measurement practice, which she uses to examine the medial overlapping of perspective drawing and photography.

Tasks, Interfaces, Stimuli. The Role of Computer Graphics in ,Laboratories of Experience⁴

From early on, computer graphics not only resulted from human-machine interactions but also were integral components of interactive settings. Which ,biases' are inscribed into these configurations? How do they manifest in the images and experiences produced? And what are the relations between settings assembled by artists and architects and (other) laboratory environments of the time? In this talk, I aim to discuss a small selection of rather early (1960s-80s) as well as very recent cases.

Nina Zschocke (ETH Zurich) is a researcher and lecturer in contemporary art history and media theory at the Institute GTA. She currently works on a book which, through the lens of contemporary art, analyses the transformation of digital and hybrid spaces into "Laboratories of Experience." Her lecture class Digital Matters at ETH discusses art works that address the materiality of the digital as well as physical, bodily and ecological effects of digital technologies. Nina holds a PhD from the University of Cologne, has been a postdoc at the Institute of Art History at University Zurich, a DFG research fellow and the scientific coordinator of two doctoral programs. She has published four books, the most recent being: "Productive Universals - Productive Situations" (ed. w. Anne Kockelkorn, Sternberg Press, 2019).

The Analog in the Digital. Some remarks on architectural representation since 1980 (Contribution in German)

Based on the results of the current DFG research project "Architecture Transformed - Architectural Processes in the Digital Image Space", the lecture will briefly highlight the consequences of digitization for the design and visualization of architecture since the 1980s and ask what fundamental changes, but also what continuities, can be identified in this process.

Florian Henrich (Philipps University Marburg-Bildarchiv Foto Marburg) studied cultural studies, art history and psychology in Leipzig. Since 2012, research assistant at German Documentation Center for the History of Art - Photo Image Archive Marburg and doing doctorate under Prof. Hubert Locher on architectural exhibitions and canonization in the Weimar Republic 1914-1934. Since 2019, researcher in the project "Architecture Transformed - Architectural Processes in the Digital Image Space" in the DFG Priority Program "The Digital Image".



Philip Steadman, Graph-Theoretic Representation of Architectural Arrangement (March, The Architecture of Form, 1976)

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