

# HOUSE X+Y

HYBRID TYPOLOGIES



ATELIER HUANG SPRING 2024

**HOUSE X+Y** is part of the LDM studio series on “Hybrid Typologies” which explores the fusion of physical and digital architecture and the hybridization of different typologies, such as world expos, offices, museums, churches, universities, parliaments, and cities. Our focus for Spring 2024 is on “**Hybrid Houses**”.

The recent confinement during the Covid -19 crisis has starkly revealed the limits of contemporary housing typologies, highlighting an increased misalignment between their affordances and emerging lifestyles where living and working converge under one roof, and everyday social activities, such as shopping, learning, playing, meditating have moved from the city into the intimate confines of home.

This studio challenges students to reimagine a basic vernacular housing typology (X) and explore its possible transformation into a hybrid typology (X+Y) where increasingly (almost) everything takes place.

Methodologically, the studio will explore **Generative AI** as (inevitable) future operative, representational, and technical design tools.

Generative AIs in architecture (such as Midjourney, Dall-E and Stable Diffusion) have the potential to not only capture and reproduce the essence of images, depicting the mood and style, but also uncovering subtle details that would otherwise be overlooked by human eyes.

In this studio, Generative AI will be our „telescope“ through which we re-discover and re-process our built environment, while critically questioning the role of generative artificial intelligence in architecture.

Is creativity in architecture only exclusive to humans? Can machines automatically generate meaningful architecture? Can machines capture and generate something as fragile and elusive as *genius loci*?



Alison & Peter Smithson  
*The House of the Future, 1968*

Using Generative AI, we are interested in the house not only as the shelter for domestic life, but also in the notion of “heimat”, the sense of belonging and identity a house can forge. Images are powerful vehicles for these ideas, and we will use AI-driven workflows to process images to capture, collect, and learn the **Architectural DNA** of a local identity, investigating how context-driven anomalies tweak the original form of a domestic type.

While images of house exteriors (street-views, facades, location of front-doors) convey the identity of a place and neighborhood, they also reflect the functions inside the house, such as domestic life-styles, societal status, internal organizational hierarchies. Here architecture provides the structural frameworks, and the starting point for the **hybridization process**, which will be at the core of the studio’s speculative design pre-occupations.

The studio will oscillate between collaborative research, individual projects, and hands-on design tasks. This blend of activities aims to deepen understanding of AI tools in architectural design and develop technical (and coding) skills to **resist the growing corporate monopolization of generative AI in the field of architecture.**

The studio will culminate in a personal interpretation of House X+Y on a specific site, as a final project: a privileged, virtually public and flexible, yet physically private and intimate space, amidst a changing world and confused ecology.



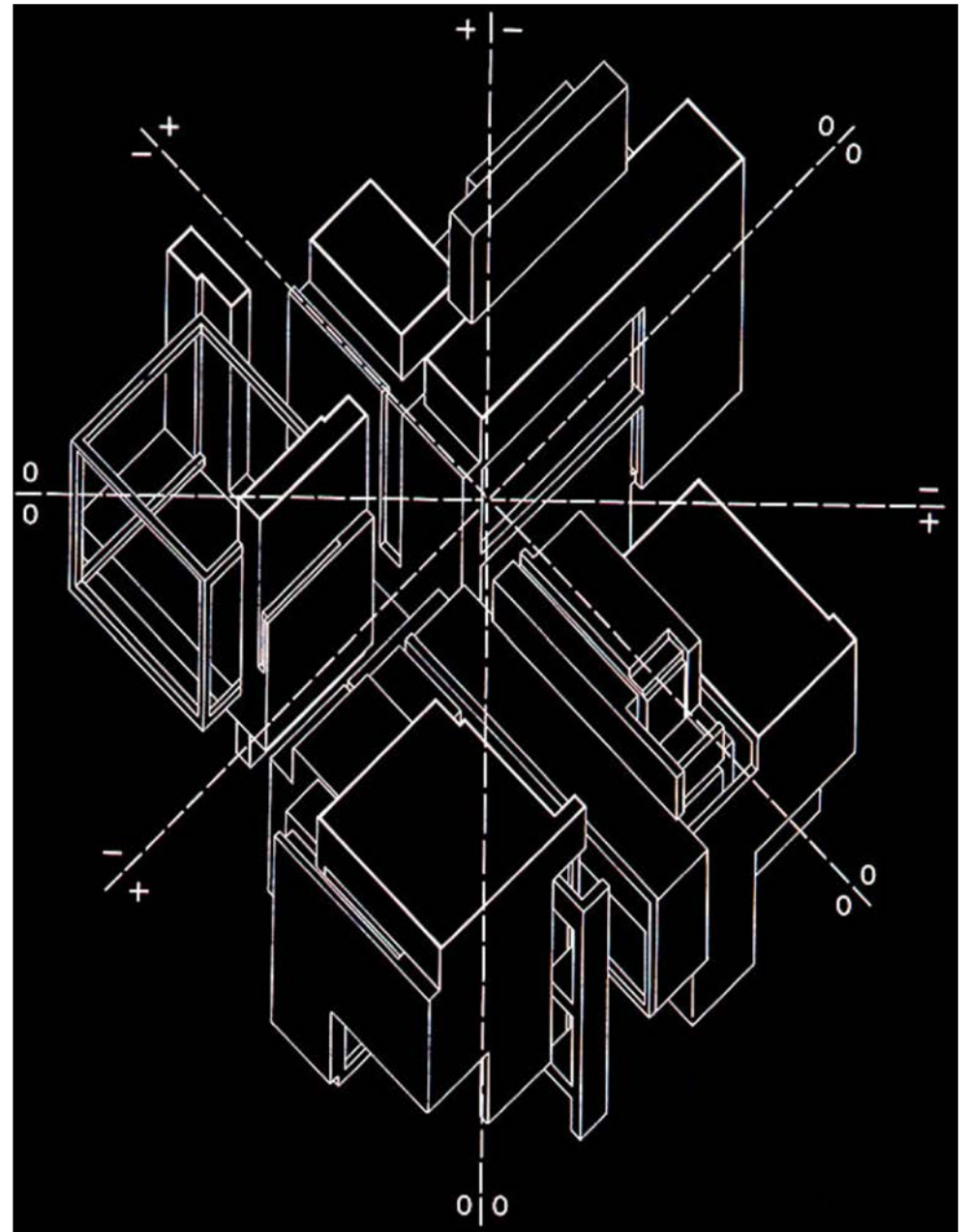
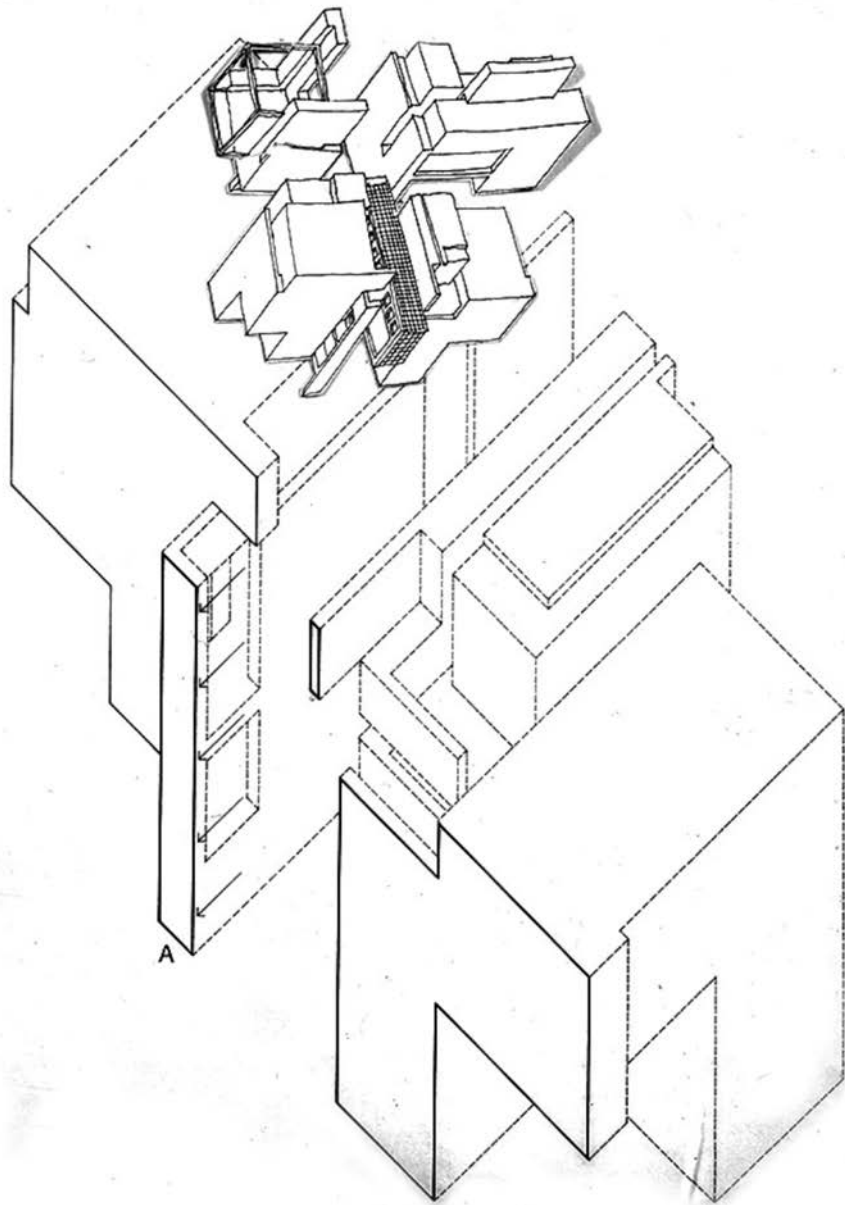


Alison & Peter Smithson  
*The House of the Future, 1968*

Pre-requisites. The studio will introduce cutting-edge AI tools, such as Stable Diffusion, interfaces like Midjourney, Automatic1111 and ComfyUI, and models like SDXL. No prior programming or software knowledge is required, however, there should be curiosity and a strong desire to tackle these new tools in the context of a theoretical and experimental studio.

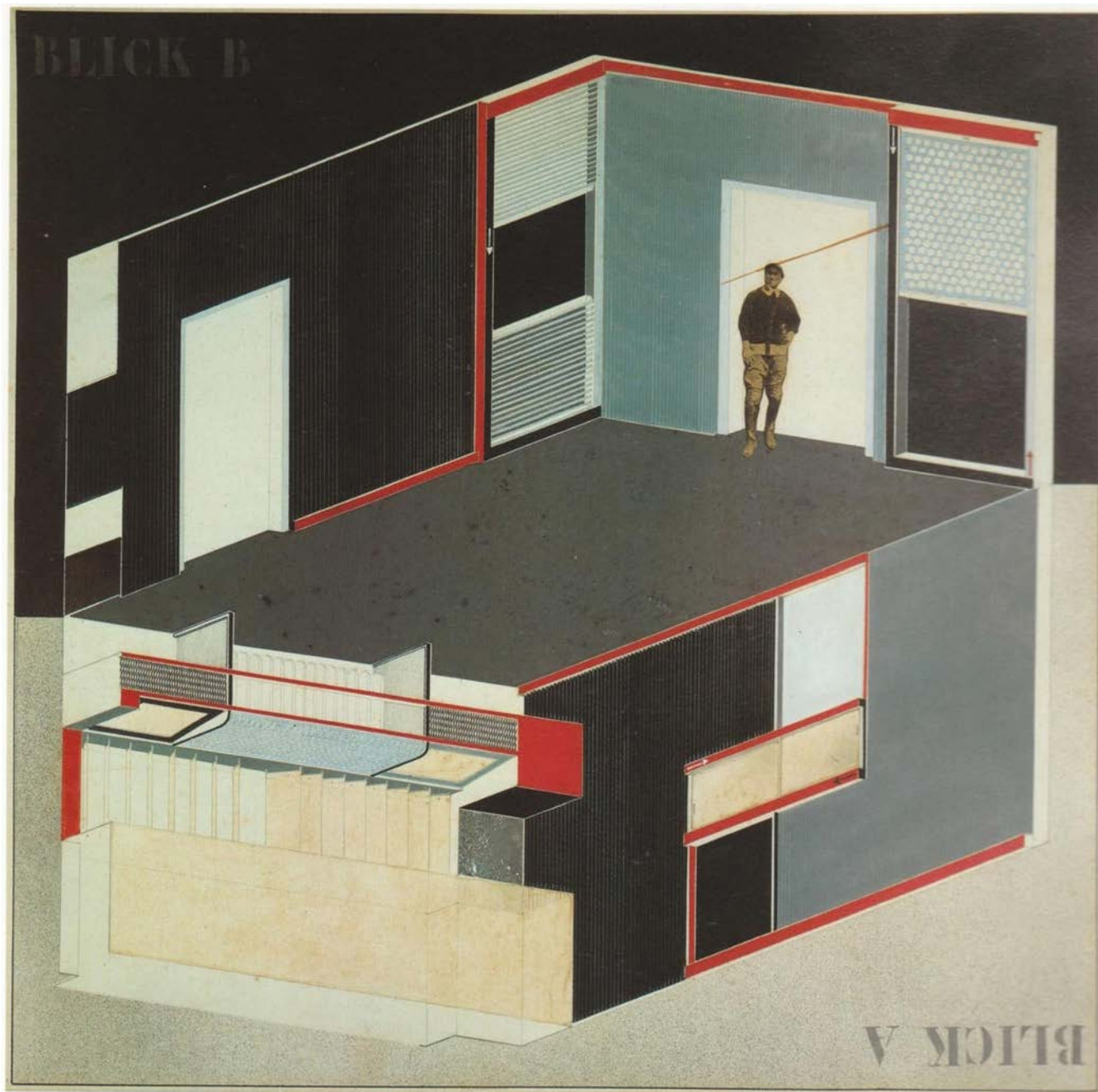
Cover Image

*A House for X, Illusion Diffusion, Alexandre Sadeghi, 2023*

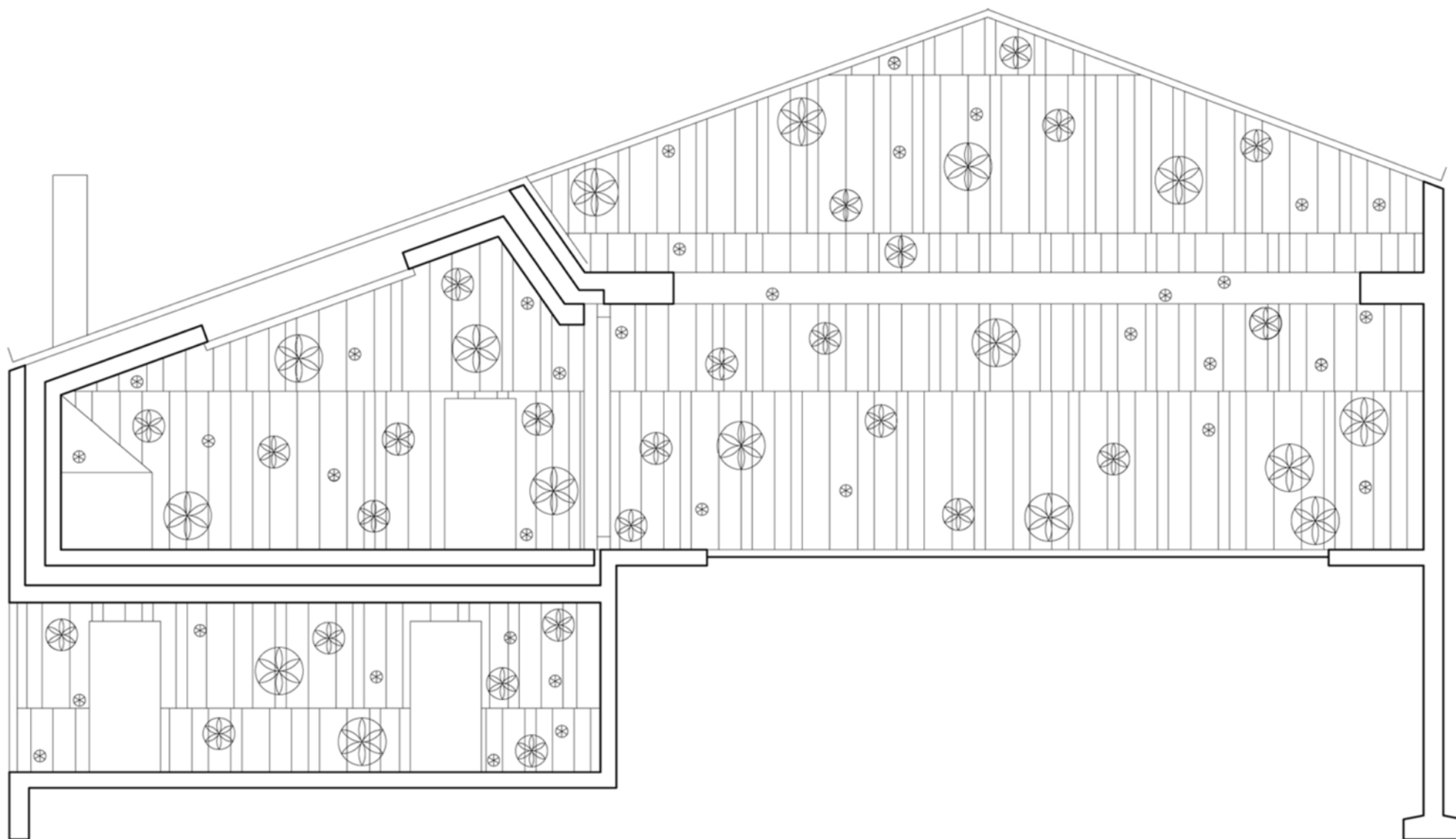


Peter Eisenman  
*HOUSE X, 1975*





El Lissitzky  
*Cabinet of Abstraction*, 1927

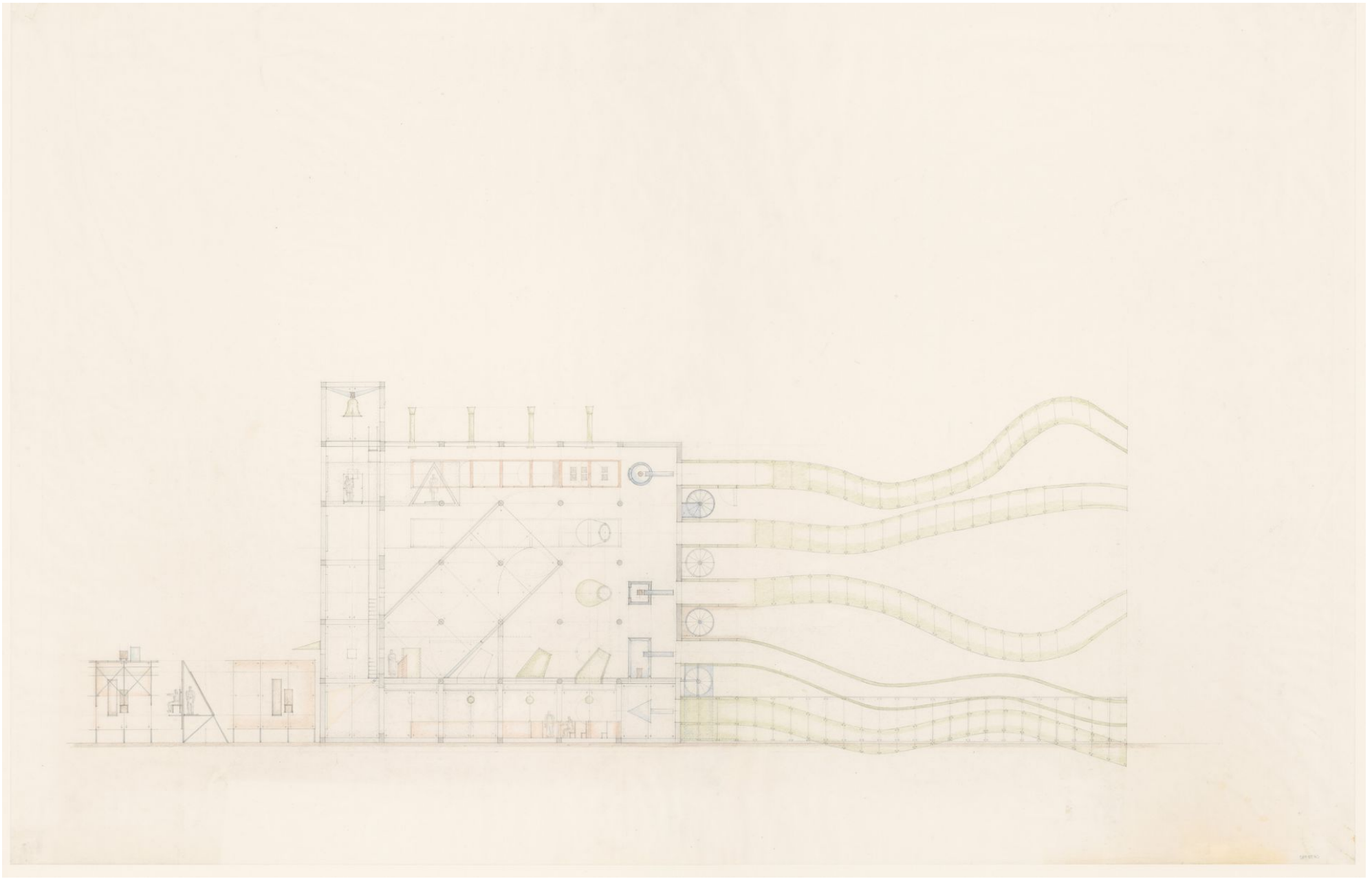


Valerio Olgiati  
*A House for a Musician, 2007*

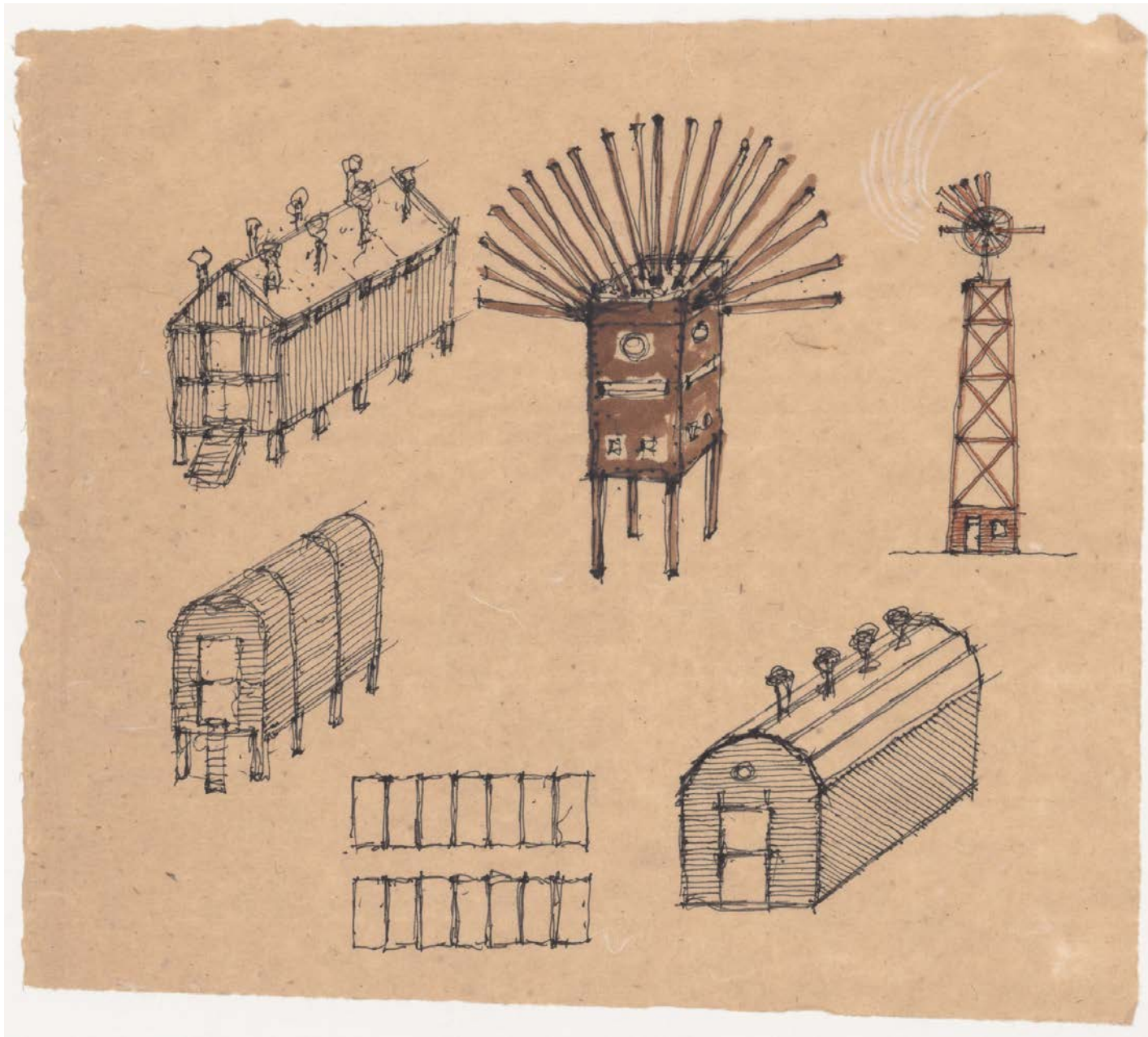


Junya Ishigami  
*Fantasies*





John Hejduk  
Church House, Lancaster/Hanover Masque, 1980-1982



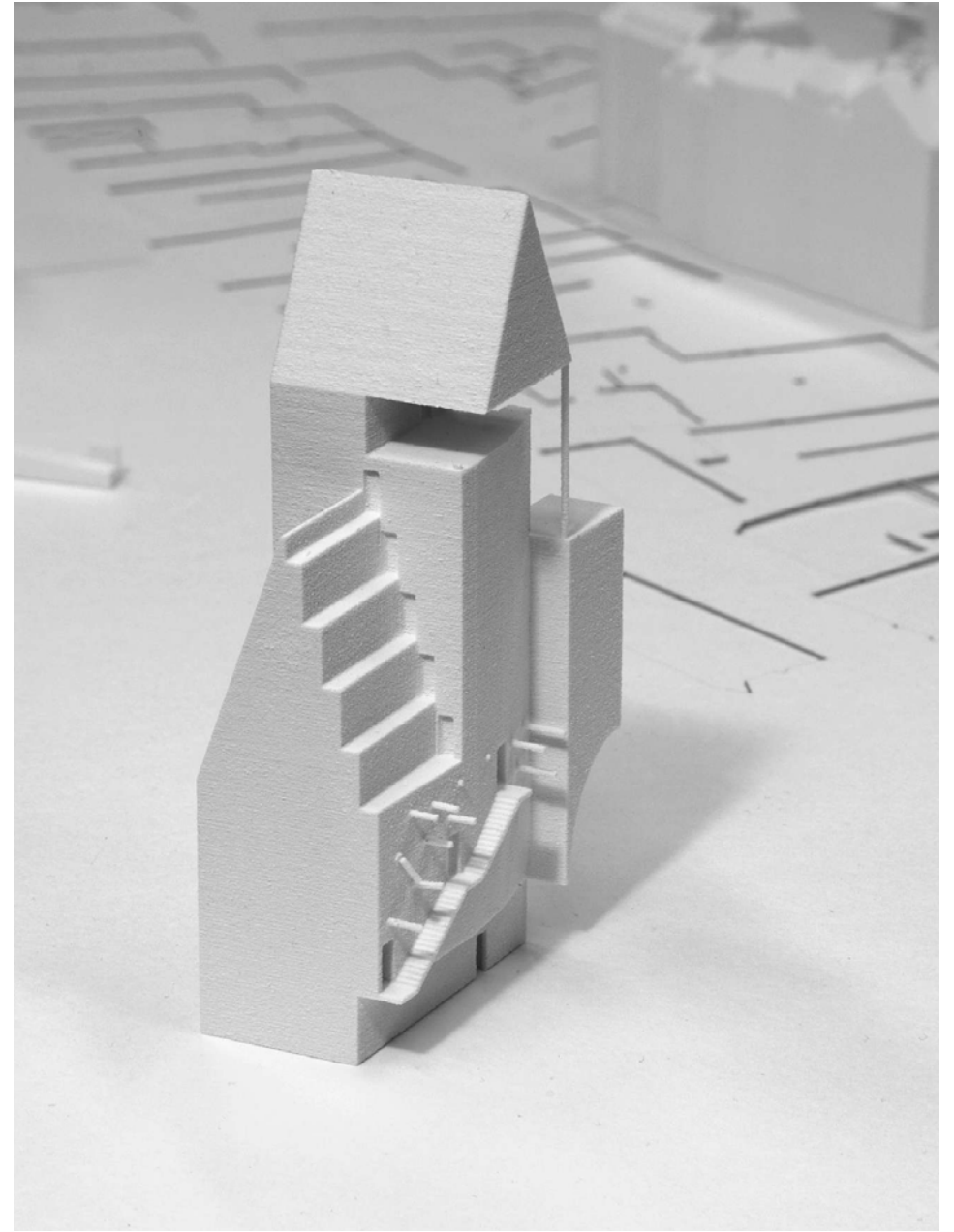
John Hejduk

Store House, Scare-Crow House, and Weather Station, Lancaster/Hanover Masque, 1980-1982





John Hejduk  
House of the Suicide, House of the Mother of Suicide, Prague, 1991



Magdalena Osiniak  
Boundaries of Niederdorf, 2017





Magdalena Osiniak  
Boundaries of Niederdorf, 2017



Hariri & Hariri  
Digital House (The Un-Private House, MOMA), 1999



Hariri & Hariri  
Digital House (The Un-Private House, MOMA), 1999



Spectrum News NY1  
Virtual marriage, New York City, 2020.





DSLR Video Shooter  
Youtube studio, 2019.

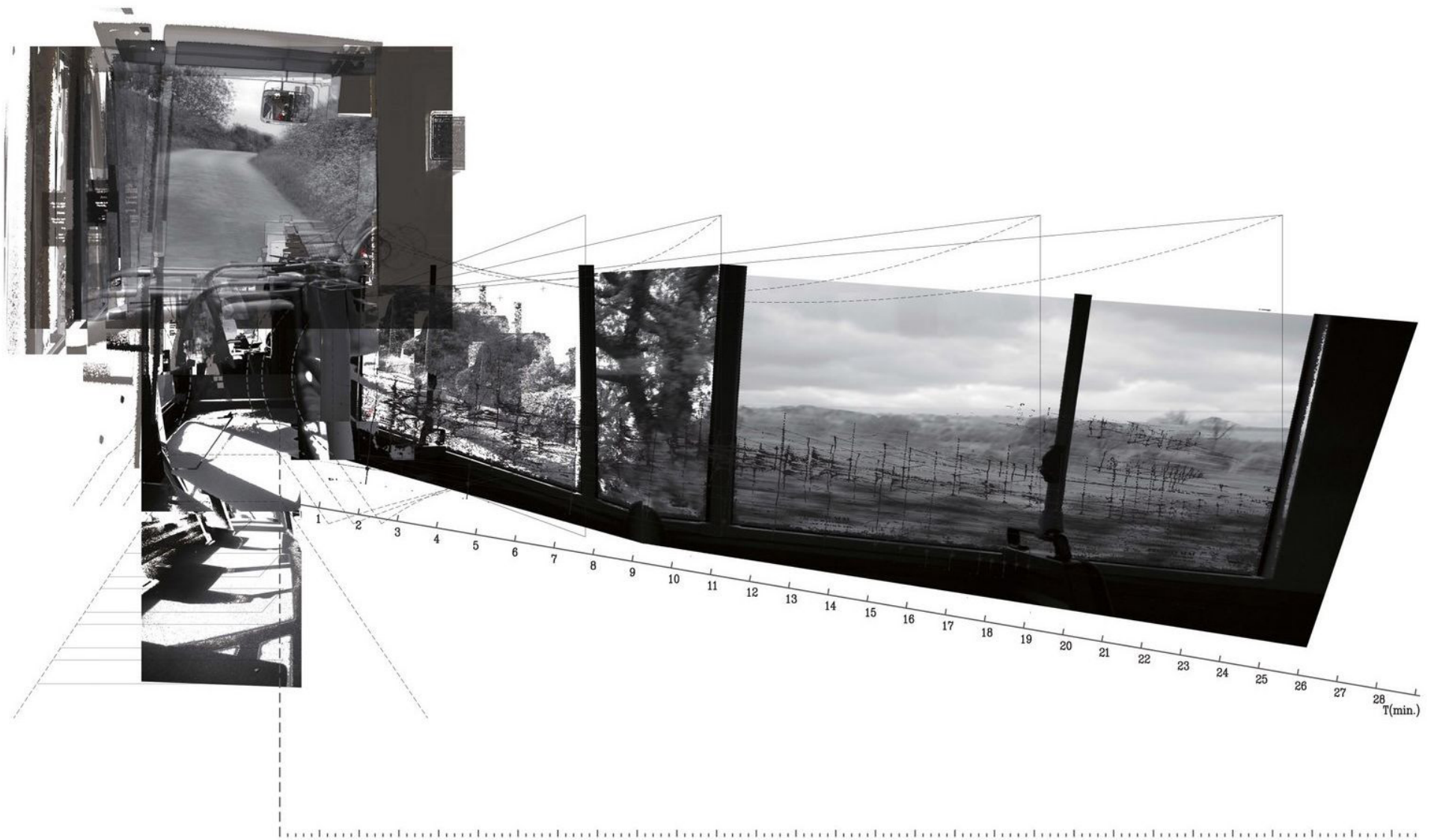


Barco  
weConnect virtual classroom.



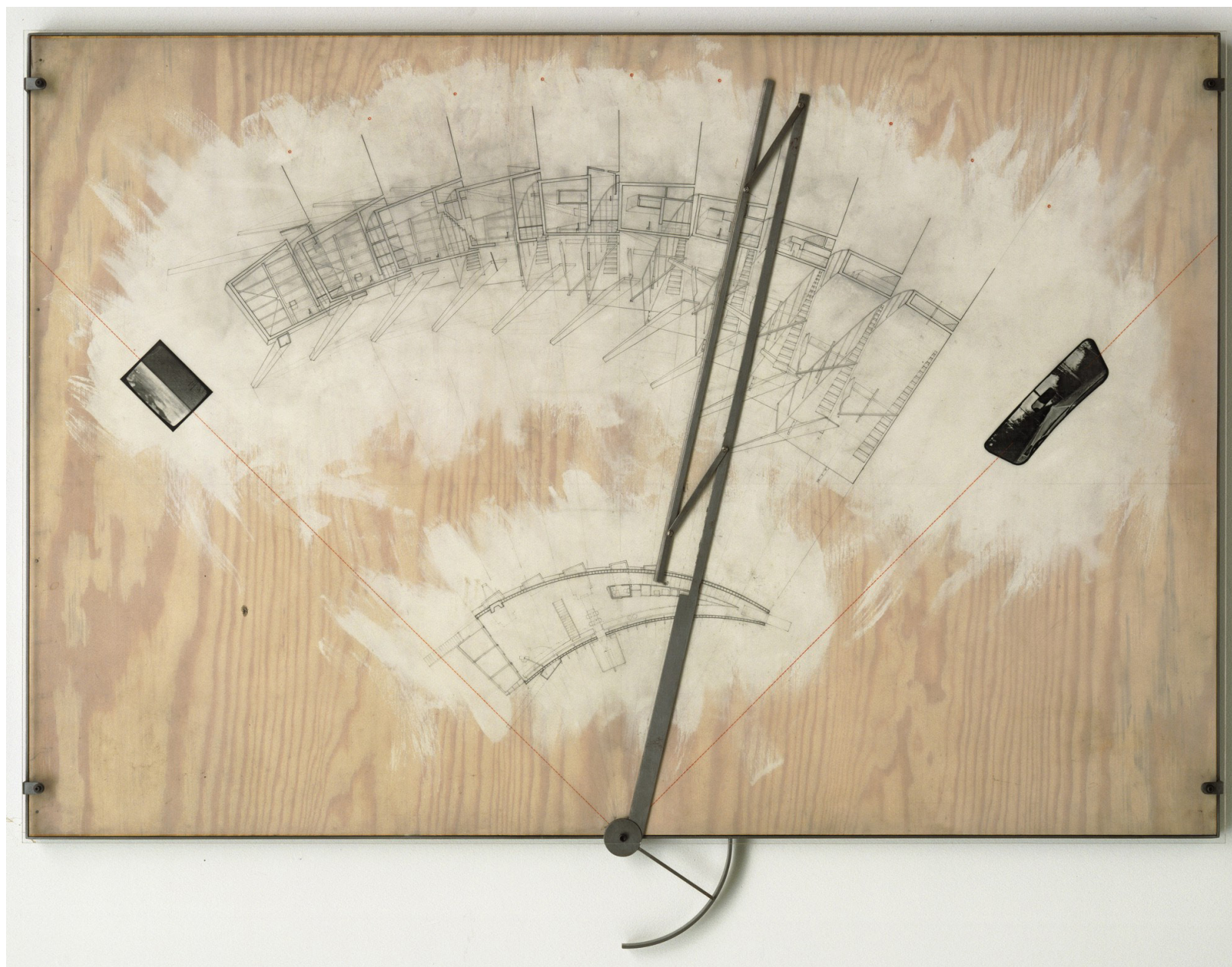


Tonny Valenzuela  
Climbing at home, Barcelona, 2020.



Diller + Scofidio, Elizabeth Diller, Ricardo Scofidio  
Slow House Project, North Haven, New York, 1989



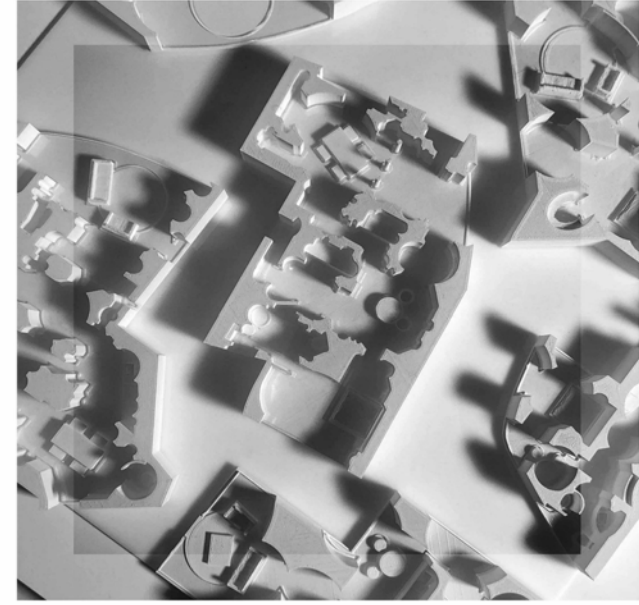
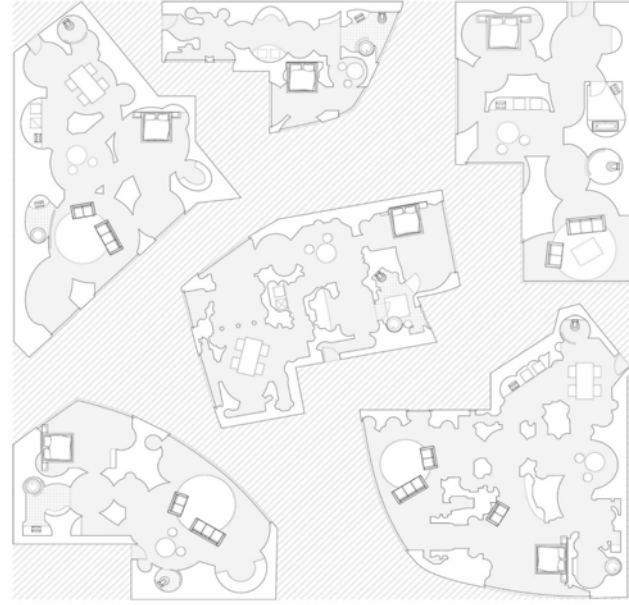
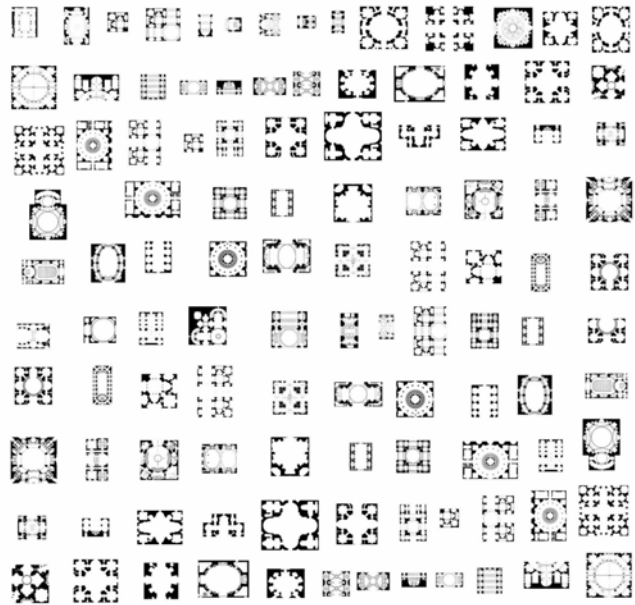
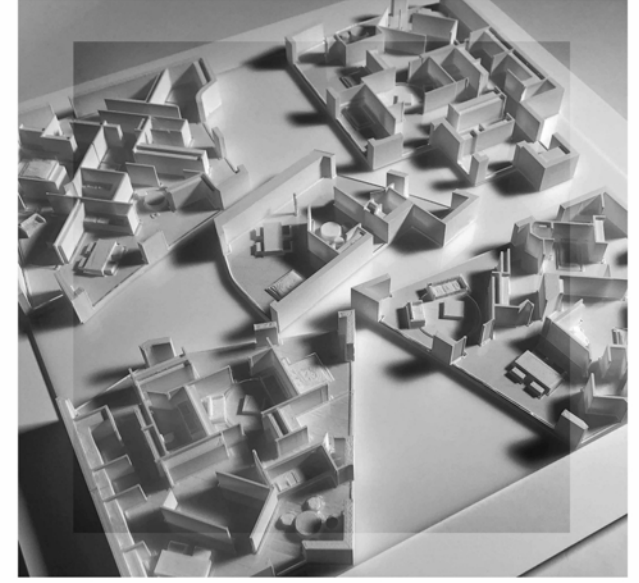
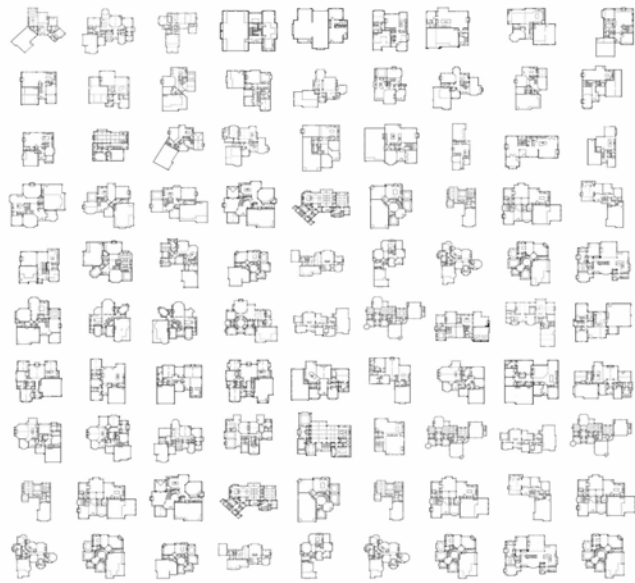


Diller + Scofidio, Elizabeth Diller, Ricardo Scofidio  
Slow House Project, North Haven, New York, 1989



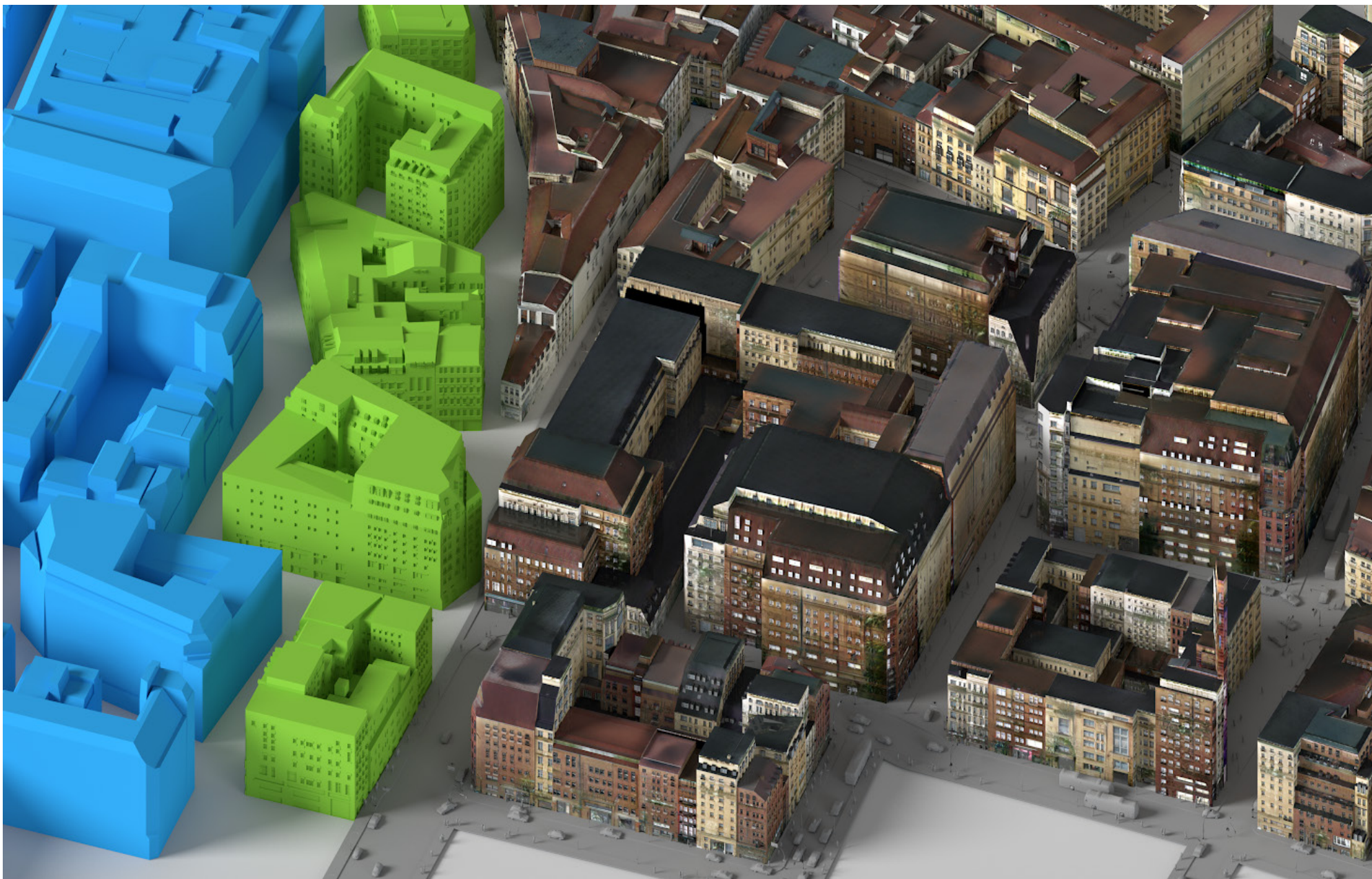
Stanislas Chaillou, Harvard GSD  
A New Frontier for AI in Architecture, 2019.





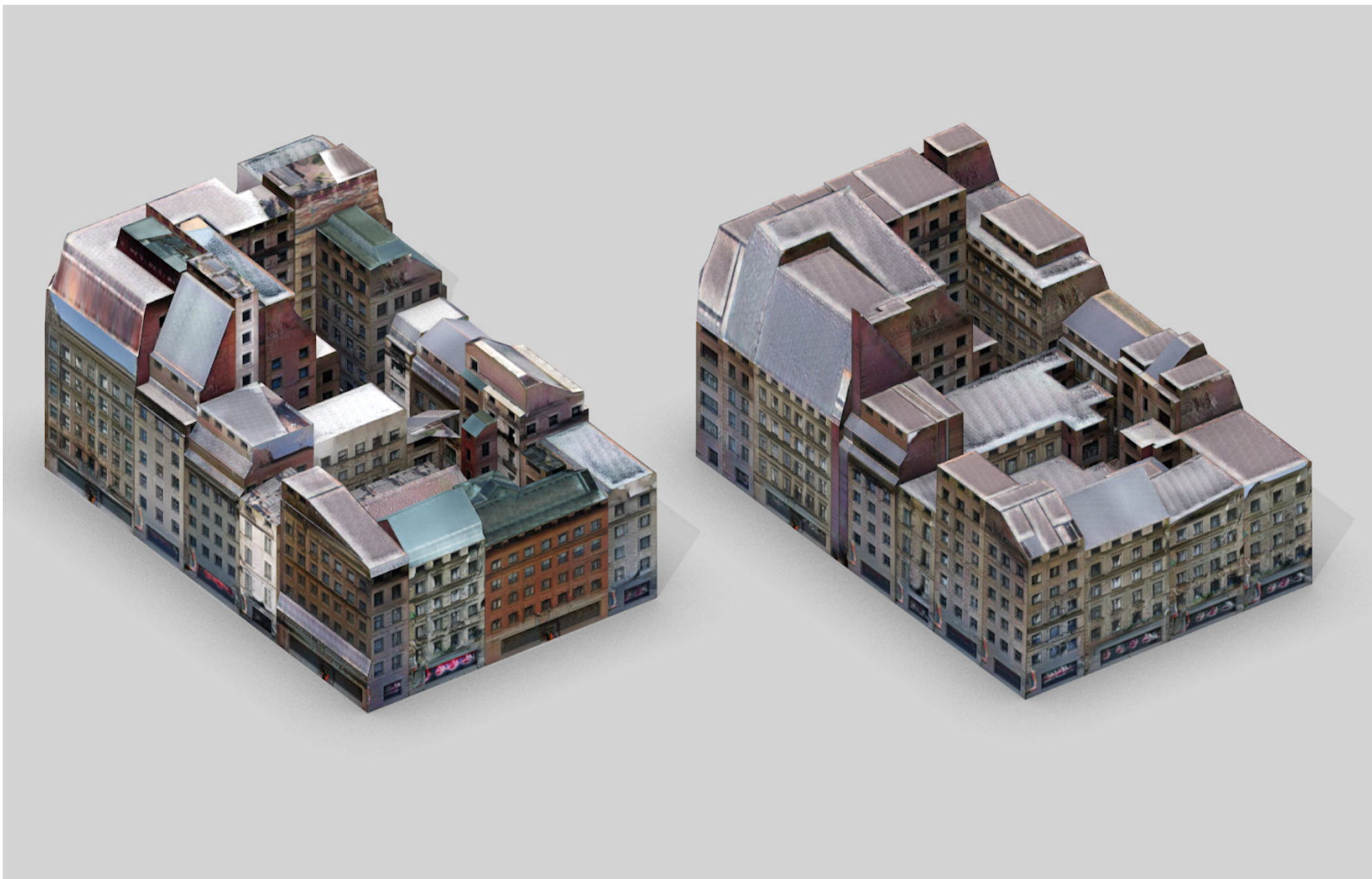
Stanislas Chaillou, Harvard GSD  
A New Frontier for AI in Architecture, 2019.



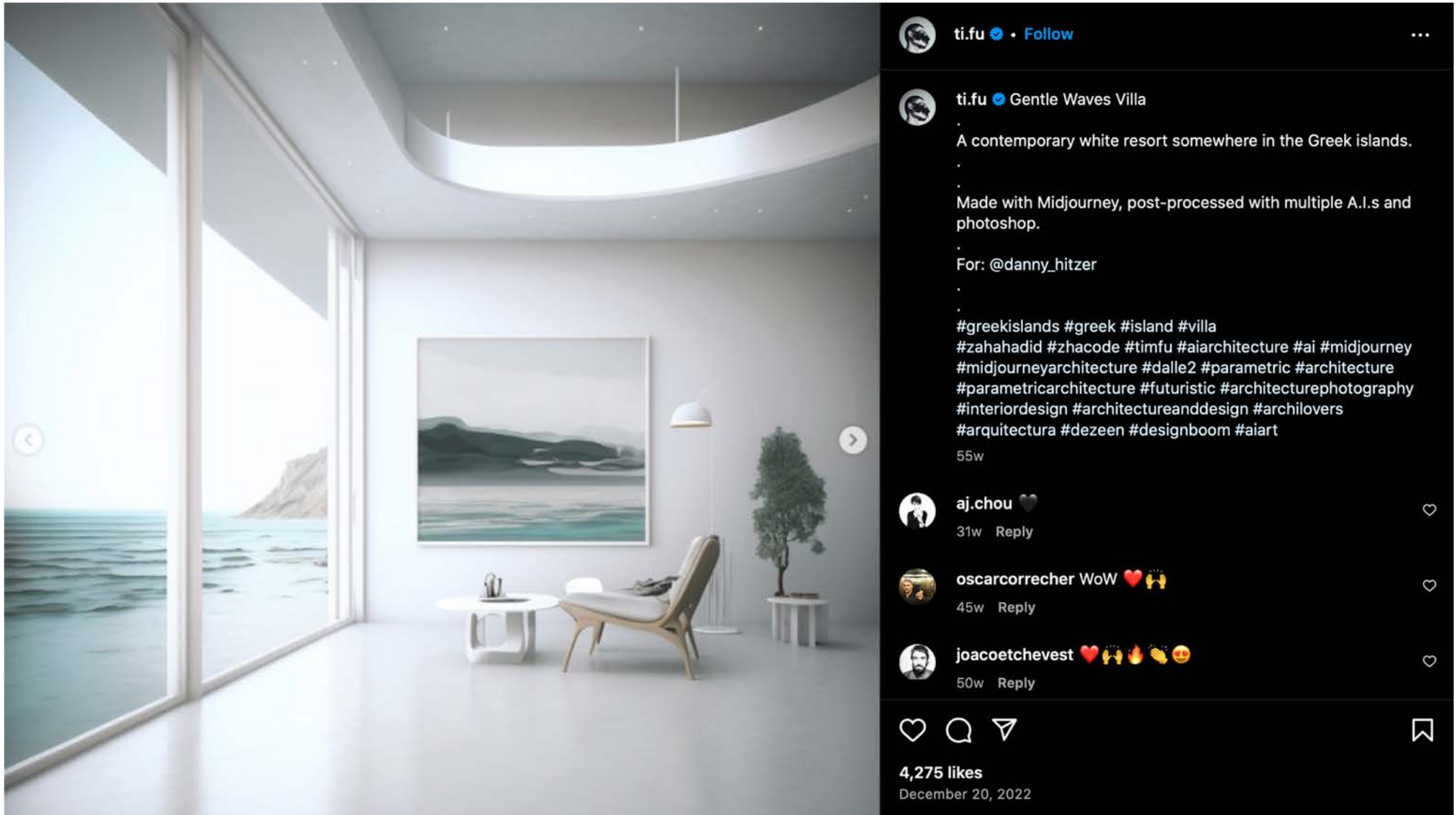


Tom Kelly, Paul Guerrero, Anthony Steed, Peter Wonka, and Niloy J. Mitra  
FrankenGAN: guided detail synthesis for building mass models using style-synchronized GANs, 2018





Tom Kelly, Paul Guerrero, Anthony Steed, Peter Wonka, and Niloy J. Mitra  
FrankenGAN: guided detail synthesis for building mass models using style-synchronized GANs, 2018



Studio Tim Fu  
Generative AI in Architectural Design, 2022



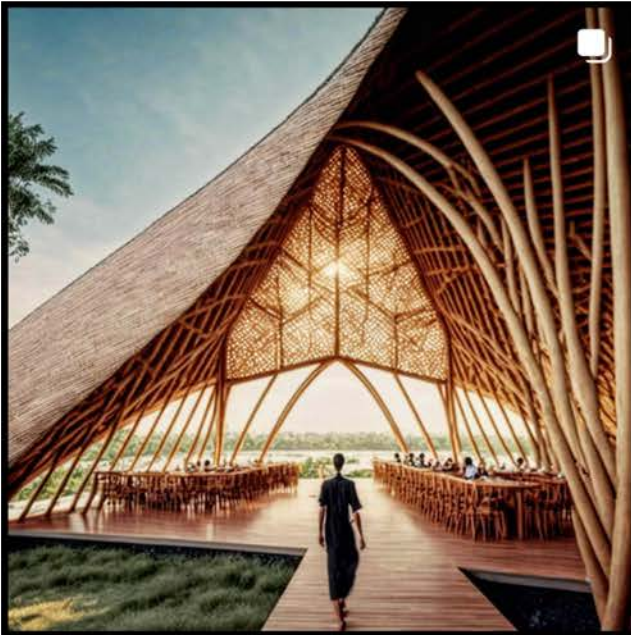


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Generative AI in Architectural Design, 2022

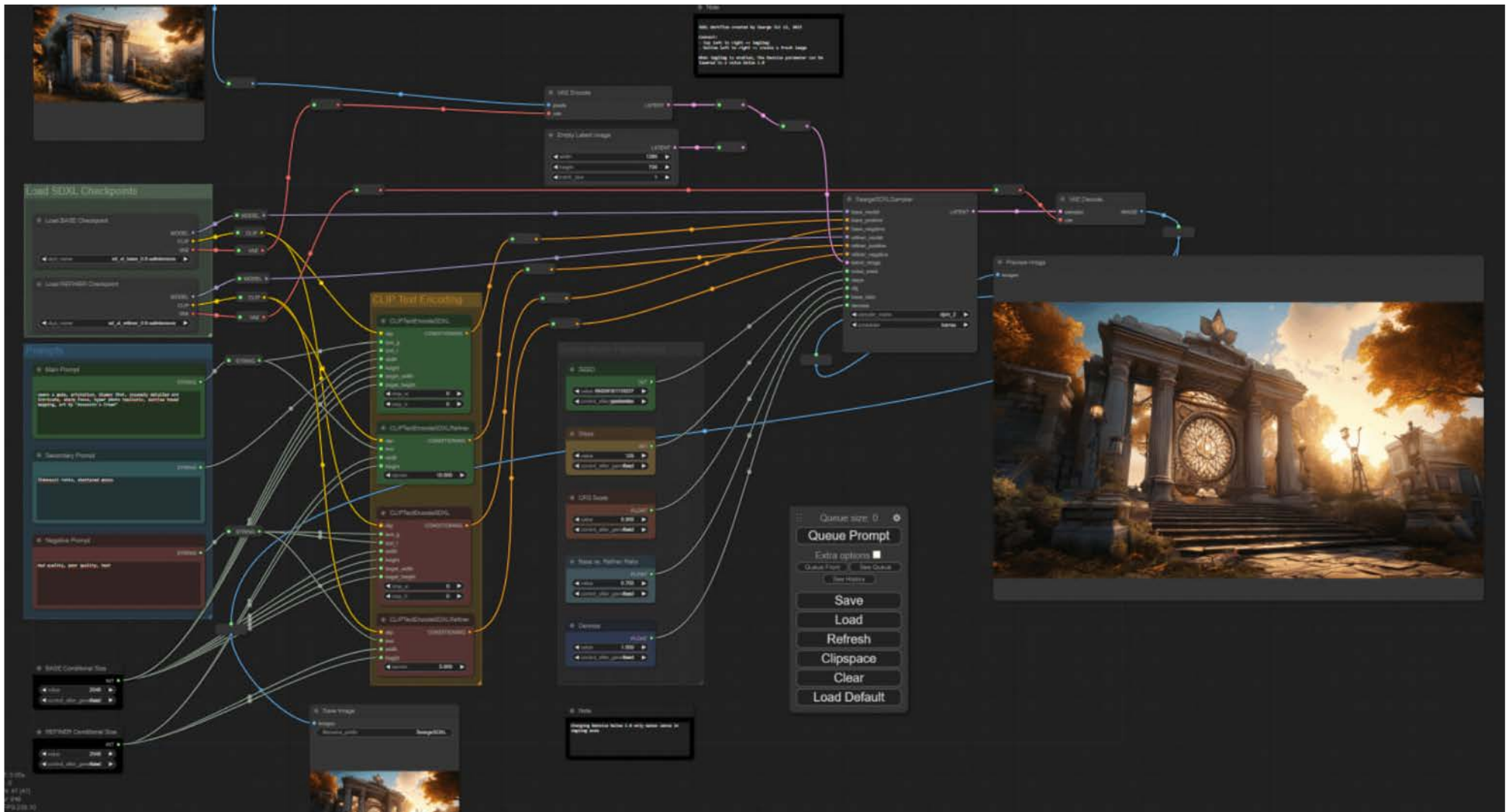


Carlos Banon  
Midjourney Architecture, 2023



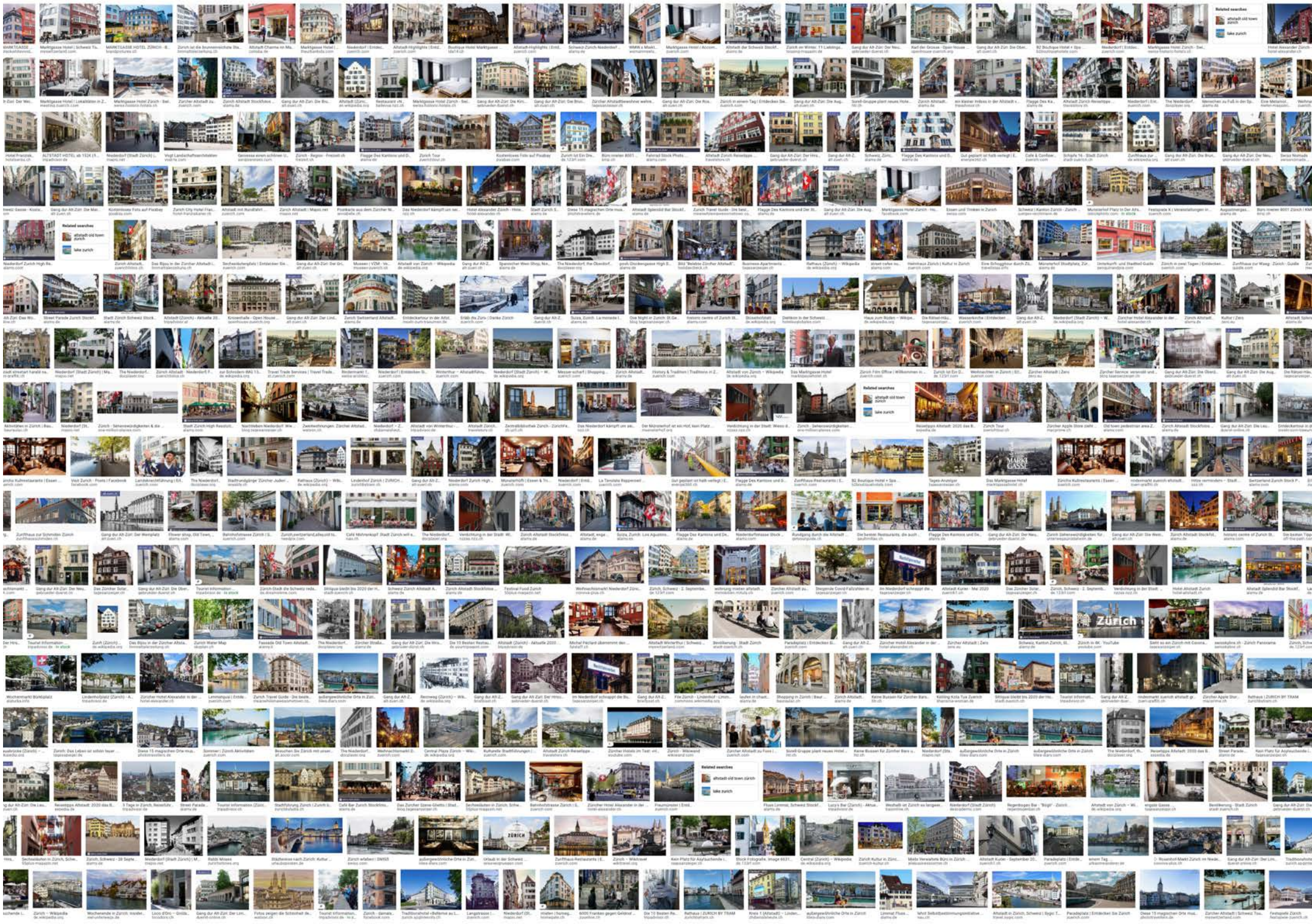


Carlos Banon  
Midjourney Architecture, 2023



ComfyUI Interface using SDXL



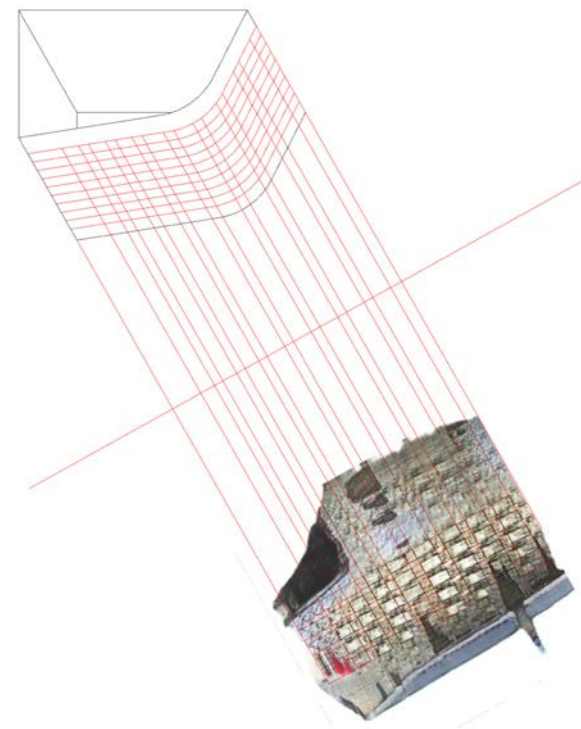
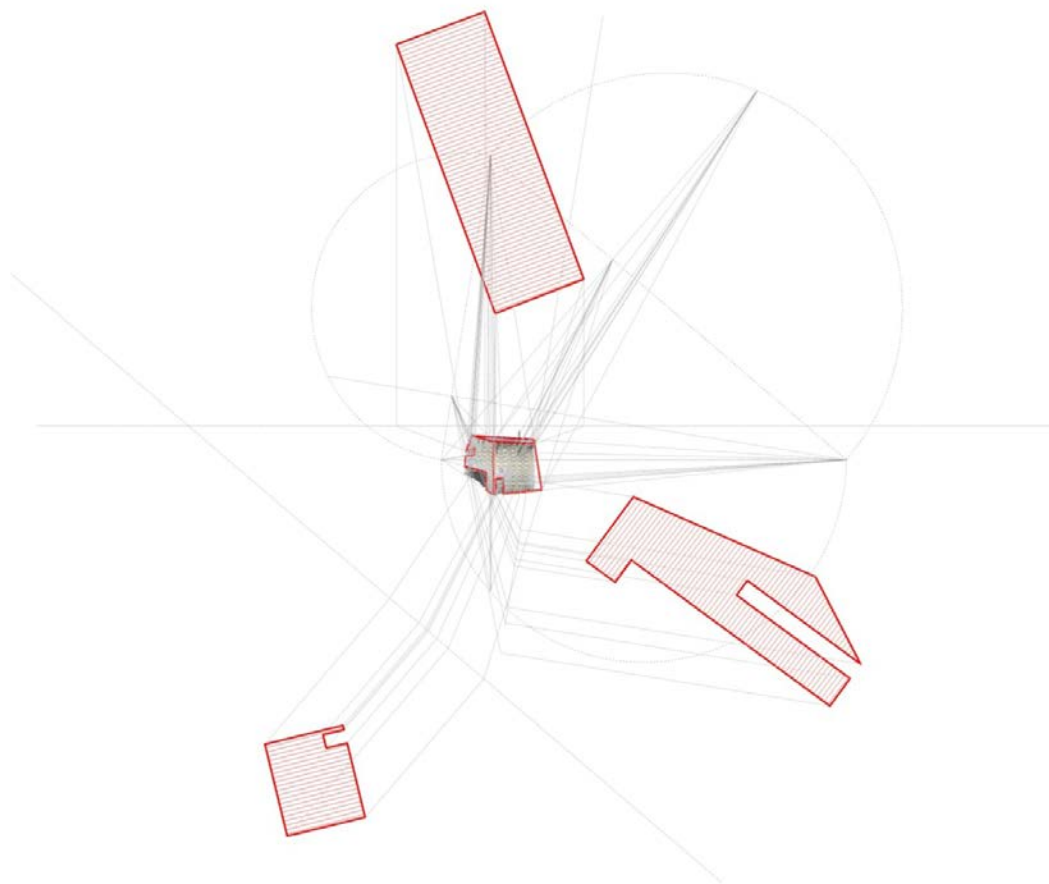


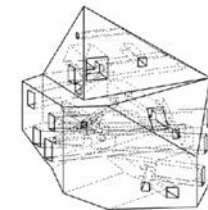
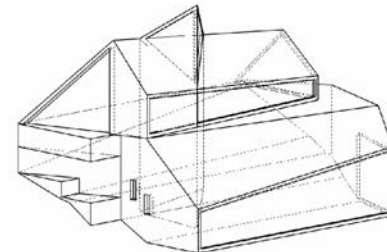
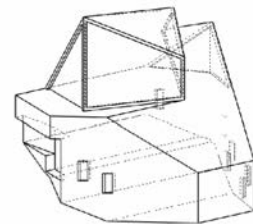
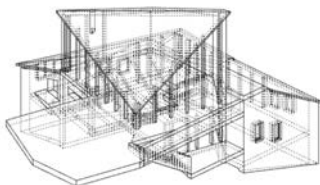
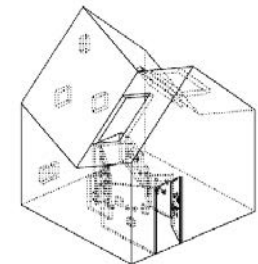
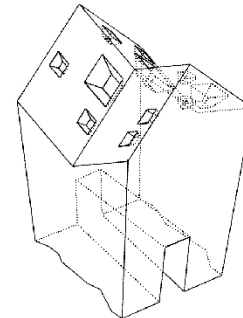
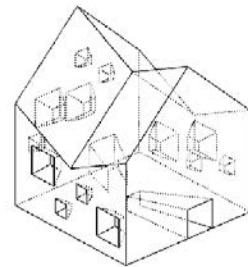
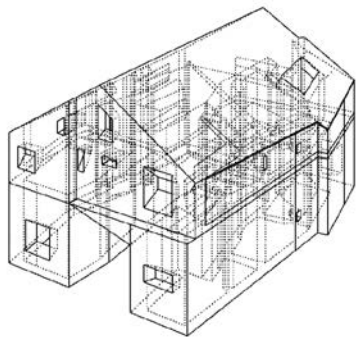
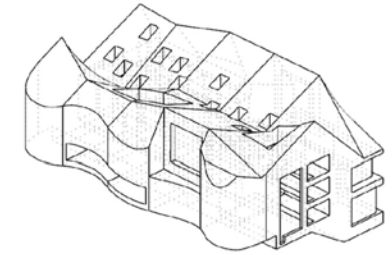
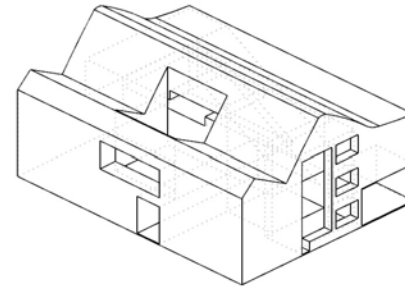
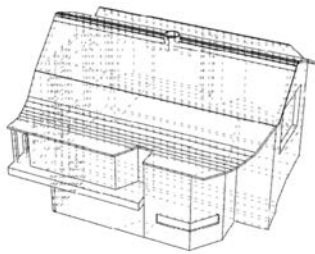




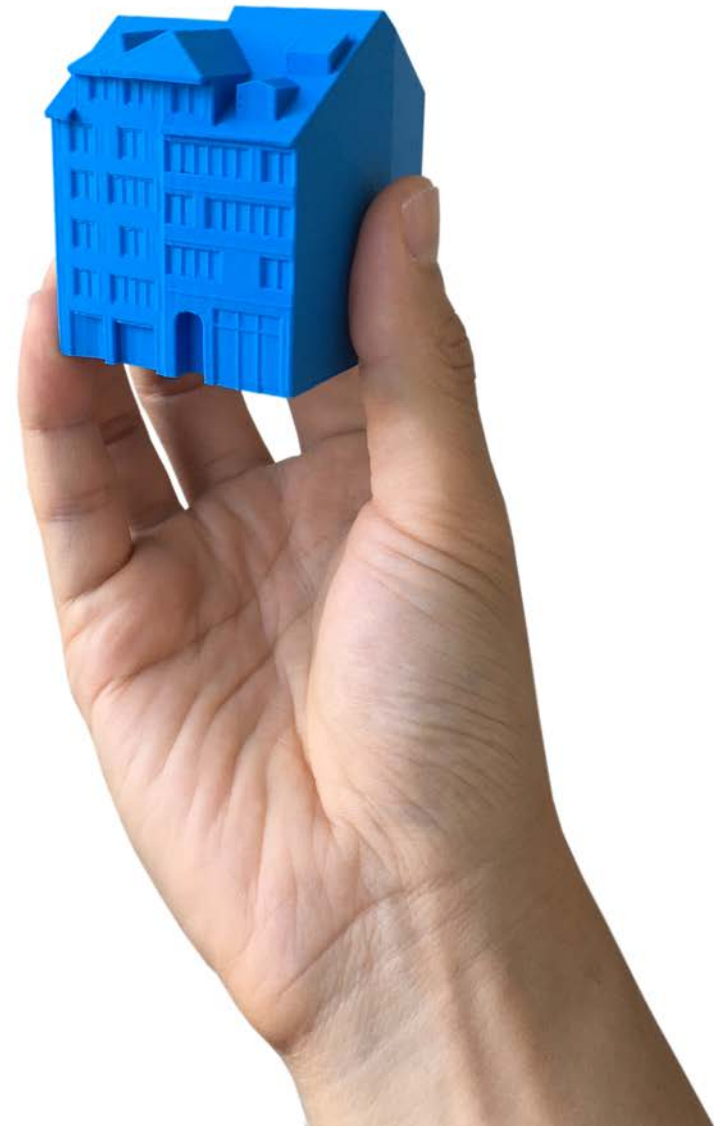
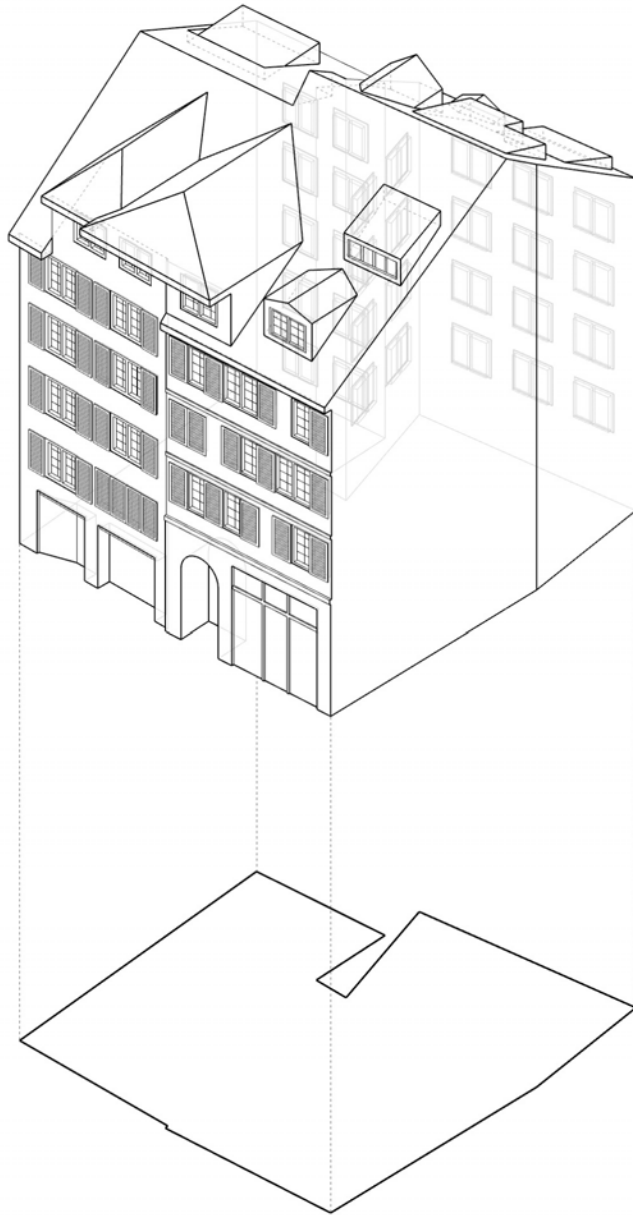
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MxD Lab, Atelier Huang, EPFL  
Refuge 2.0 - Artificial Swissness, 2020.

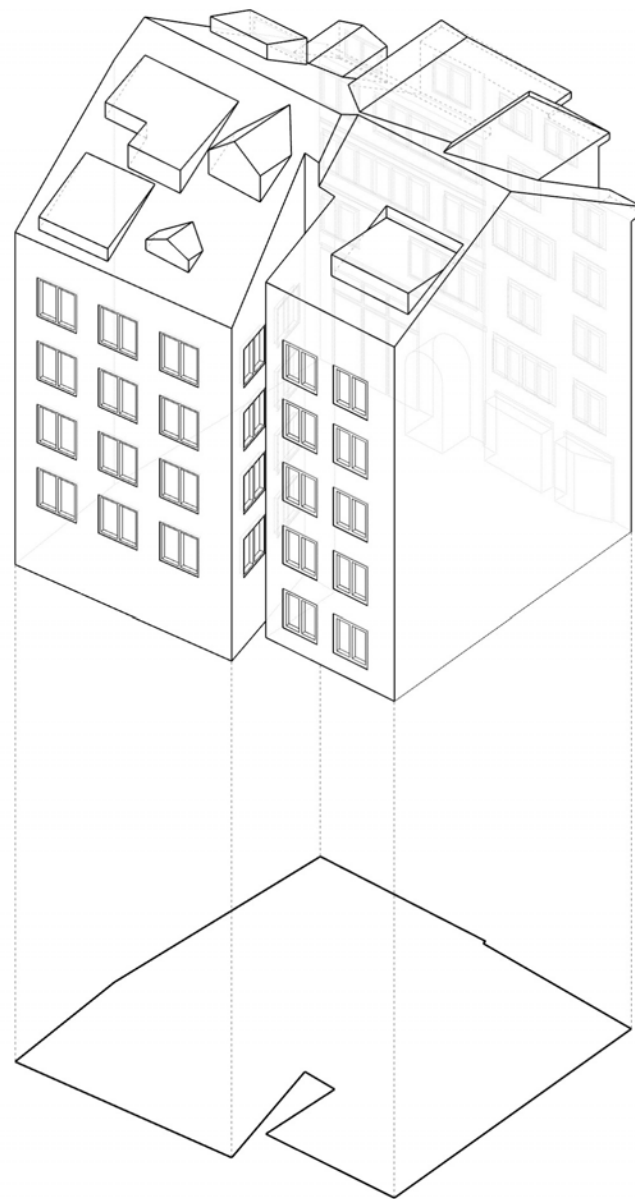
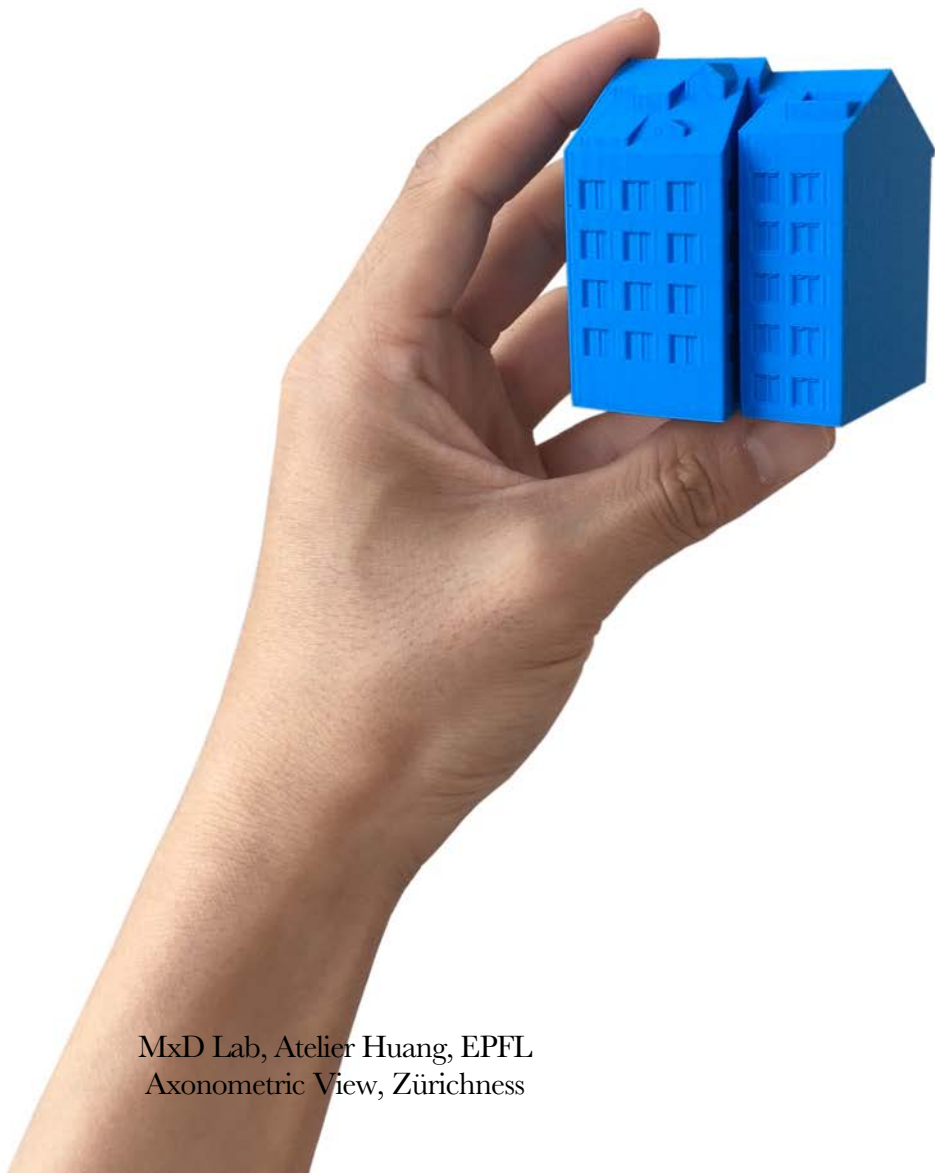








MxD Lab, Atelier Huang, EPFL  
Axonometric View, Zürichness



MxD Lab, Atelier Huang, EPFL  
Axonometric View, Zürichness

## Schedule

Spring 2024

### *Phase I : Generative AI*

Feb 19 - Feb 20 Text Prompting

Feb 20 – Feb 26 Image Prompting

Feb 26 – Mar 25 ControlNets

### *Phase II : House X+Y*

Mar 26 - Apr 15 Architecture Machines  
(Mar 29 - Apr 07 Easter Break)

Apr 15 Midterm Review

Apr 15 –Apr 29 Matrix

### *Phase III : Final Exhibition*

Apr 29 – May 13 Instantiation, Details

May 13 – May 25 Portfolio, 3D Prints

May 27 Final Review

Dates are subject to change.

### **Team**

Media x Design Laboratory

Prof. Jeffrey Huang

Marcela Delgado, Alexandre Sadeghi, Ga-In

Sim, Mikhael Johanes, Frederick Kim,

Christina Doumptioti, Christoph Holz, Gianna  
Ledermann

### **Partners**

Kyoto Design Lab

Prof. Erwin Viray

Prof. Masahiro Kinoshita