

**PORTFOLIO**

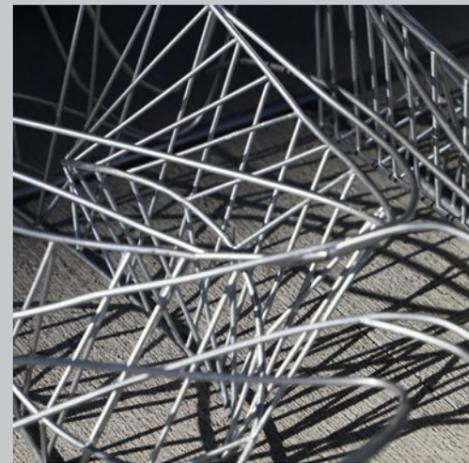
**YIHAN ZHENG  
2018-2021**

# CONTENT

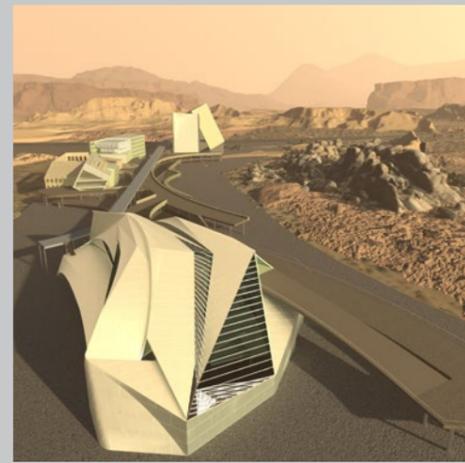
YIHAN ZHENG



**WEARABLE ARCHITECTURE**



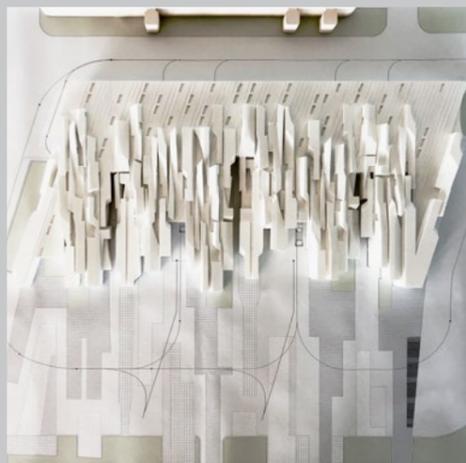
**UNDULATING LATTICES**



**HYPERLOOP DESERT CAMPUS**



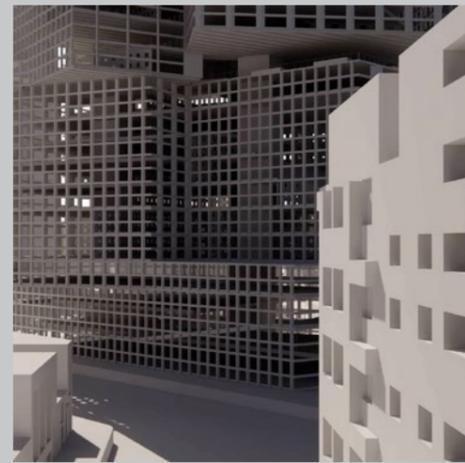
**OSLO DESIGN MUSEUM**



**FUTNITURE FACTORY**



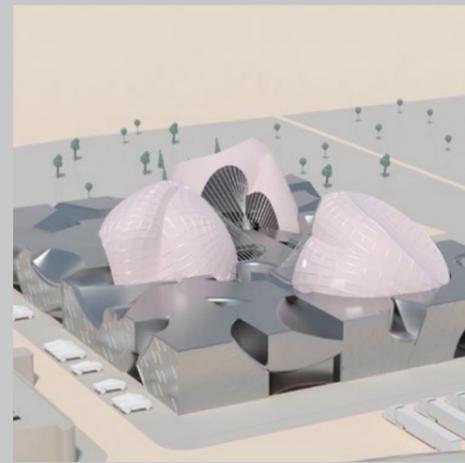
**BATHHOUSE**



**VERTICAL ART INSTITUTE**



**CONSTRUCTION DOCUMENT**



**DESIGN DEVELOPMENT**

YIHAN ZHENG  
Email: [yihanzheng9359@yahoo.com](mailto:yihanzheng9359@yahoo.com)  
Website: <https://www.yihanzhengdesign.com/>

## Wearable Architecture

Fall 2020

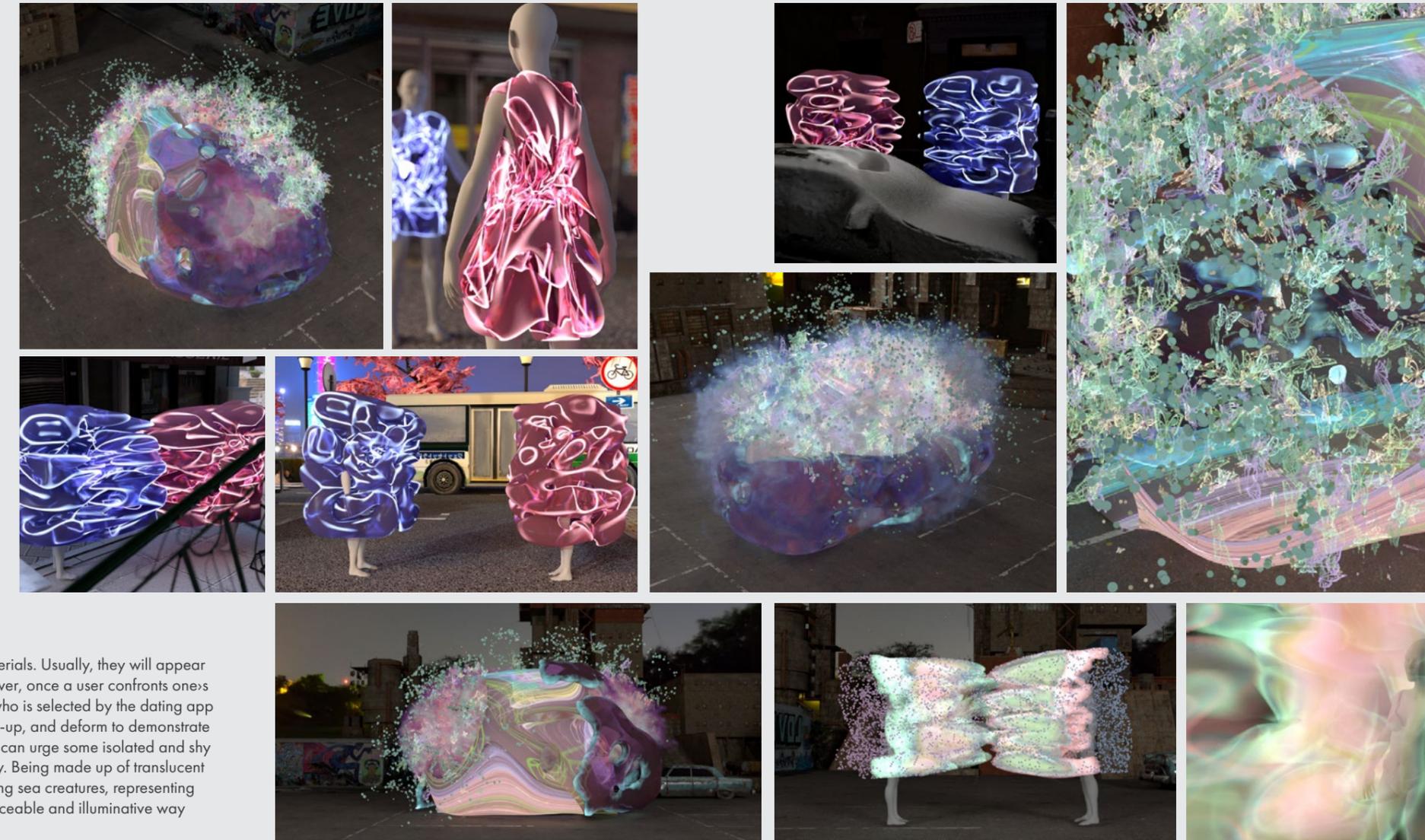
Instructor: Hernan Diaz Alonso

Teaching Assistant: Joy Dai

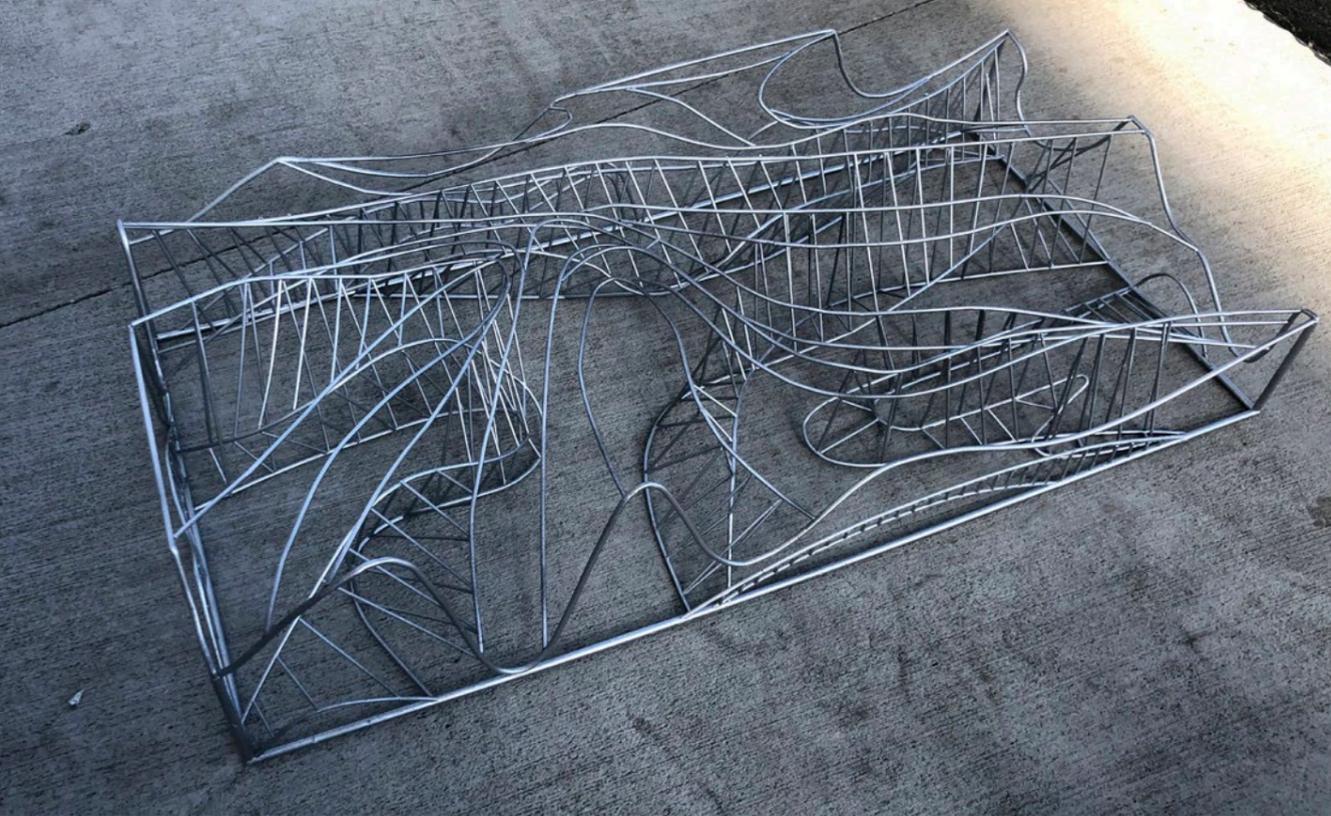
My project is a series of wearable architectural pieces, called Cocoon, working as a facility for an online dating app named Vicinity, prevailing in the future. Unlike other online apps where users' communications are merely based on online information in the virtual world, this dating app aims to prompt users to have an unexpected encounter in the physical world by detecting users' emotions and mental senses in real-time. Thus, the wearable architectures serve as both a sensor and a transformative and wearable installation.

Watch the whole video at: <https://www.yihanzhengdesign.com/wearable-architecture-cocoon>

## Wearable Architecture

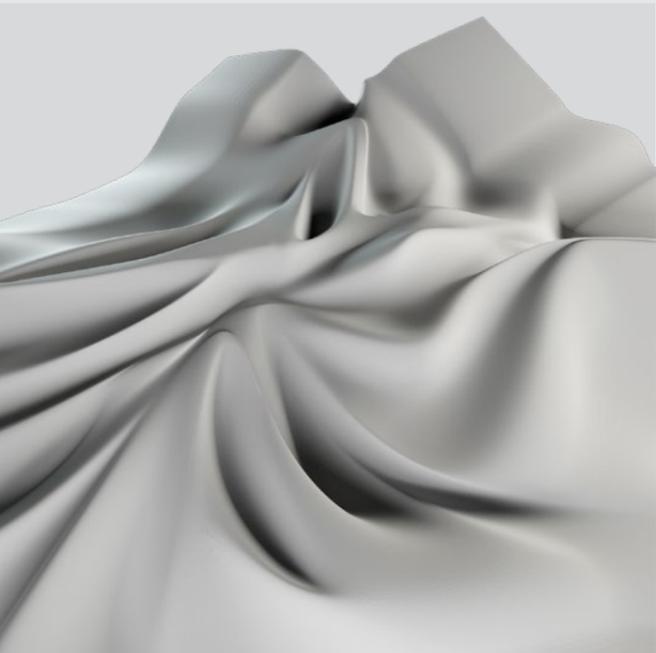
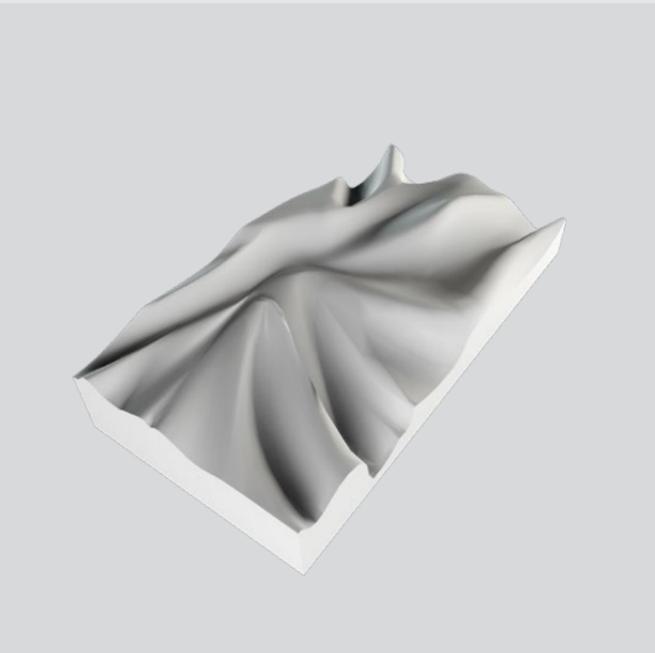
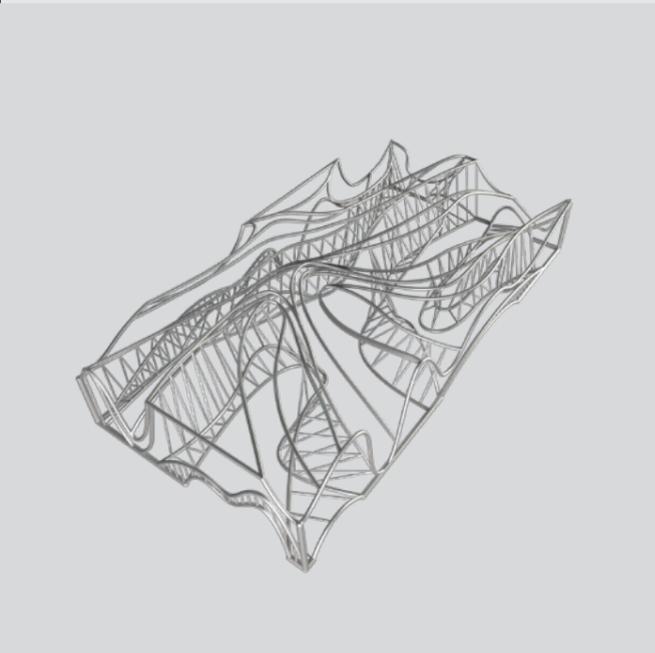
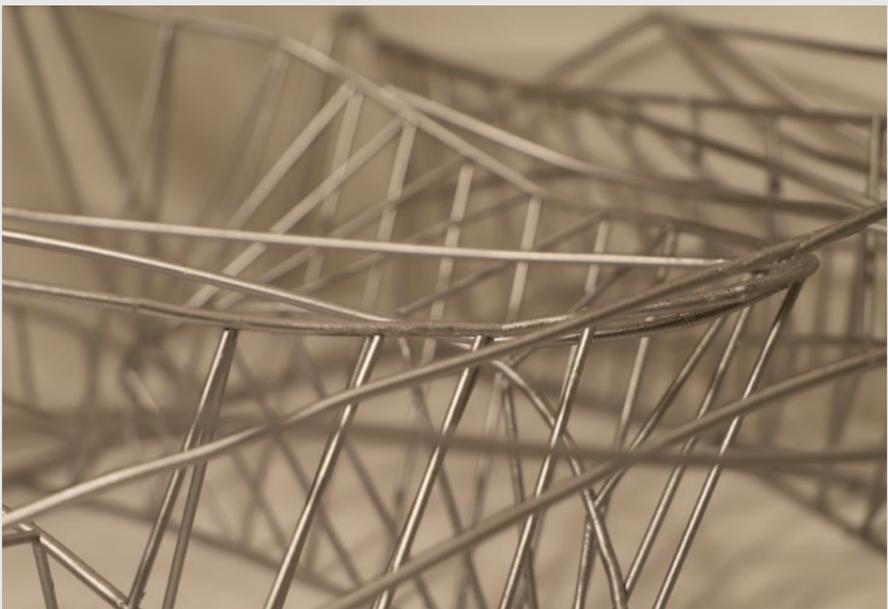
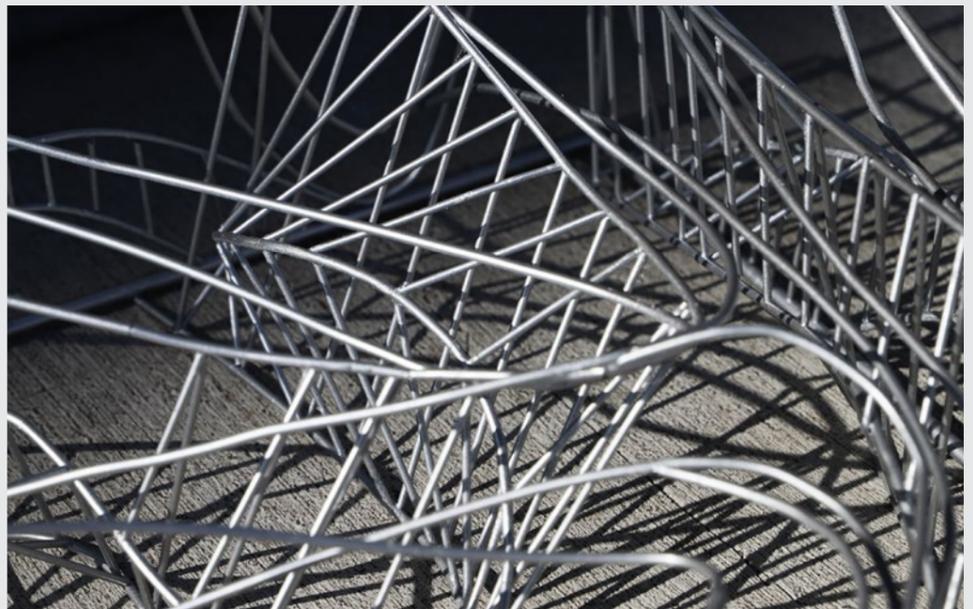


Cocoons apply malleable and flexible foam materials. Usually, they will appear as daywear for users to wear on the street. However, once a user confronts one's potential dating partner on the corner of a road, who is selected by the dating app from its database, the clothes will illuminate, scale-up, and deform to demonstrate their mutual crushes. The deformation of garments can urge some isolated and shy users to flirt like peacocks spread their tails boldly. Being made up of translucent materials, the Cocoons imitate the skin of glowing sea creatures, representing human's beaming and glowing faces in a noticeable and illuminative way.



## Undulating Lattices

Teammates: Dharsini Kalaiselvan, Kovarthini Sekar  
Instructors: Dwayne Oyler, Gwyllim Jahn  
Teaching Assistant: Burak Celik

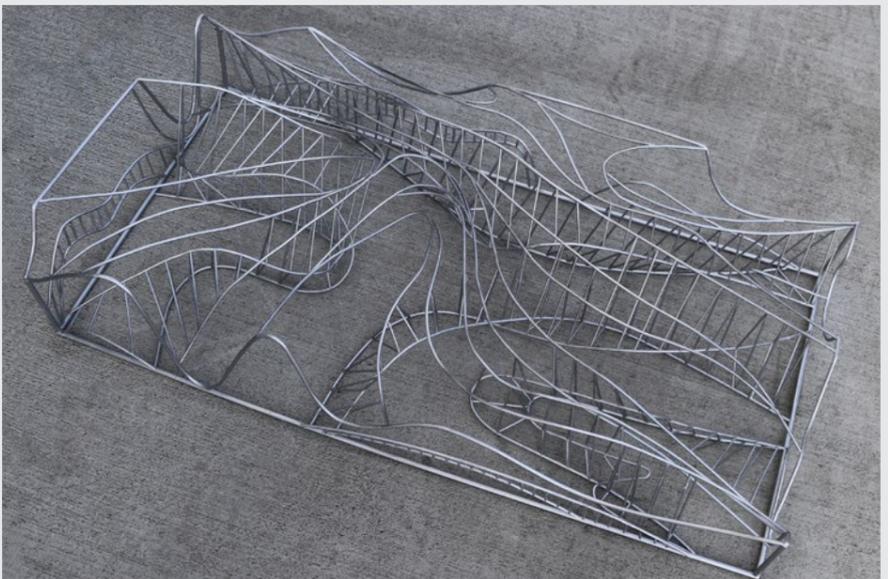


### PHYSICAL MODEL

Undulating Lattices try to apply the design and fabrication of eccentric architectural assemblies through the collapsing of digital and analog approaches. By Utilizing advanced mixed reality software, and working in close collaboration with the architects and software developers at Fologram, my teammates and I utilize a range of hands-on design approaches and techniques specifically tuned to this type of software.

In order to design a wire-formed drapery piece, my teammates and I explored deep three-dimensional geometries, more specifically draperies and fabrics that will be constructed in space. We selected a swatch from Bernini Angels at the Ponte Sant' Angelo to rebuild as a starting point for exploration. Then, we transformed it through densely molded wireframe models shaped by hand and with small tabletop tools usable at home.

Mixed-reality tools are also environment-friendly since they can prompt an elaborated physical model without wasting materials and sophisticated drawings



Watch the videos at: <https://www.yihanzhengdesign.com/undulating-lattices>

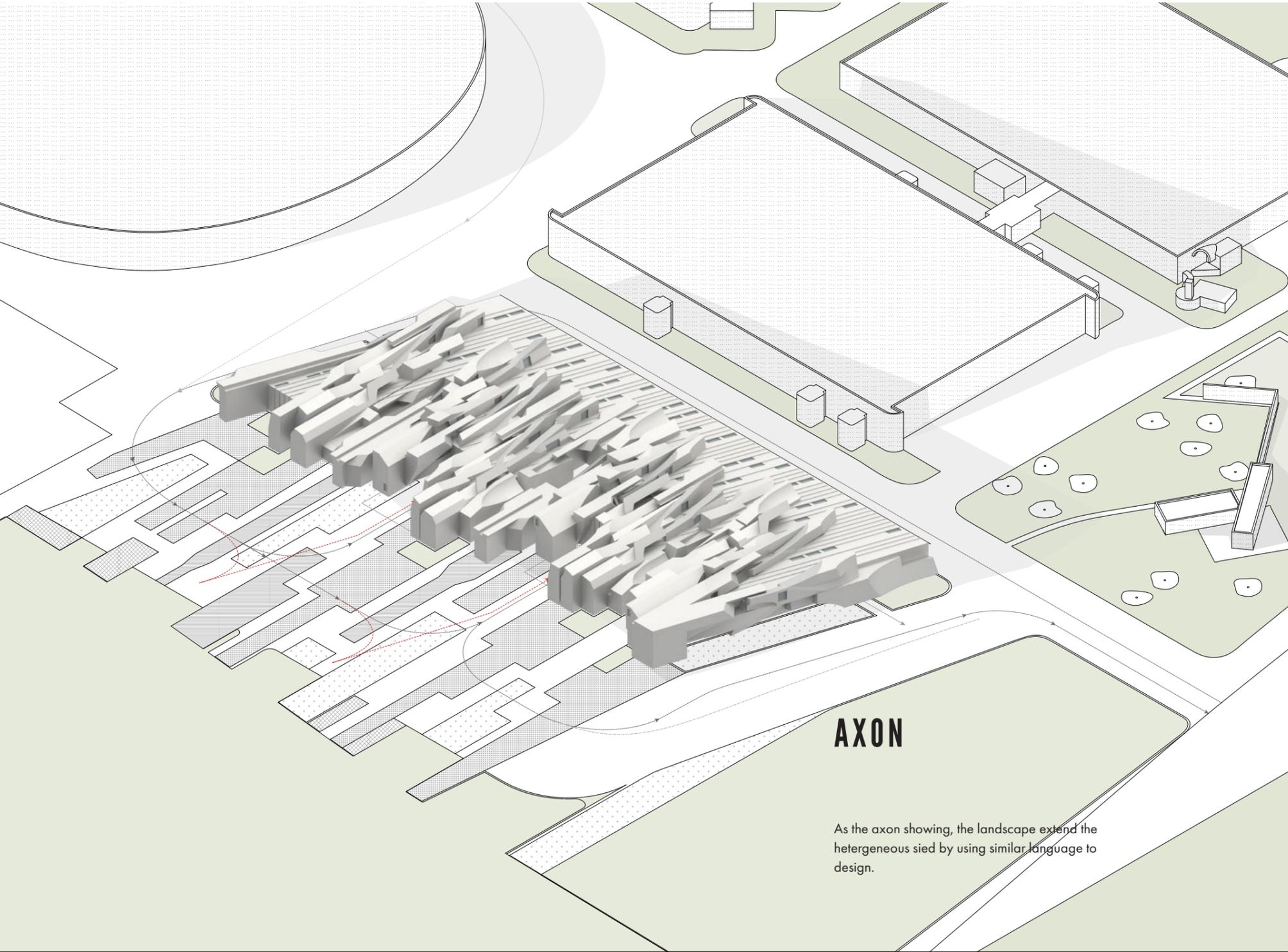
## Heterogeneity: Furniture Factory

Fall 2019  
Instructors: Russell Thomsen  
Teammates: Pedram Eidipour, Zaiyang Tian

The first term in the second year of the core M.Arch I sequence builds upon an appreciation of the discipline and knowledge of architectural production by focusing on the development of a project according to principles of Integrative Design. The studio is structured to support each student's awareness of the issues involved in the design of a complex architectural project. Elemental spatial constructs and organizational systems are seen as resulting from and reacting to site conditions, program distribution, structural systems, building envelope systems and assemblies, environmental factors, and building regulations. These influences are considered at once physical and virtual, permanent and ephemeral, situational and circumstantial. Qualities of site, situation, and environment, as well as cultural contexts, are considered potential tools to challenge conventional approaches to architectural design.

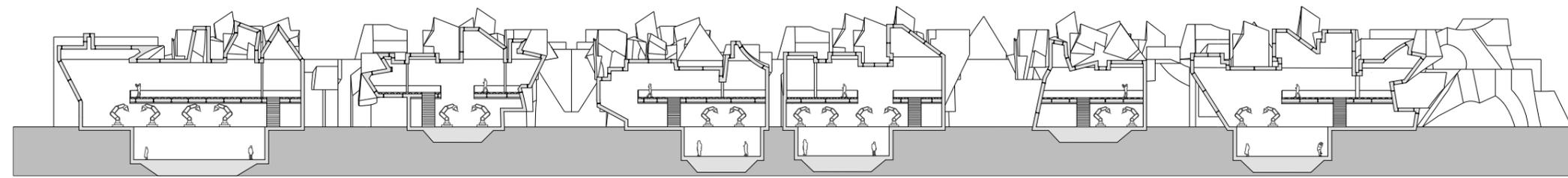
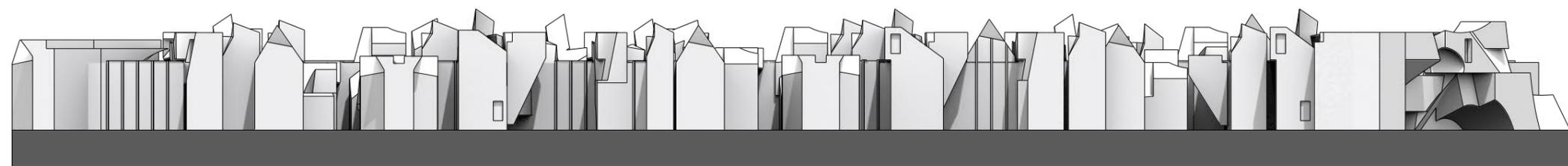
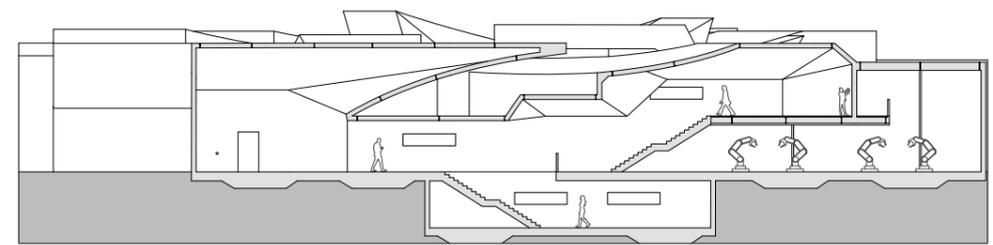
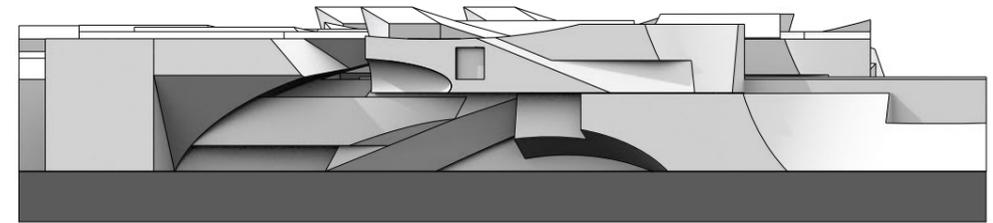
## DIAGRAM





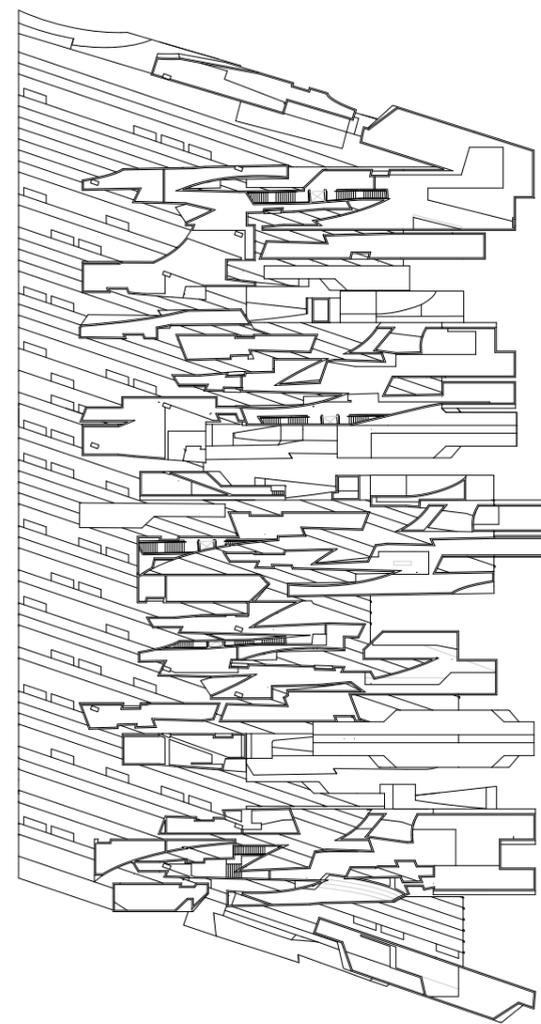
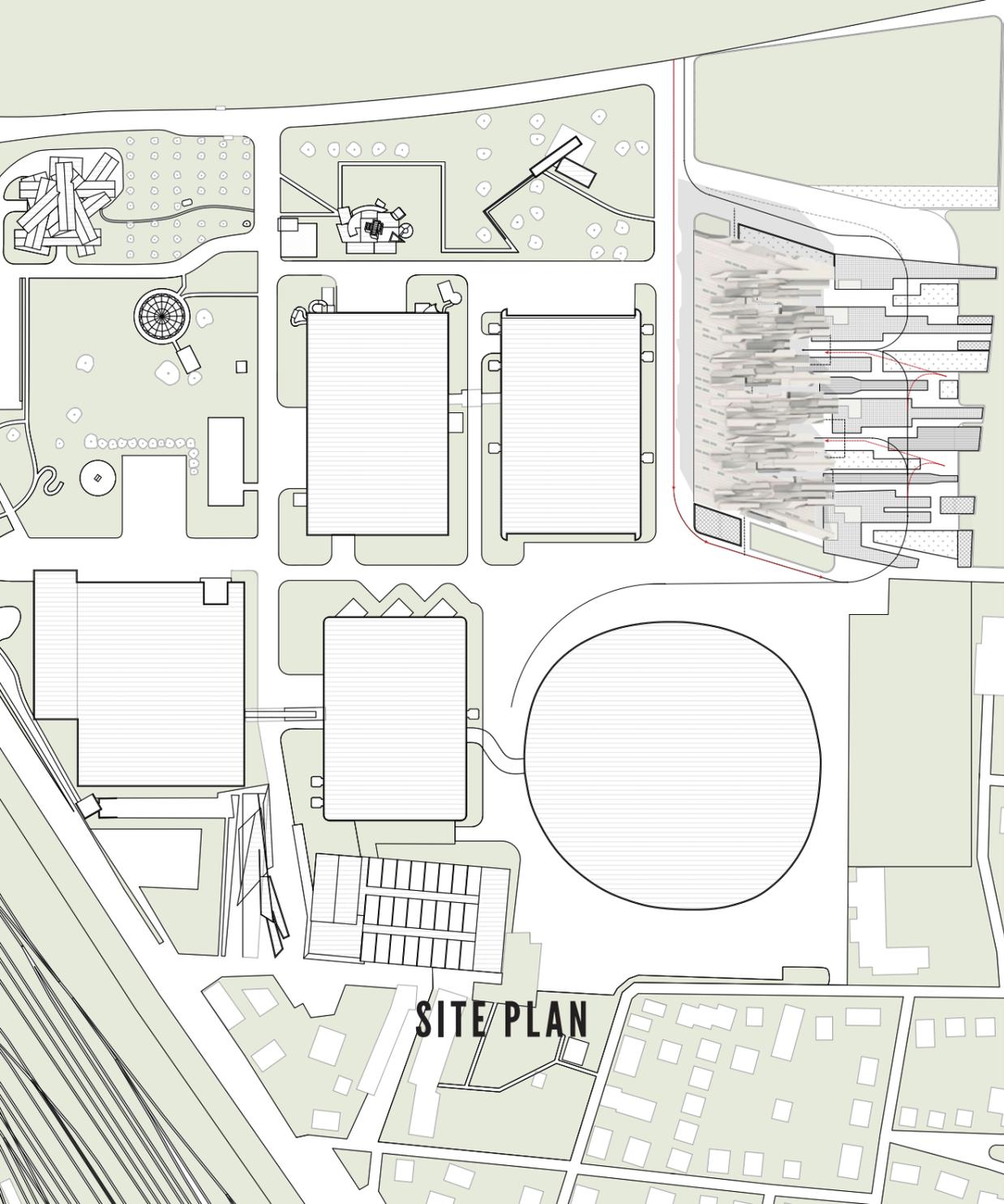
## AXON

As the axon showing, the landscape extend the heterogeneous sited by using similar language to design.

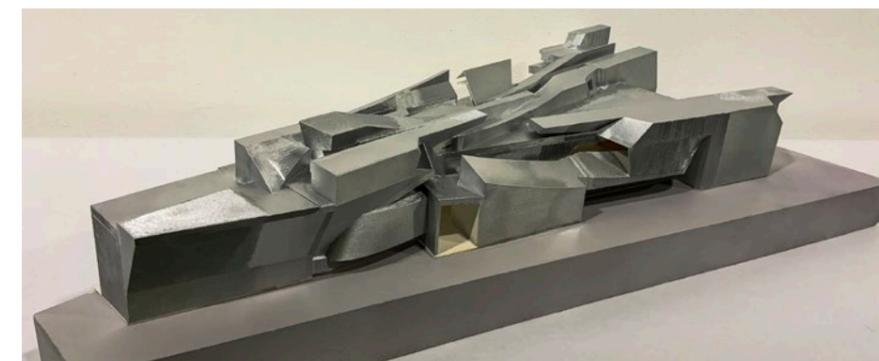
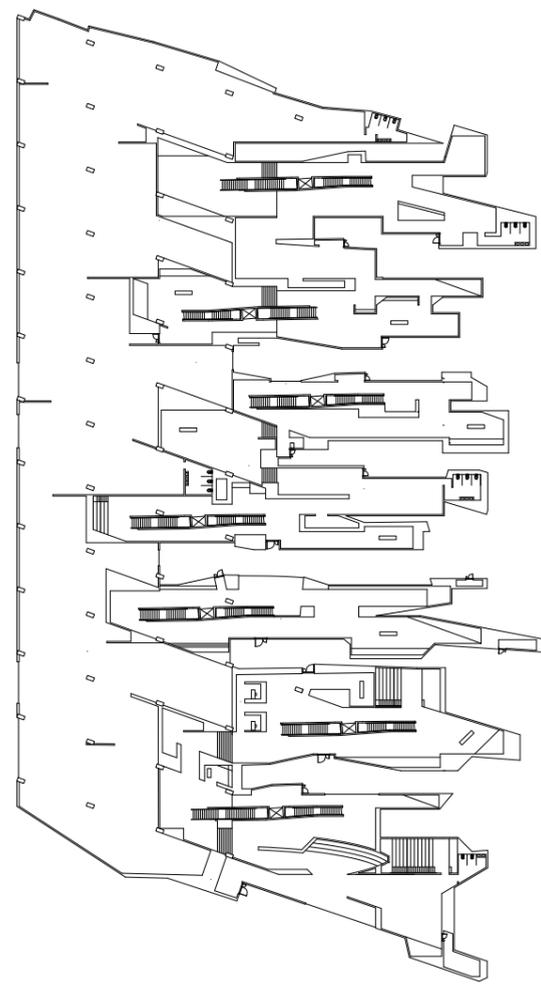


## SECTION AND ELEVATION

This page displays a long and a short elevation and sections in the same angle. The sections shows the way manufacturing space and exhibition space combined in one building.



**PLAN**

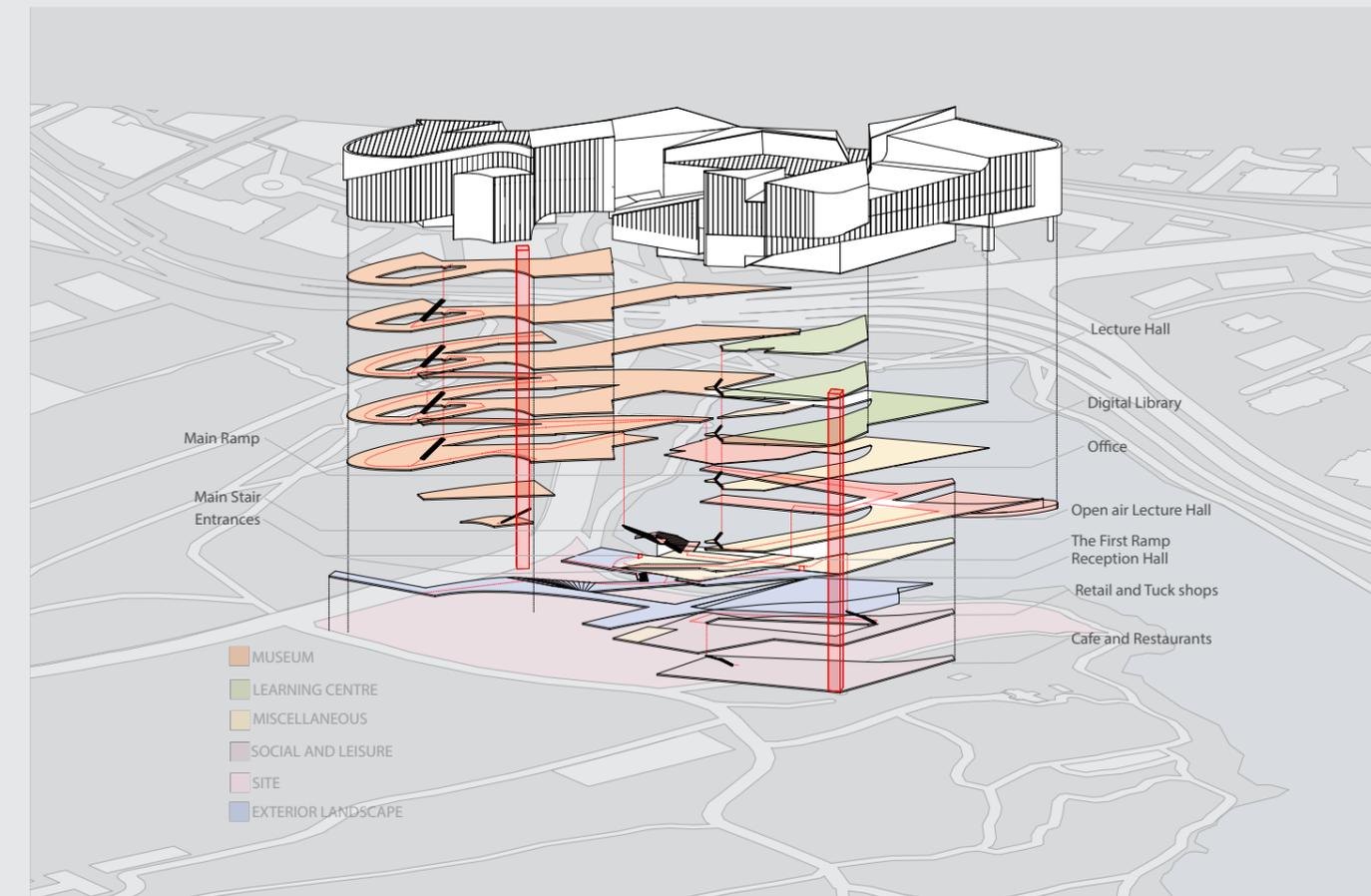
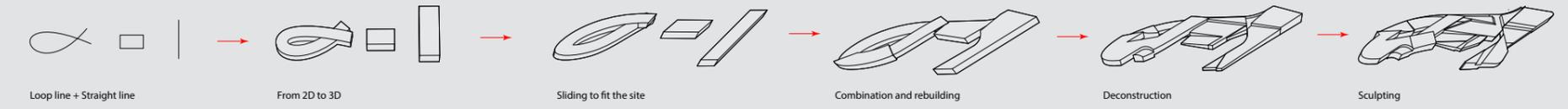


**Physical Model**



**Oslo Design Museum**  
2020 : Year

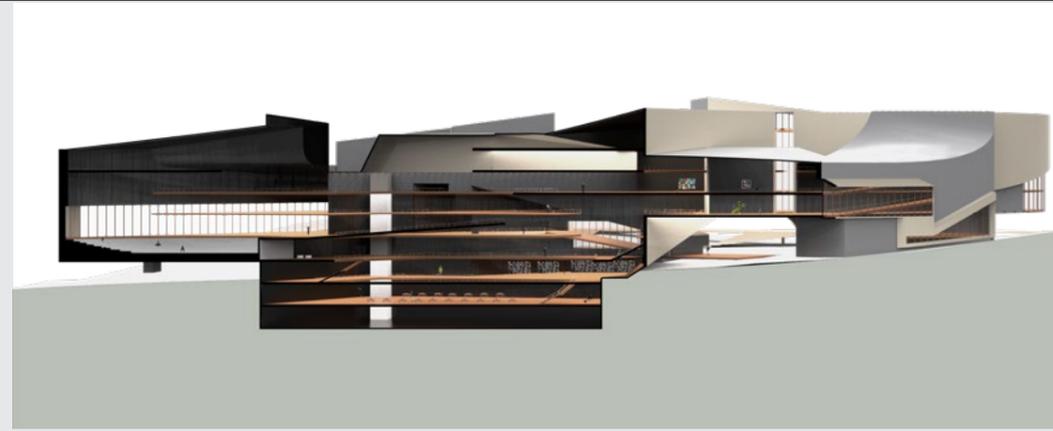
The Oslo Design Museum attempts to work as an iconic architecture in Oslo, not only for documenting and exhibiting the history and story of the development of design but also monumental for remarkable designers and arising discussion among citizens. Also, it tends to revive design by providing a promenade space for people to walk along the tour of design history and gather in a public area to talk about design



**DIAGRAM**

## ELEVATION

To address this issue, the Oslo Design Museum presents a dynamic formation to speak with citizens based on simple concepts: loop line plus straight line. The loop line form represents a time-traveling atmosphere for gallery interior space, whereas the straight-line geometry contains interior spaces satisfying visitors' socializing and rest requirements.



## SECTION

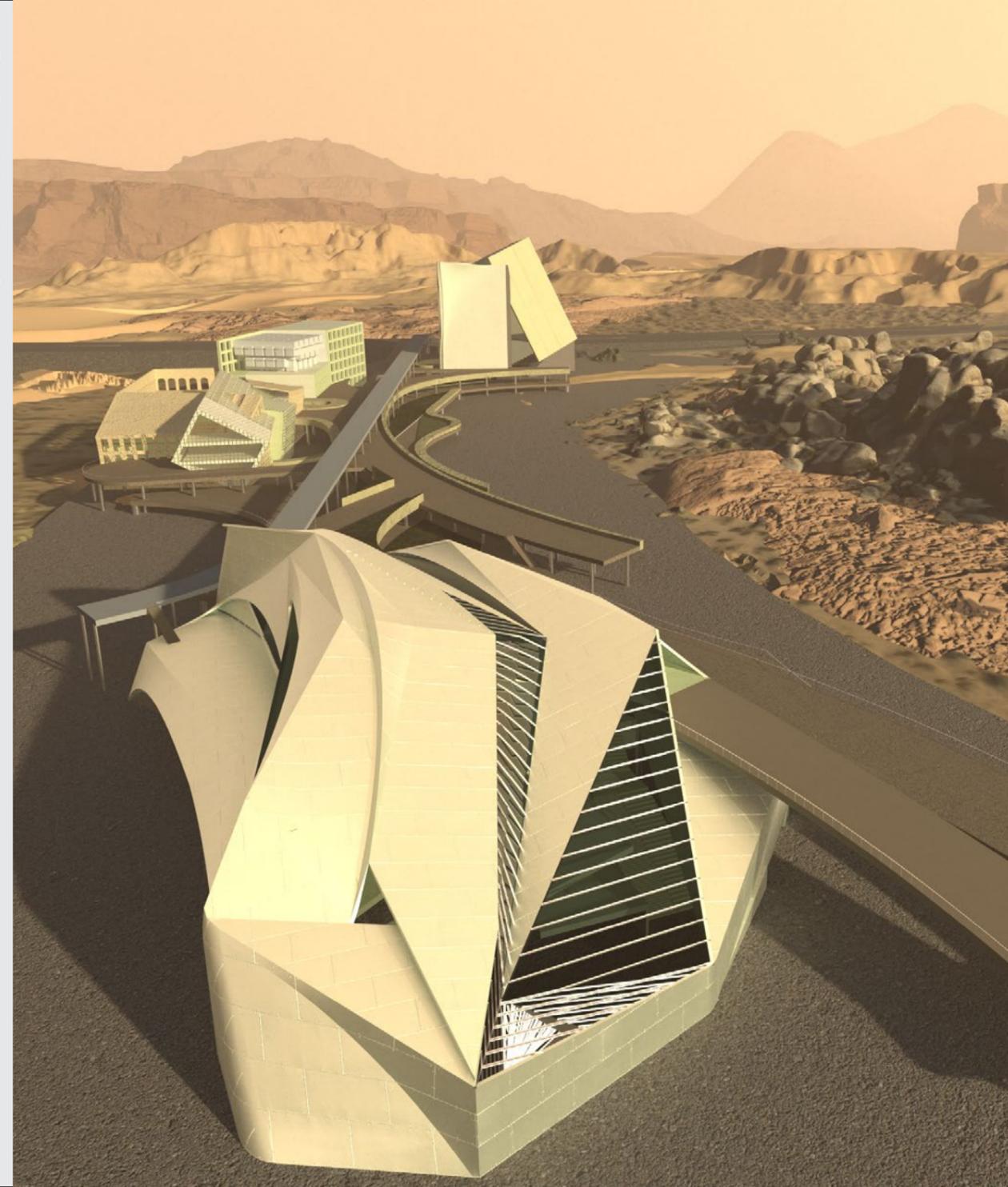
After entering the building, people will go up to the second floor through the "First Ramp" in the reception hall. In that hall, visitors' view can be exposed to all building floors, denoting a strong spirit of place. After people travel in the gallery, they will pass the "Main Stair", a path to the downstairs café. When serving as a transitional stair to another area, it is also a dynamic space that encourages people to halt and take a seat.

## INTERIOR

By appreciating the crowd on different floors, the time and space scale is shrunk in visitors' minds, and the barriers caused by different views between people are removed naturally.



# HYPERLOOP DESERT CAMPUS

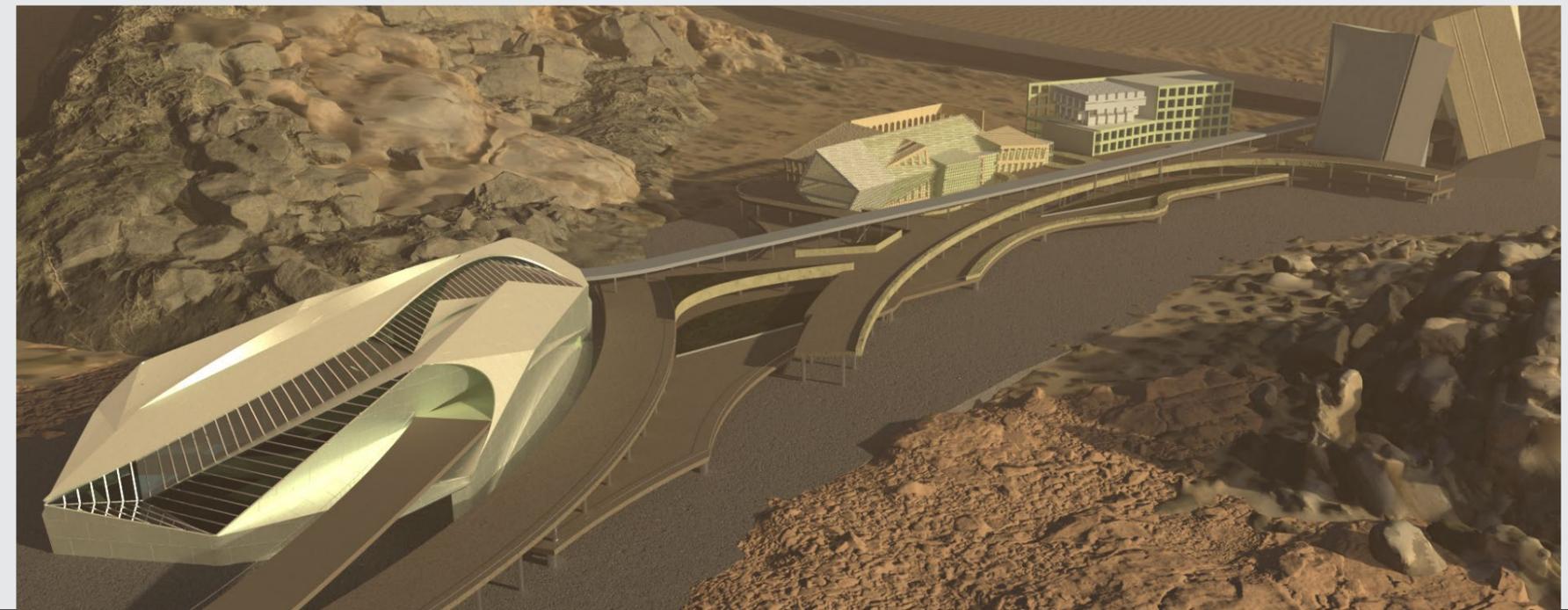
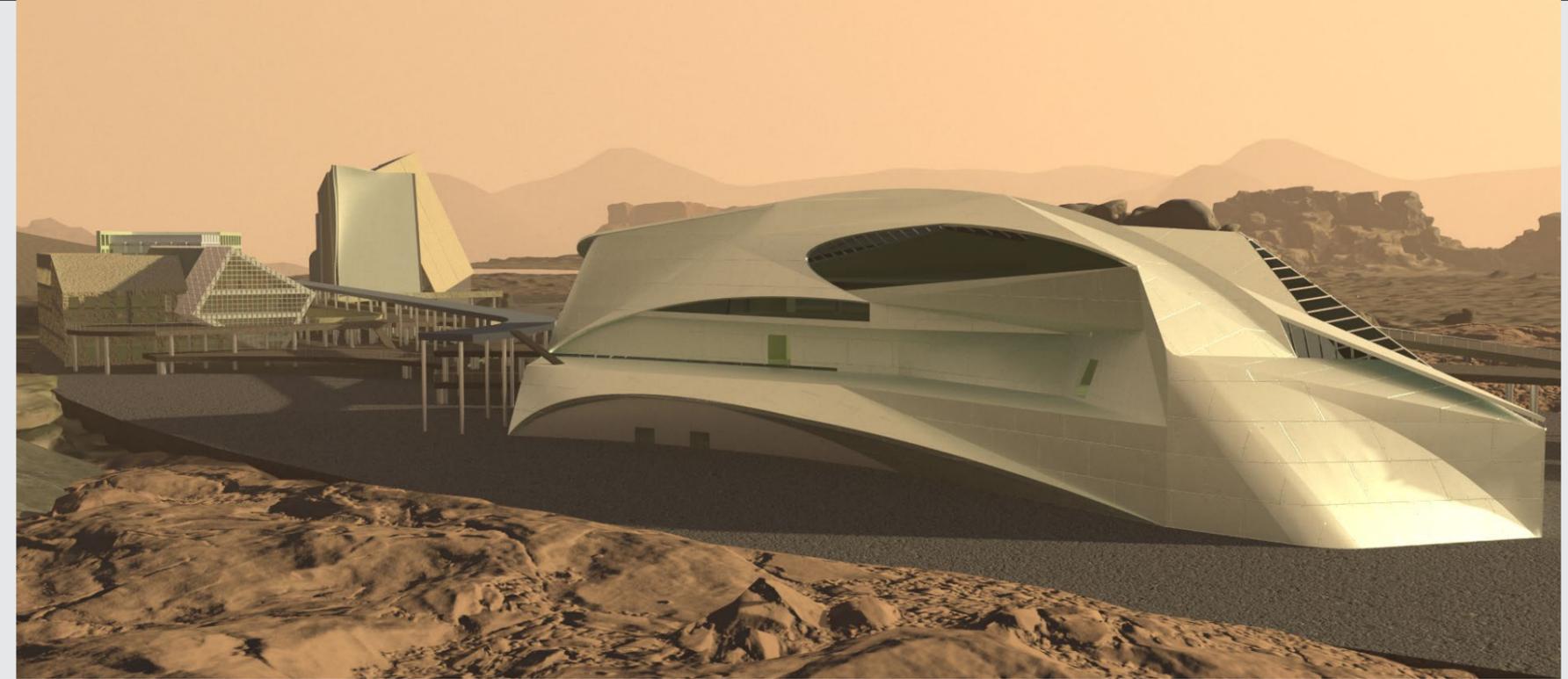


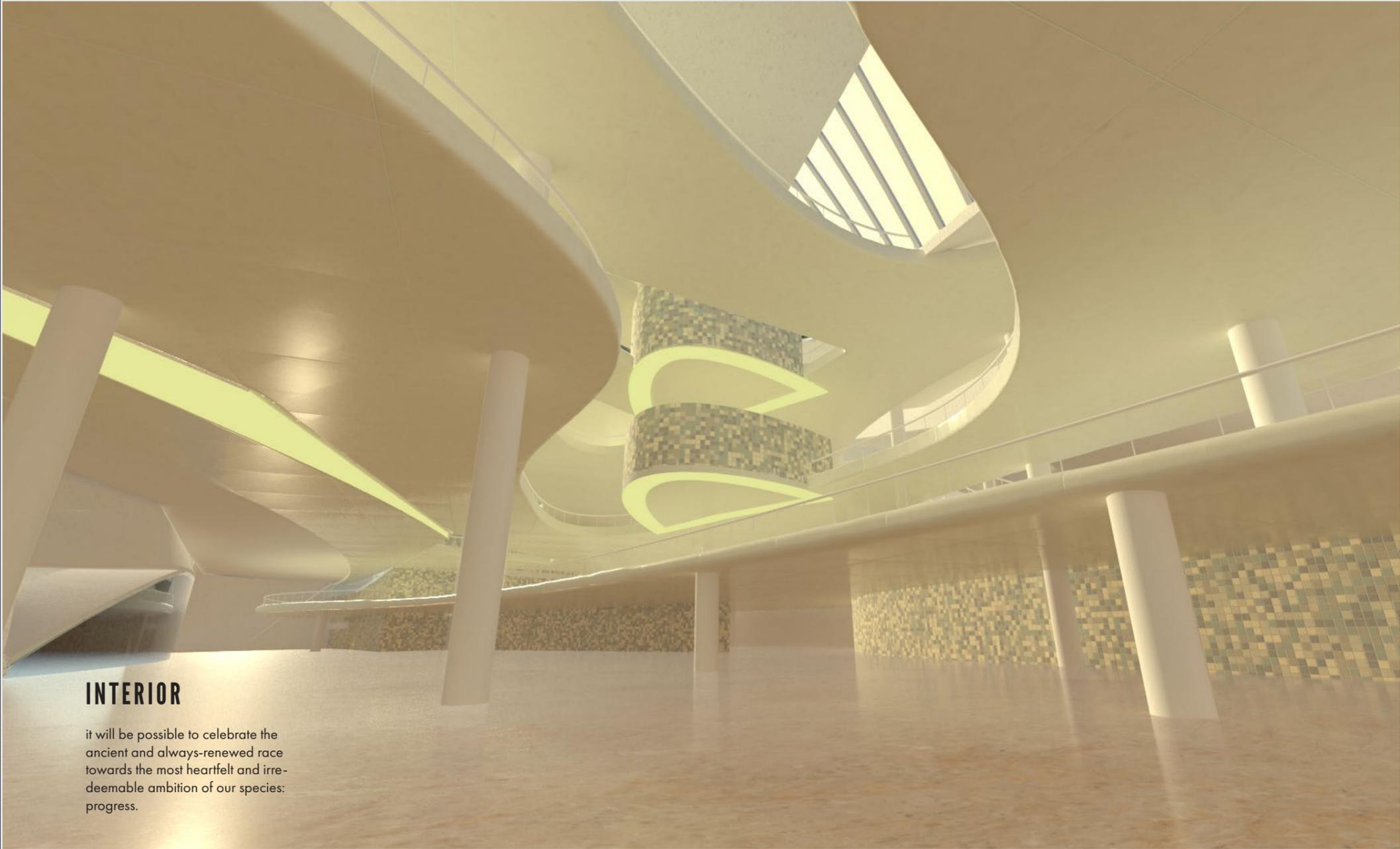
In the heart of the Nevada desert, a few kilometers away from Las Vegas, the first test center of Hyperloop - the futuristic means of transport that will connect cities and nations at a much-higher speed than planes - has been created.

This technology has needed the desert's spaces and isolation to grow and consolidate, but has advanced to the point that it requires a more-advanced testing and study center, where the brightest minds on the planet can collaborate to define practices and methodologies that can transform today's visions into tomorrow's reality.

For this reason, Hyperloop needs to expand its test center: this is why YAC is pleased to present Hyperloop Desert Campus.

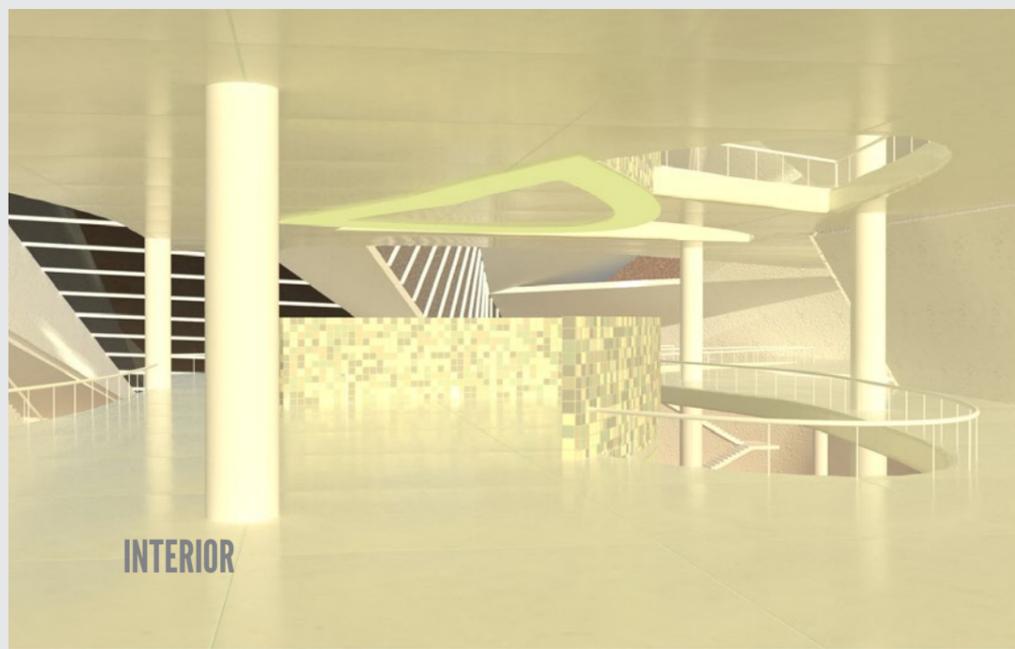
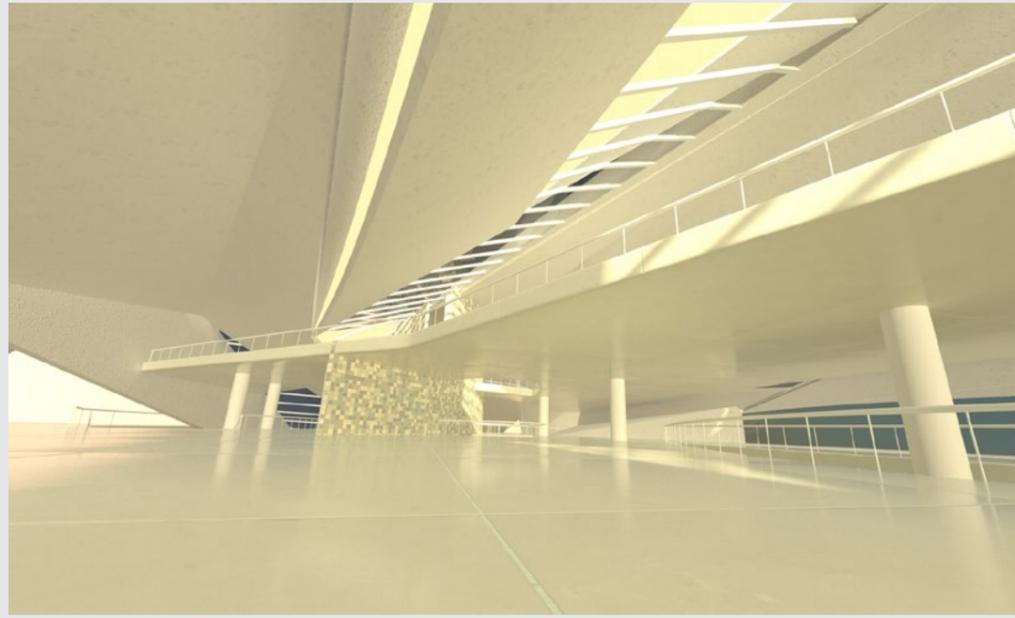
Teammates: Biao Cao, Jiakun Roy, Yujia Fang  
2020 Year



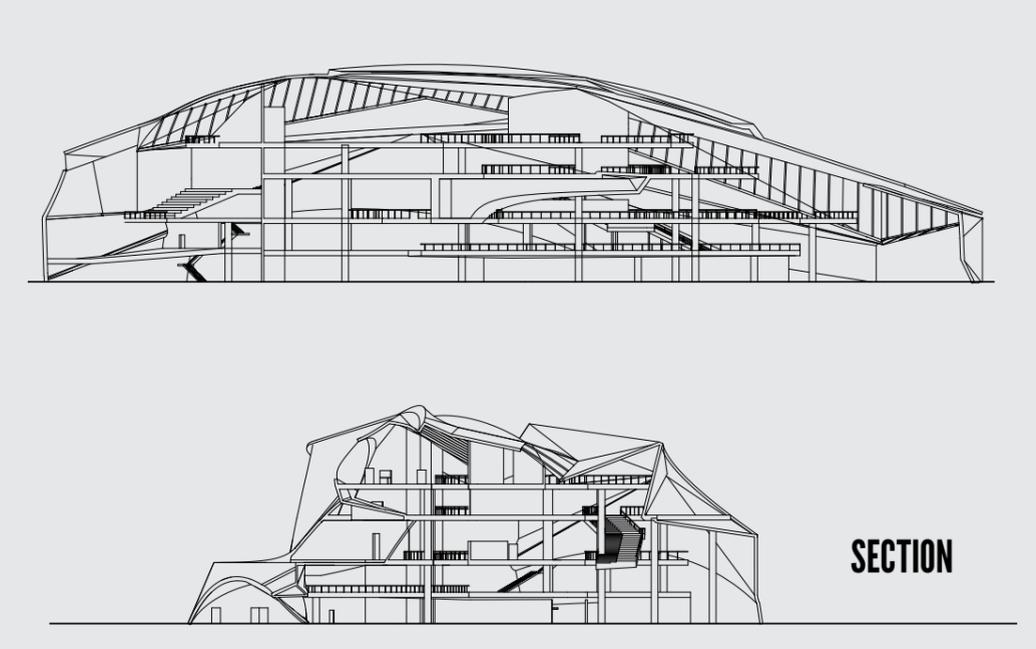


## INTERIOR

it will be possible to celebrate the ancient and always-renewed race towards the most heartfelt and irredeemable ambition of our species: progress.



## INTERIOR



## SECTION

# BATHHOUSE

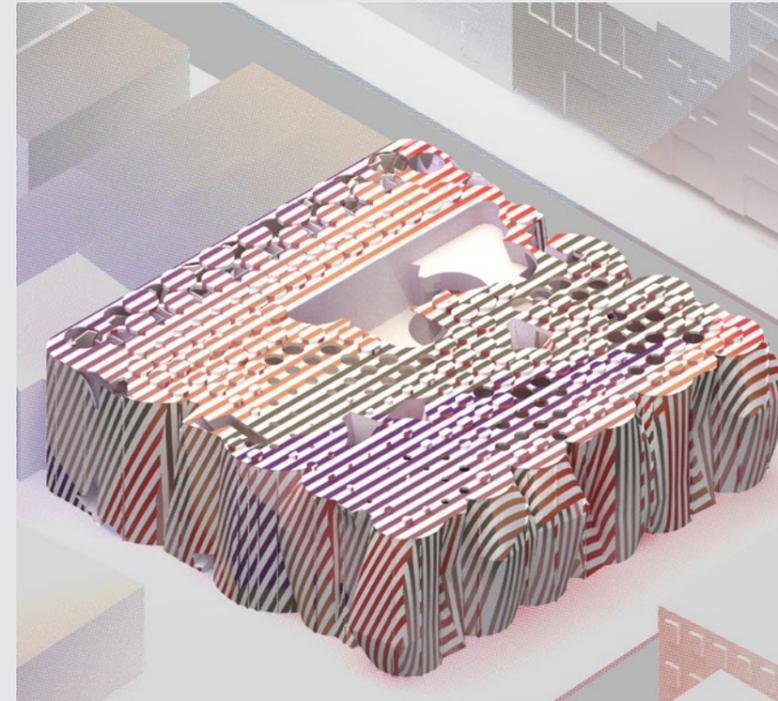
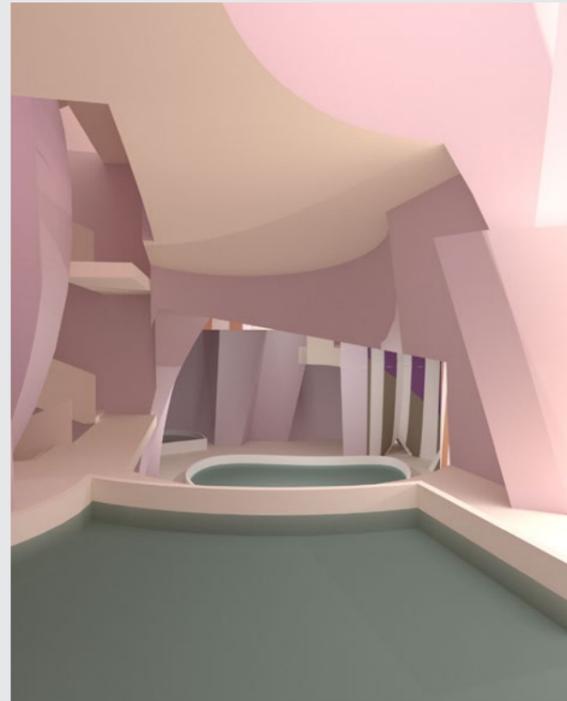
Spring 2019

Instructor: Margaret Griffin

The 1GB studio expands on the fundamental problems of architectural geometry and representation developed in the 1GA studio, completing the foundational studio sequence of the first-year. The studio project for 1GB is an Urban Bathhouse in Los Angeles. The form and program of the project is framed through the disciplinary topics of typology and poché as understood through figure ground relationships of mass and void.

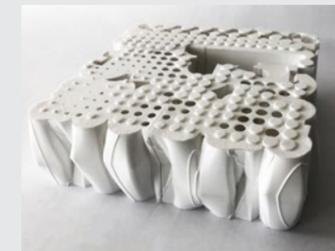
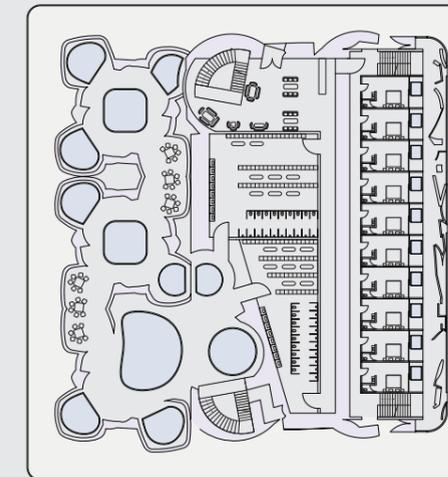
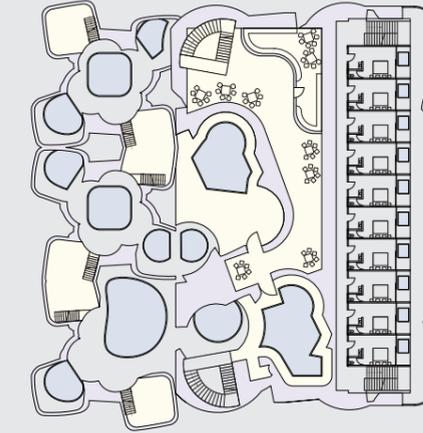


## BATH HOUSE



SOME BATHING EXPERIENCES ARE INDOORS AND SOME ARE OUTDOORS,  
THIS DEPENDS ON THE ENVIRONMENT.

## Section and Physical Model



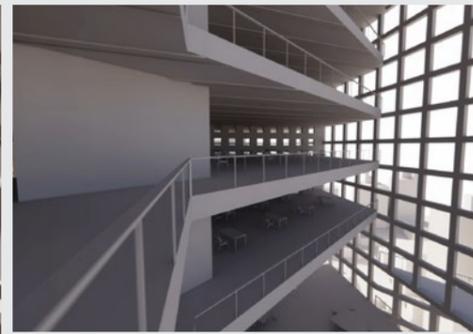
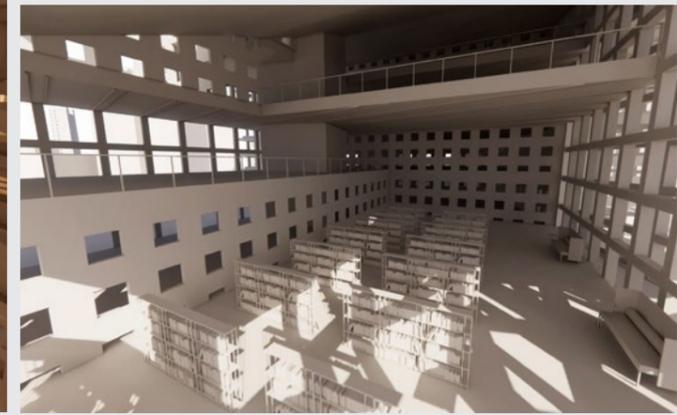
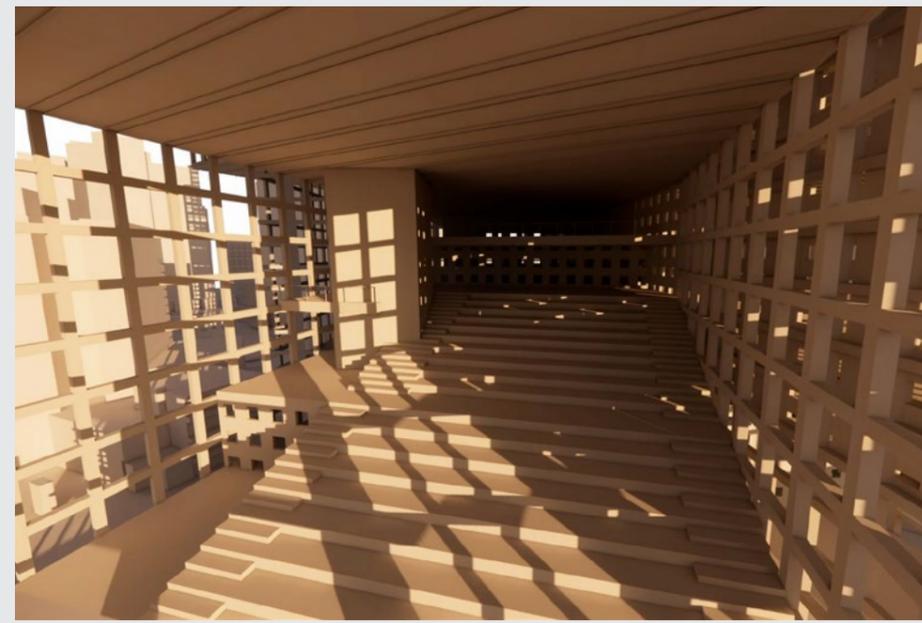
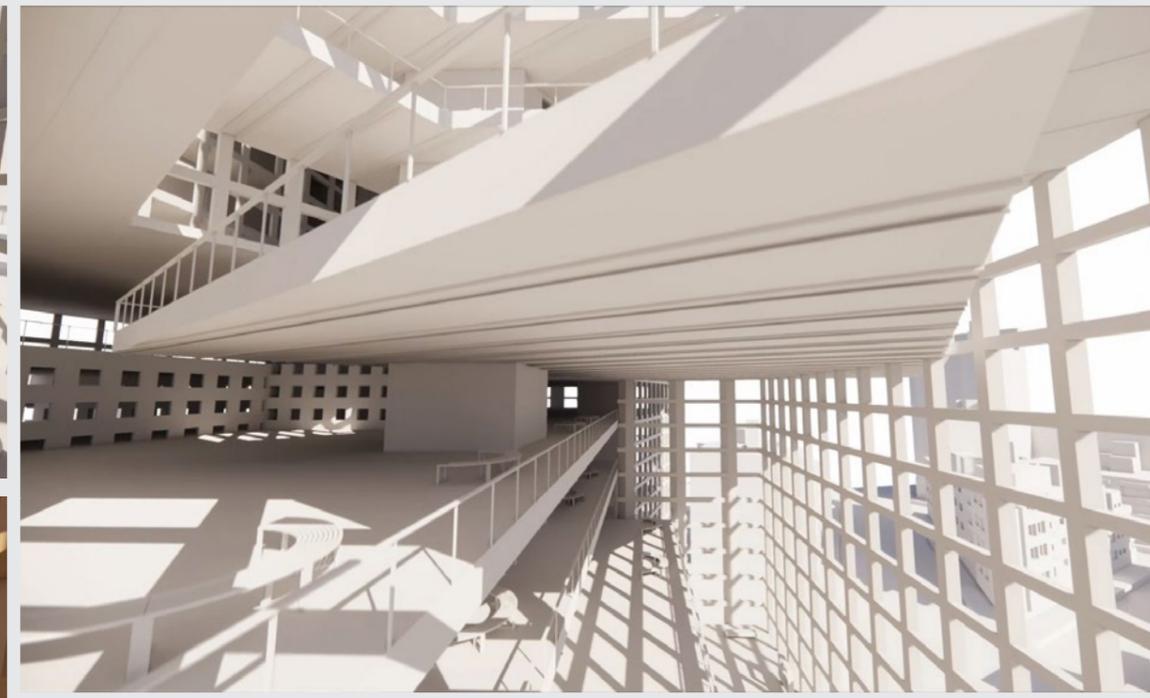
# VERTICAL ART INSTITUTE

Fall 2019  
Instructor: Alexis Rochas

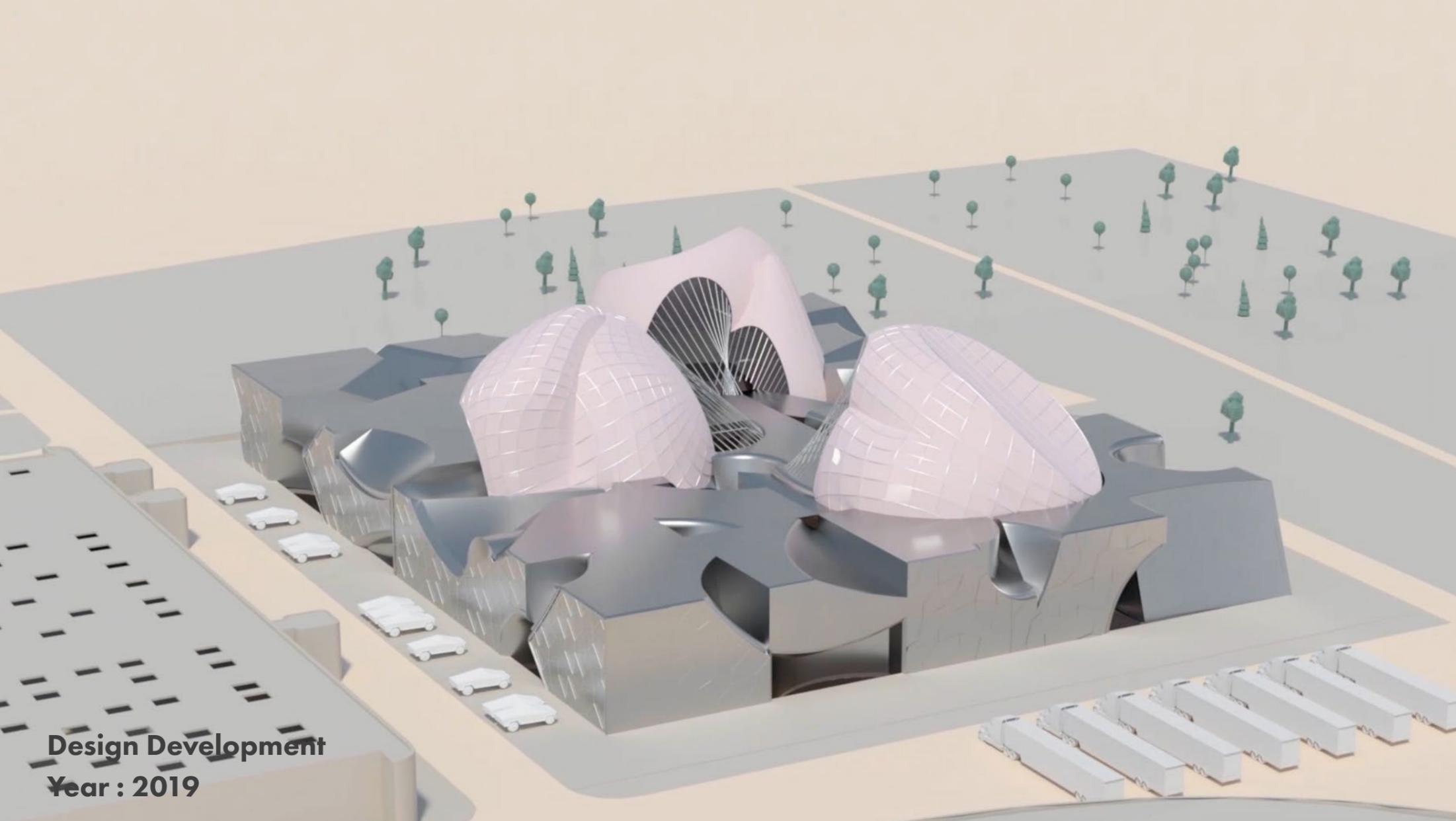
The first term in the second year of the core M.Arch I sequence builds upon an appreciation of the discipline and knowledge of architectural production by focusing on the development of a project according to principles of Integrative Design. The studio is structured to support each student's awareness of the issues involved in the design of a complex architectural project. Elemental spatial constructs and organizational systems are seen as resulting from and reacting to site conditions, program distribution, structural systems, building envelope systems and assemblies, environmental factors, and building regulations. These influences are considered at once physical and virtual, permanent and ephemeral, situational and circumstantial. Qualities of site, situation, and environment, as well as cultural contexts, are considered potential tools to challenge conventional approaches to architectural design.



## INTERIOR



## SECTION

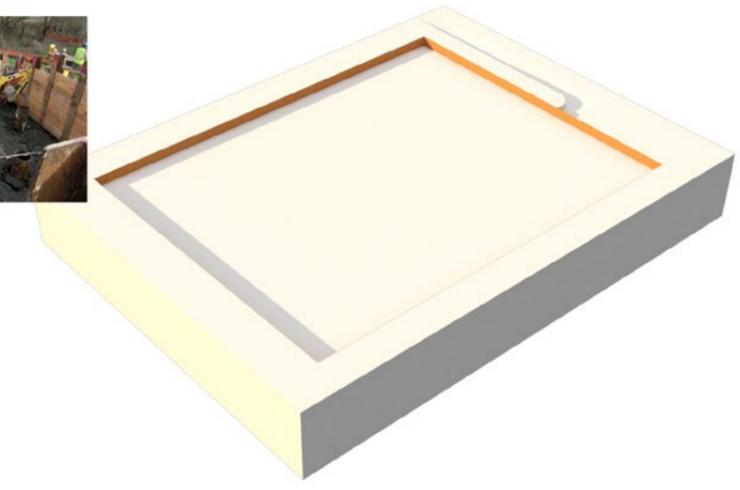


**Design Development**  
**Year : 2019**

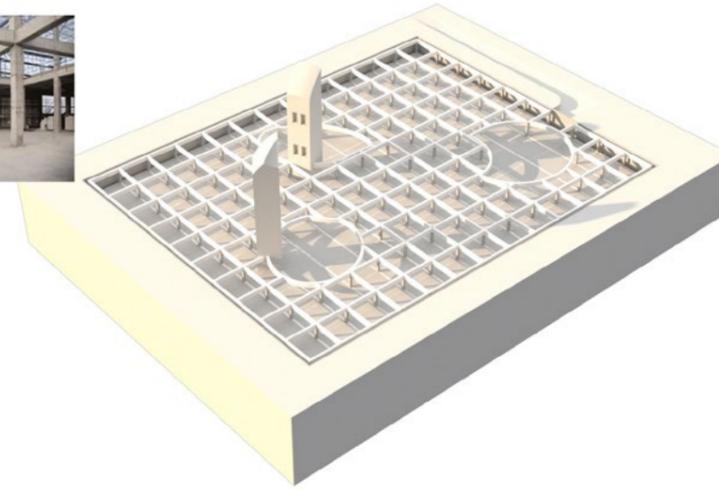
Teammates: Bronte Araghi, Lauren Hanna, Lauren Herman, Dowwon Choi, Daniela Cadavid, Mariam Aramyan, Jessie Helgesen, Kaita Saito, Yihan Zheng

Our approach to design development is not only a technical advancement of the project but will also be a disciplinary one, where we challenge representation and search for relevancy in an era where documentation of design and manufacturing are in flux and are increasingly based on three-dimensional live data. While BIM is an important development in this regard, our aim is to re-think how we can envision and communicate design in ways which exceed the design object itself

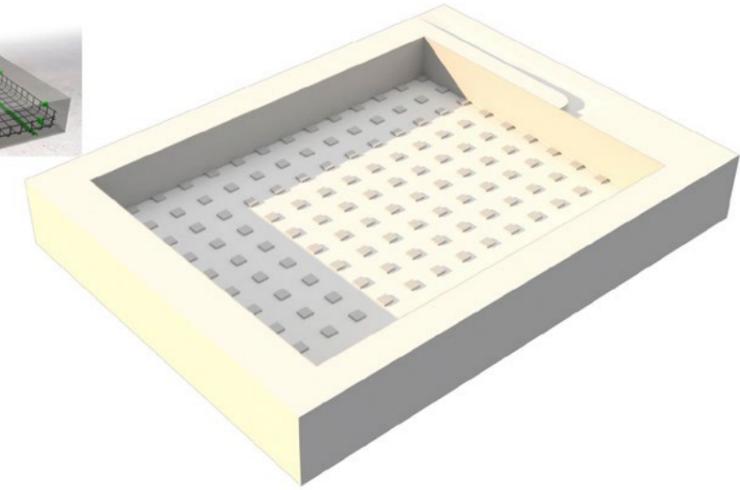
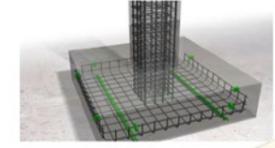
Shoring and Excavation



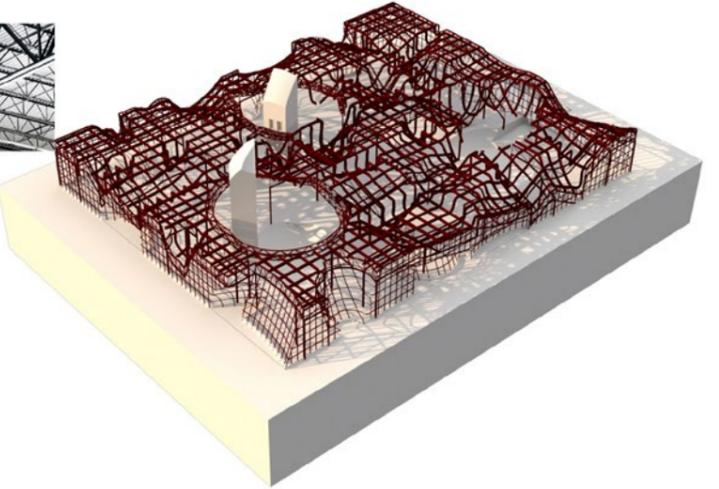
Beam and Columns



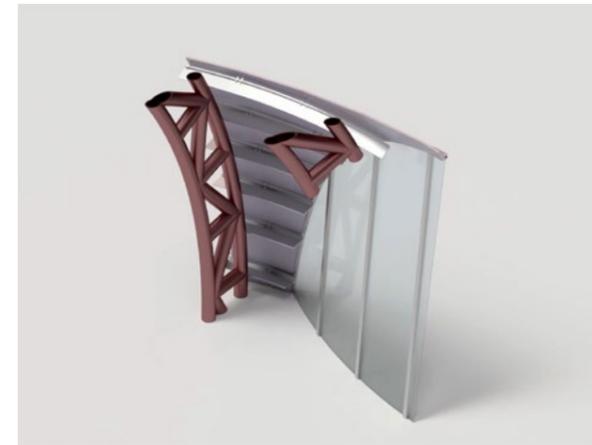
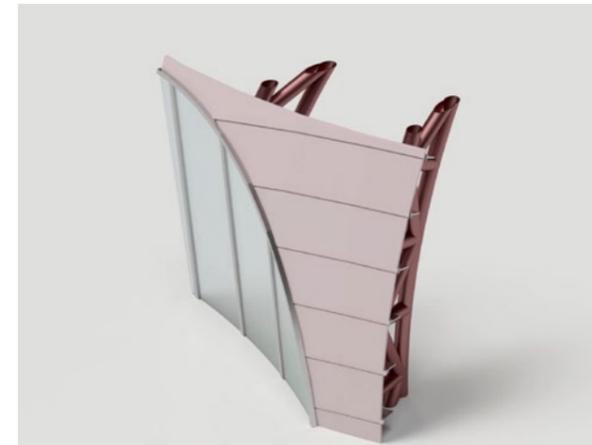
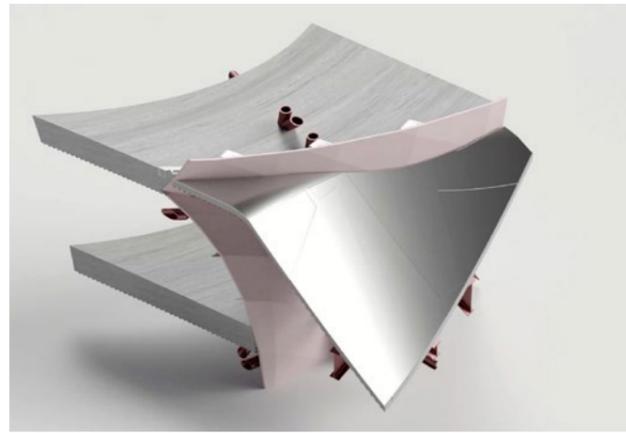
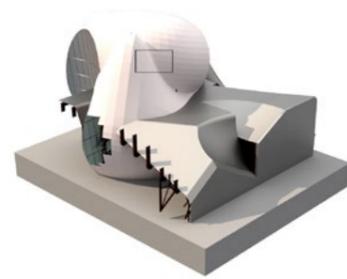
Footing



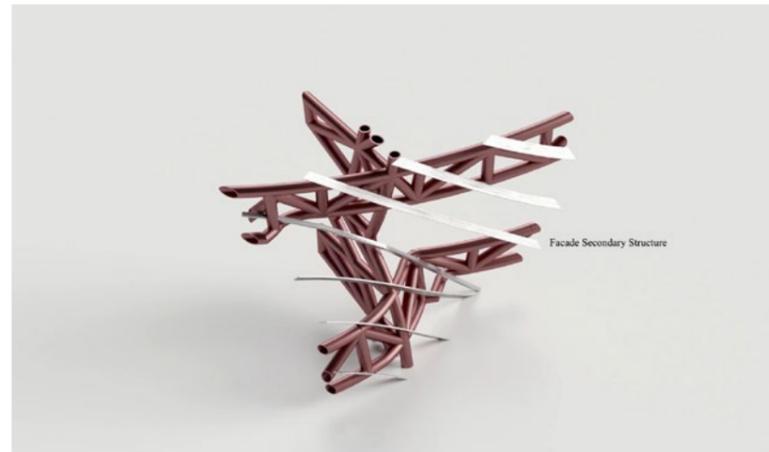
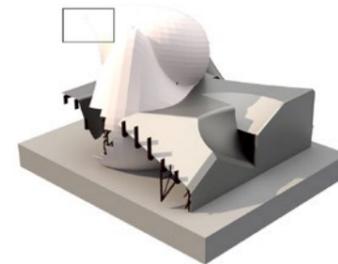
Primary Structure; Steel Truss



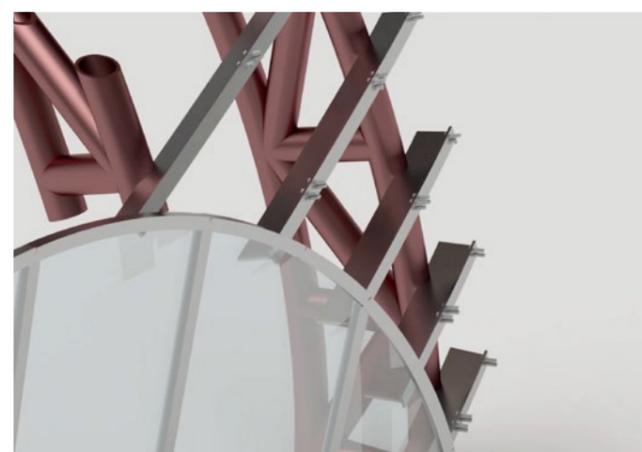
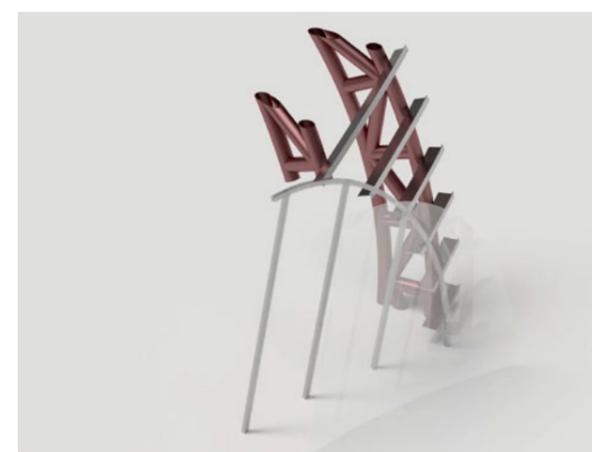
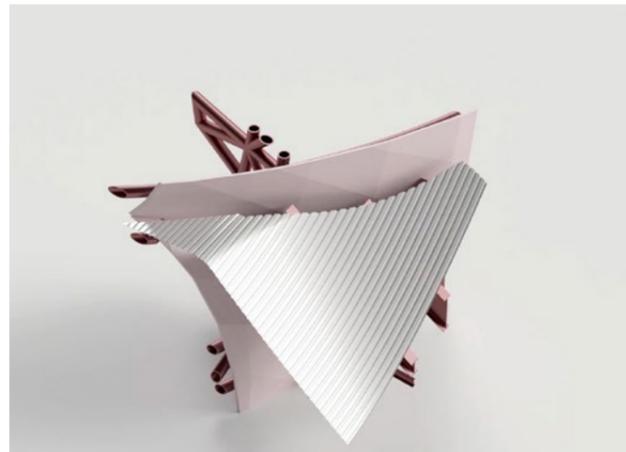
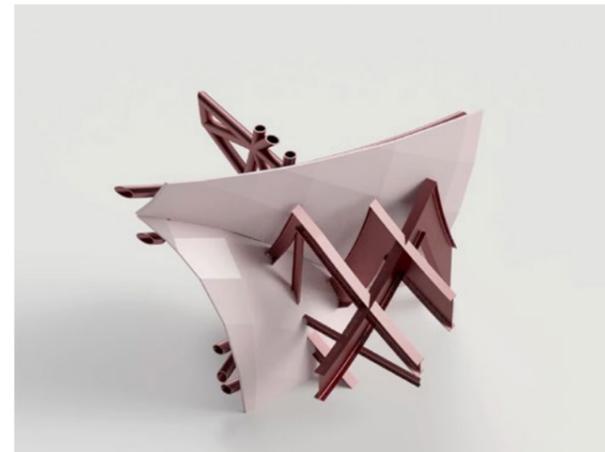
# CHUNCK DETAIL A



# CHUNCK DETAIL B



Facade Secondary Structure



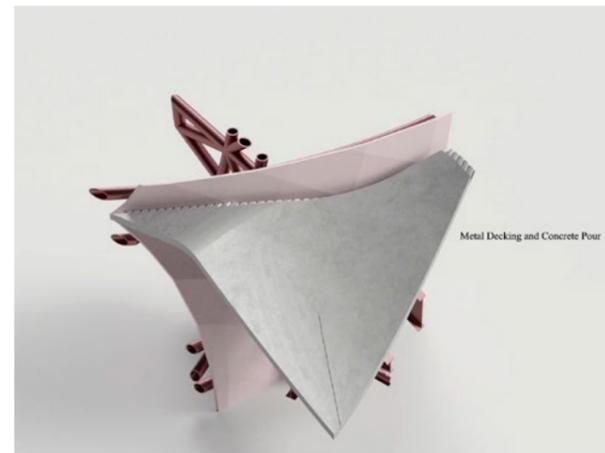
# FRP



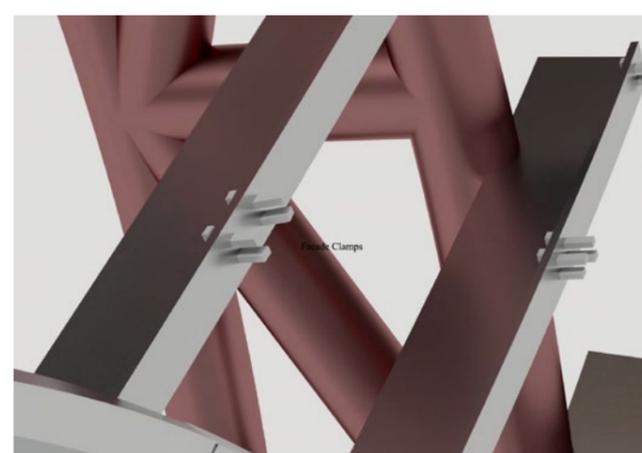
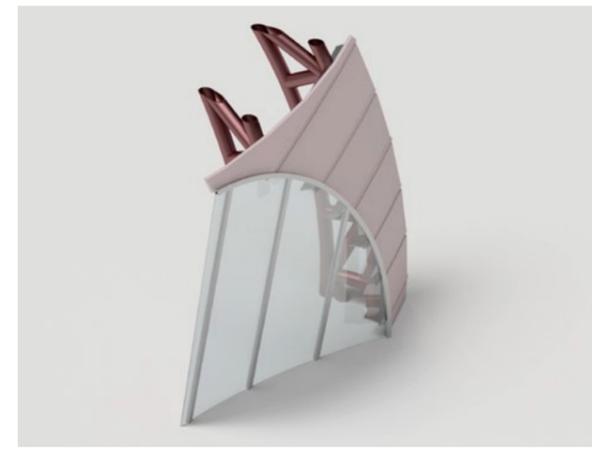
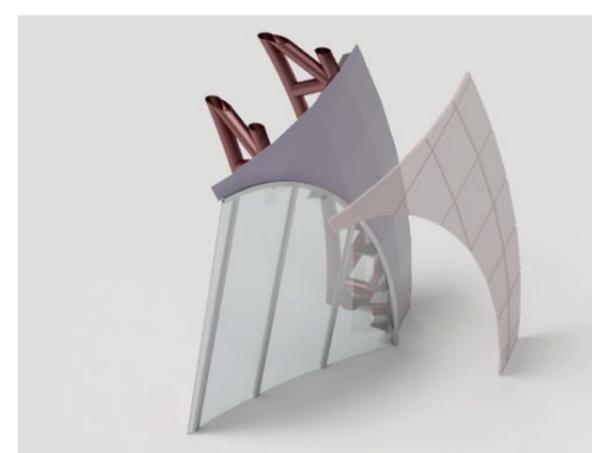
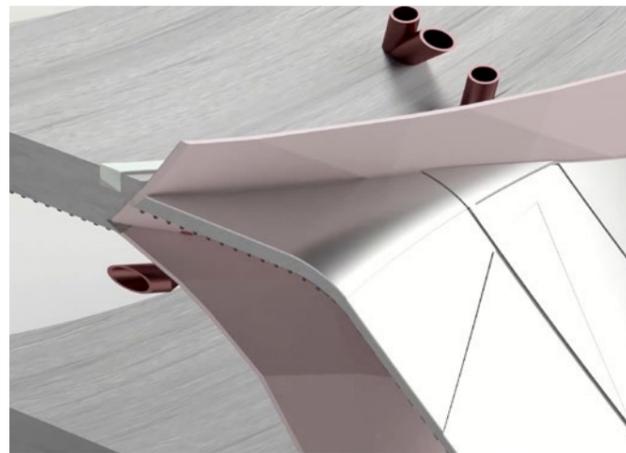
SFMOMA by Snohetta  
FRP Panels (Fiber Reinforced Panel)  
Panels are hung to a secondary structure, and attached to the primary structure.



FRP Panels



Metal Decking and Concrete Pour



Clamps















SIZE

PRESENT

Watch whole video at: [https://www.yihanzhengdesign.com/ar-projects/thesis\\_arnhm](https://www.yihanzhengdesign.com/ar-projects/thesis_arnhm)

## THESIS: Natural Futures

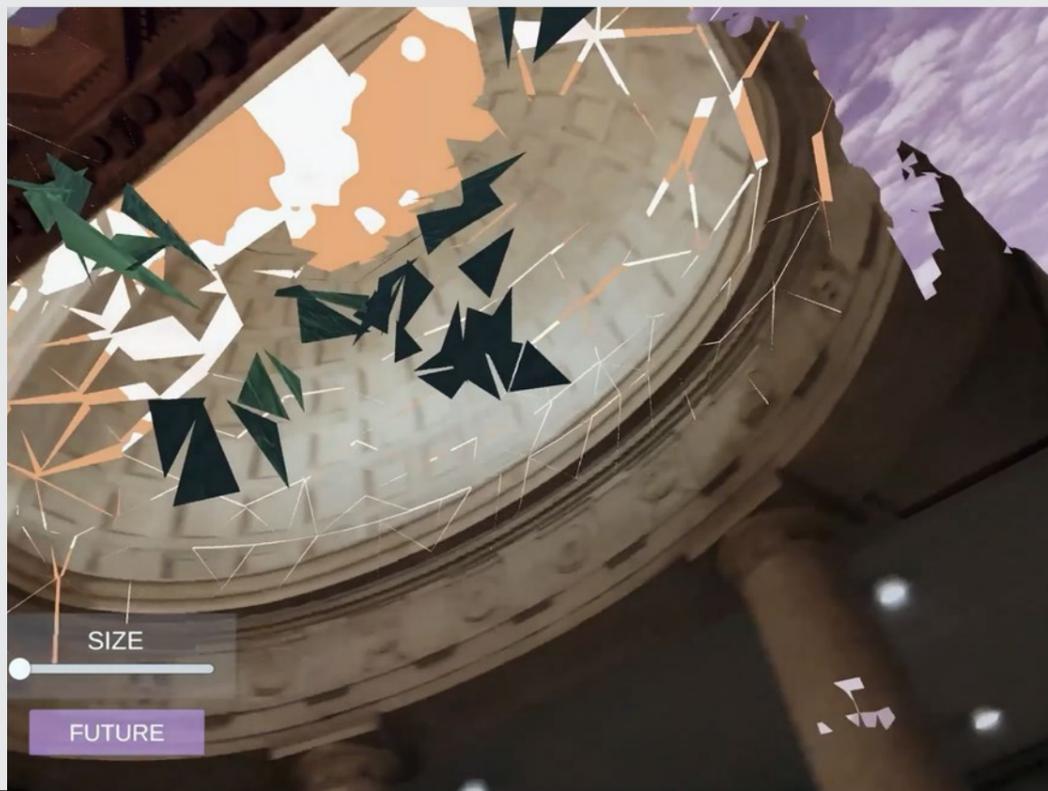
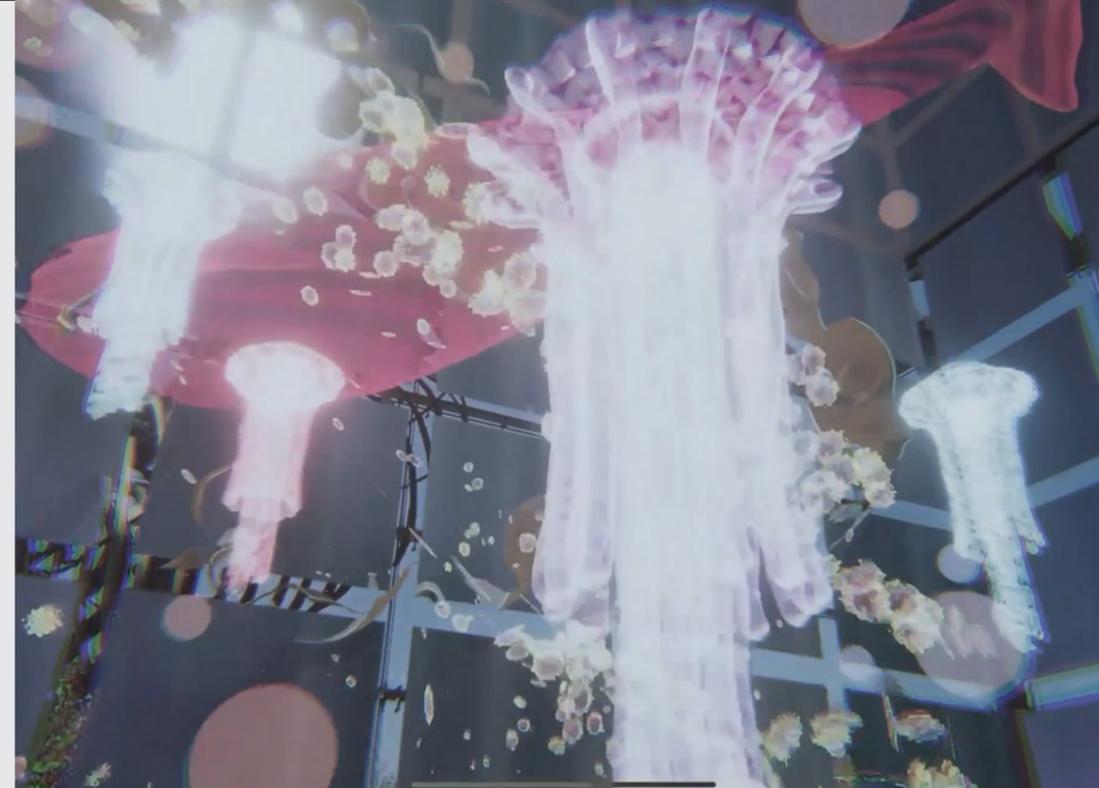
Thesis Advisor: Marcelyn Go  
Cultural Agents: Marrikka Trotter

My thesis is an AR App designed to reinvent the existing LA County Natural History Museum (NHM) into a "Natural Futures Museum" (NFM), a gate to the future. The proposal overlays digital information onto physical objects and becomes a tool to excavate holes in the physical world to peer into the natural future. Working as an awareness tool and educational tool, which is similar to the role of a museum, the AR technology will let you become a future archeologist to explore the future we might confront based on our present



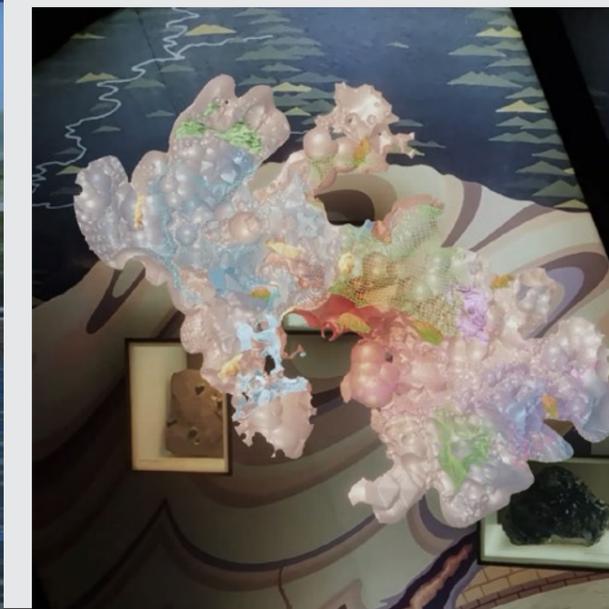
## SCREENSHOTS

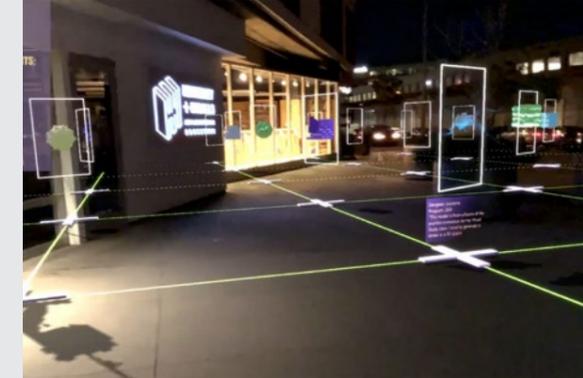
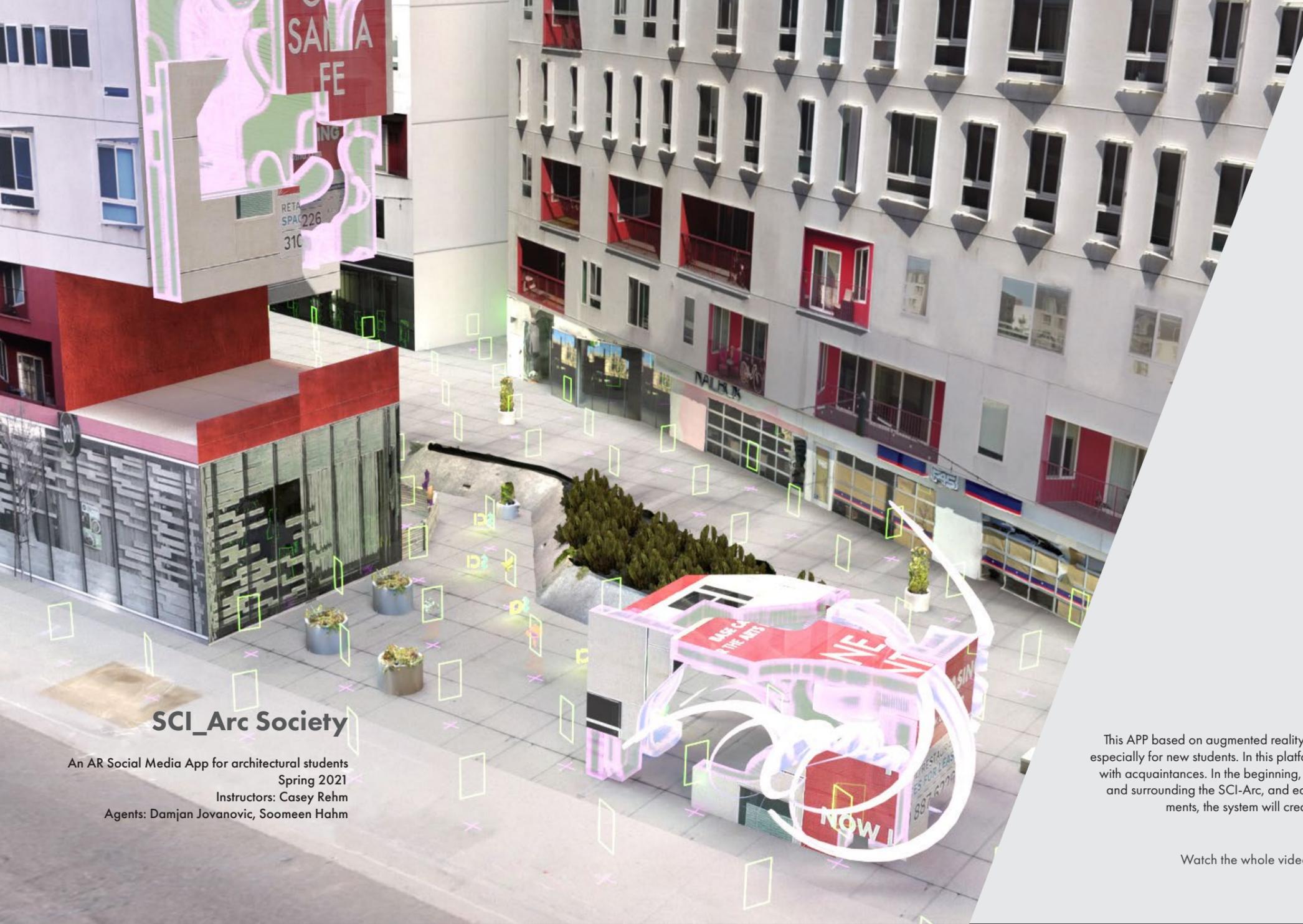
As users get closer to the AR experience, they will also find it is disturbing and horrifying. Augmented Reality can engage you as a viewer in different ways and with varying spans of attention.



SIZE

FUTURE





## SCI\_Arc Society

An AR Social Media App for architectural students  
 Spring 2021  
 Instructors: Casey Rehm  
 Agents: Damjan Jovanovic, Soomeen Hahm

This APP based on augmented reality aims to fulfill SCI-Arc students' socialization during their academic life, especially for new students. In this platform, users can quickly encounter new friends and get more connections with acquaintances. In the beginning, registers need to comment on locations in the map where are prevalent and surrounding the SCI-Arc, and each others' uploaded works in the City Gallery. According to their comments, the system will create more real and face-to-face socializing opportunities between users.

Watch the whole video at: [https://www.yihanzhengdesign.com/ar-projects/ar\\_sciarc\\_soc](https://www.yihanzhengdesign.com/ar-projects/ar_sciarc_soc)

**THANK YOU**