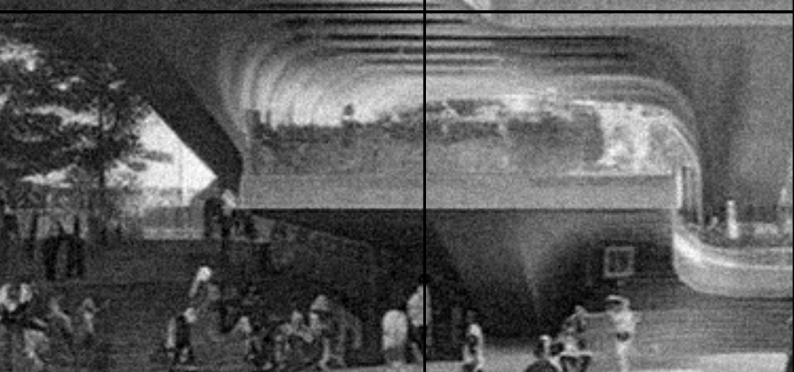




i.sd // STRUCTURE AND DESIGN WS2023  
EM1 - INFRASTRUCTURAL INTENSITIES  
ROBERT R. NEUMAYR, KATRIN STÖHR

# INFRASTRUCTURAL INTENSITIES



INSTRUCTORS:  
Robert R. Neumayr  
& Katrin Stöhr

MODE:  
Weekly meetings at  
the institute, every  
Thursday 13.00

LANGUAGE:  
German  
[English if preferred]

FIRST MEETING:  
05 / SEP / 2023  
13.00 @ isd



The topic of this semester's master design studio is to explore the transformative potential of novel modes of urban public transportation for the programmatic city and its fabric.

Taking Vienna's recent cable car project as a conceptual and investigative starting point, students will conceptualise, locate and design their own cable car system in Vienna, focusing on the design of the various buildings required to interweave their system of transportation with the surrounding city fabric and speculating about the urban, spatial, ecological, and social impact on the city.

In developed countries, so far, urban cable car lines, such as the Roosevelt Island Tramway NYC, the London Cable Car, or the Hungerburgbahn for that matter, are commonly devised as strictly linear systems, connecting the city centre with touristic locations. Meanwhile, major cities of the global South, such as La Paz and Medellín, have connected cable car lines to form large three-dimensional networks of public transportation, thus counteracting strong local urban constrictions.

While the project proposed for Vienna at this point belongs to the first category, connecting the city with the nearby Kahlenberg (a popular, yet hard to reach touristic vantage point), students are encouraged to develop their own transportation system beyond linearity and speculate about its networked qualities.


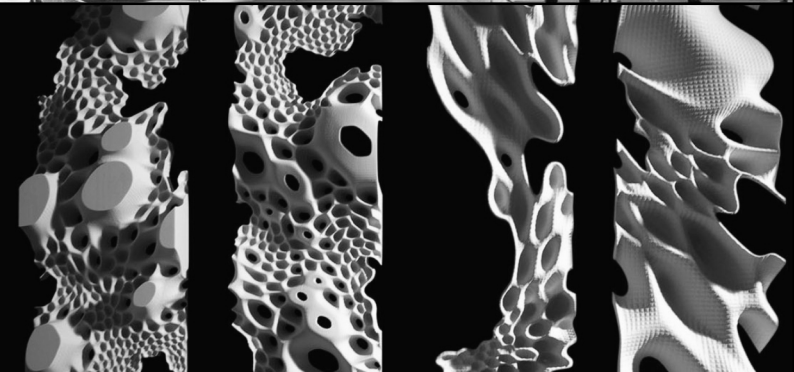
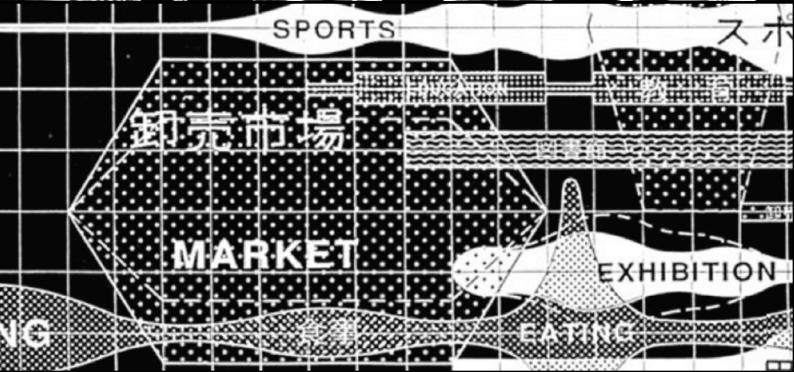
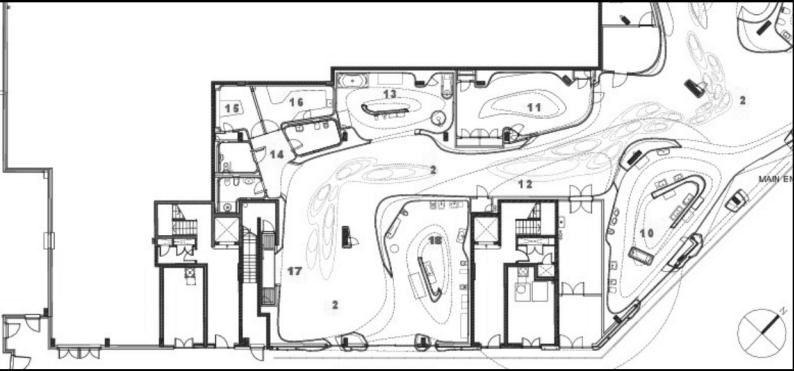

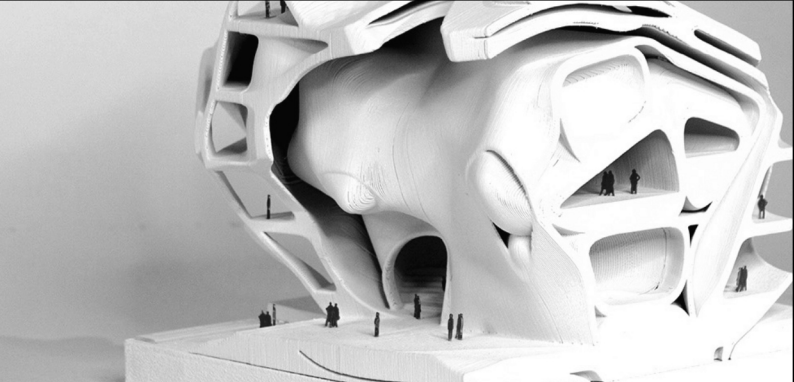
Despite the studio topic's technological aspects, design focus is strongly placed on the development of adequate spatial, formal, material and programmatic solutions to the architectural challenges that arise from the new buildings'

conceptual interaction with and transformation of the respective urban fabric they are located in, inviting for typological and programmatic hybridisation. Within a common semiological framework, different cable car stops and stations will require differentiated formal and programmatic responses depending on their urban context

Therefore, the studio's goal is to develop innovative coherent - yet differentiated - typologies for contemporary spatial solutions at the conceptual and functional intersection of novel urban infrastructures and long-standing urban configurations, thus investigating their transformative and combinatorial capacities.

Novel modes of public transportation offer the potential to reduce motorised private traffic, thus questioning traditional urban layouts and traffic networks and opening up the opportunity to re-allocate urban space in the light of social, ecological and climatic necessities. In line with this semester's conceptual undercurrent of sustainability, ecology, and decarbonisation special attention will be given to the building envelope as the main interface between internal and external climatic conditions.

Students will work on individual strategies and architectural concepts by using novel digital tools to foster algorithm-based spatial, programmatic and geometric explorations, with a special focus on the application of Creative AI and machine learning in architecture. At the end of the semester each group will have a comprehensive architectural design project covering all relevant building aspects with the ambition to discuss their design within the context of contemporary architectural discourse.

	<p>1 RESEARCH</p>	<p>Contemporary references will be examined to build a catalogue of collective knowledge, theses and projects.</p>
	<p>2 PROCESS &amp; STUDY MODELS</p>	<p>Research based design thesis will be explored and developed in prototypical spaces and diagrams.</p>
	<p>3 CONCEPTUAL DIAGRAMS</p>	<p>Architectural ideas and processes shall be visually communicated via conceptual diagrams. The diagram is therefore not only an instrument for documentation but a design tool itself.</p>
	<p>4 ARCHITECTURAL DRAWINGS</p>	<p>Typology and programme will be refined and represented using architectural drawings and illustration techniques.</p>
	<p>5 DIGITAL REPRESENTATION</p>	<p>Spatial and atmospheric qualities will be explored and demonstrated in three-dimensional digital and physical models.</p>
	<p>6 PHYSICAL REPRESENTATION</p>	

# ORGANISATION & RESOURCES



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This design studio is organised as a collaborative studio. Students will form teams of two to develop, present and submit their design thesis together. Within the framework of the studio's brief, teams will work on their own schedule and organise themselves to meet deadlines, prepare presentations and subdivide the design and research work. Reviews will take place once a week. Meetings will be held at the institute, online only or hybrid.

Review Schedule: Every Thursday at 13:00.

All work in progress and other materials for discussion will be uploaded to MIRO before the review and presented from the MIRO board during the review. Constant exchange of information will – in addition to the weekly meetings in person – largely rely on digital tools. The university and the institute, therefore, will provide a series of tools and resources which we will use throughout the design course to upload,

structure, organise, store, distribute, share, and present information and knowledge among all participants. Additionally, the studio will make use of online tutorials, courses, and other resources about digital design tools and technologies that are available on the internet.

OLAT will be used to upload, collect and distribute the weekly briefs and other important documents and information, such as access links or the reading materials.

MIRO will be used to organise, structure and display the (preliminary) results of your work. All work will be uploaded to the respective MIRO board and remains there throughout the entire design process. In that way a comprehensive digital archive of all work is assembled that can be used for collaboration, information exchange and presentations. A link to the board will be sent out in time.

## SEMESTER SCHEDULE

### 05.10.2023 FIRST MEETING INTRODUCTION

12.10.2023 ..... research & concept phase

19.10..2023 ..... proto systems / proto spaces phase

26.10.2023 ..... (public holiday) - compensation tba, most likely 25.10.2023.

02.11.2022 ..... (public holiday) - compensation tba on special request.

09.11.2022 ..... proto systems / proto spaces phase

16.11.2023 ..... design phase

23.11.2023 ..... consolidation / preparation for midterm review

### 30.11.2023 MIDTERM REVIEW

07.12.2023 ..... design phase

14.12.2023 ..... design phase

21.12.2023 ..... (xmas break)

28.12.2023 ..... (xmas break)

04.01.2024 ..... (xmas break)

11.01.2024 ..... design phase

18.01.2024 ..... preparation of presentation / submission

25.01.2024 ..... preparation of presentation / submission

### 01.02.2023 FINAL REVIEWS

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ROBERT R. NEUMAYR  
architect, researcher,  
and educator



KATRIN STÖHR  
architecture student and  
researcher

Robert studied architecture in Vienna and Paris and received a M.Sc in architecture from the Technical University Vienna before completing his M.Arch II with distinction at London's Architectural Association Graduate School Design Research Lab (AADRL). He holds a doctoral degree from the University of Applied Arts in Vienna.

Since 2000 he has been researching contemporary digital design practice, focusing on responsive architecture, parametric urbanism, algorithmic design, evolutionary design strategies, and machine learning and AI in architecture. His research and projects have been published and exhibited internationally and been awarded numerous prizes.

He has been teaching, amongst others, at Studio Zaha Hadid and Studio Kazuyo Sejima at the University of Applied Arts in Vienna, as well as at the University of Pennsylvania (US) and the Institute of Experimental Architecture Hochbau with Patrik Schumacher. He is currently a lecturer at the Institute of Design (i.sd) at the University of Innsbruck.

After working with Will Alsop, ocean\_UK,, and Zaha Hadid Architects in London and Vienna, he co-founded HUP architects in Vienna in 2018. Robert's website [unsquare.org](http://unsquare.org) operates as a design and research platform aiming to bring together academia, design research and professional practice.

Katrin received her Bachelor's degree in architecture from the Berlin University of Applied Sciences, where she was teaching art and presentation in the studio of Gerd Sedelies. As an art assistant to Miriam Lenk and Erik Andersen, she explored abstract art and sculpture until she began working as a designer at Just/Burgeff Architects Frankfurt where she was able to realize several award-winning projects.

Currently, she is pursuing her Master's degree at the University of Innsbruck with a focus on ML-informed design processes and volumetric design in architecture. Katrin is working as a student assistant in the SFB subproject "Computational Immediacy" at i.sd, where she is developing an approach that uses point clouds and environmental parameters to inform the architectural design process.