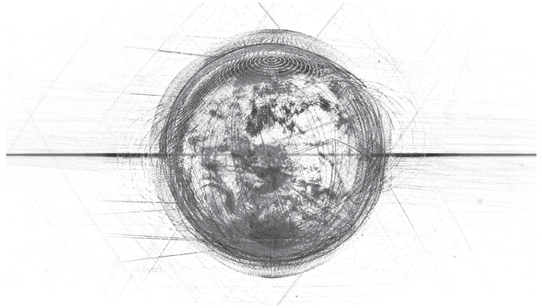
JINGQI KAY LIU

THESIS

The Line of Light

New World Entertainment



PROFESSIONAL

Architectural Designer

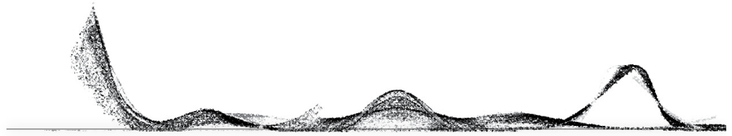
Design Technology Specialist

Design Studio Instructor

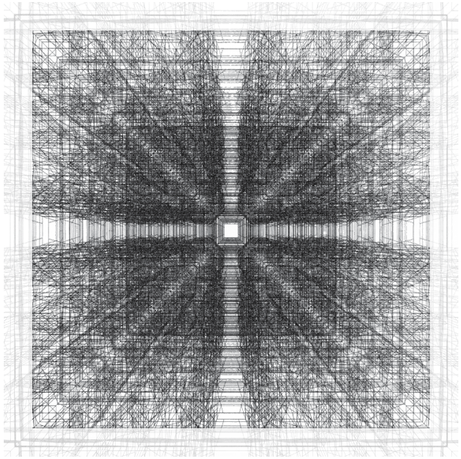
PROJECT

Soft Armor

Newtown Soundscape



Selected Undergraduate Work

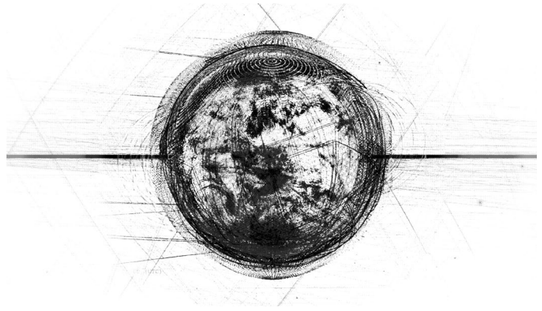


M.S.ARCH

THE LINE OF LIGHT 2023

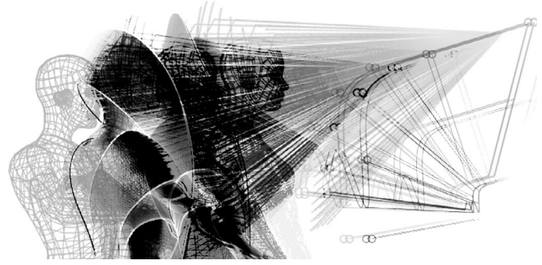
Graduate thesis

Advisor: Zulaikha Ayub; Instructor: Anna Bokov, Anthony Vidler, Guido Zuliani



SOFT ARMOR 2023

Instructor: Diana Agrest



NEWTOWN SOUNDSCAPE 2022

Instructor: Ben Aranda

[TEACHING]

INTRODUCTION TO ARCHITECTURE 2023

Role: Studio Instructor

COOPER UNION ARCHITECTURE SUMMER PROGRAM

THE LINE OF LIGHT:
SENSING AT THE BRINK OF SENSIBILITY

We are surrounded by light and energy: from visible light to a vast spectrum of radiation, electromagnetic waves propagate the space around us, constantly traveling and transmitting energy. Most of these waves are invisible to the human eye, yet they enable us to sense beyond human sensorium by mediating between sensor and invisible matter, as if they communicate in a different dimension.

It marks a shift within the paradigm of sensing and challenges the concept of territory; it prompts a new kind of Copernican inquiry about the situation of Earth and our situation within it.

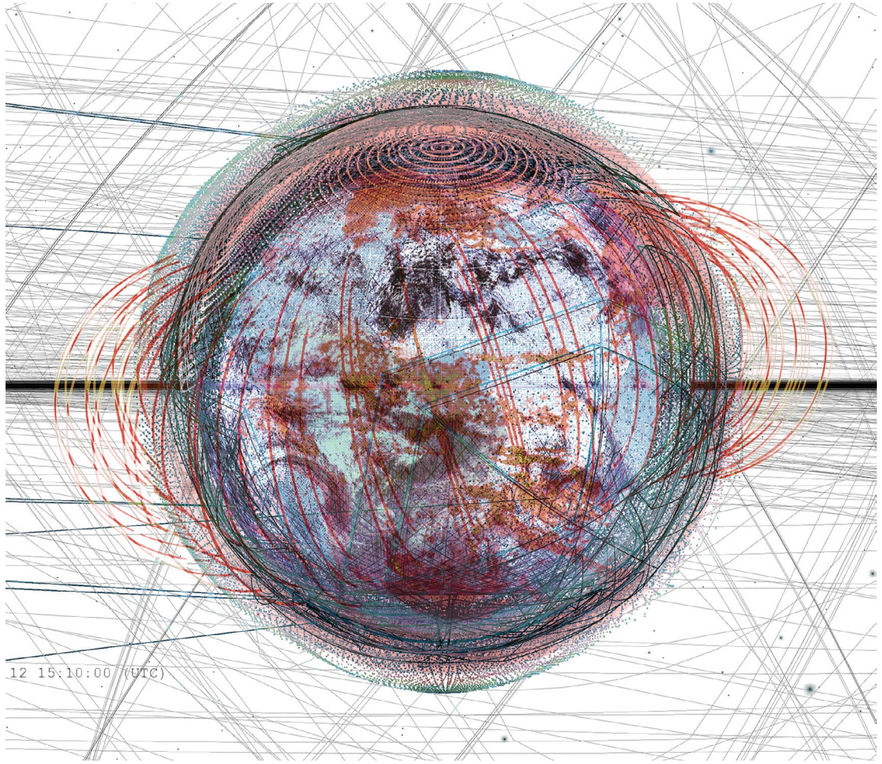
UNIVERSE AND UNIVERSALITY. As our scope of knowledge expands into the vast universe, existing systems of measurement are no longer adequate; sensing at a planetary scale operates in a different realm. The universe challenges the universality of a system to which our sensibilities have become attuned; we hesitate to draw the line.

FROM EARTH TO ATOM. The origin of the International System of Units dates back to the 18th century, and the units were originally derived from the properties of Earth: meter relates to the distance between the equator and poles, second to the period of rotation.

Since the 1980s, these units have been redefined by a series of abstracted constants, with references at the micro, atomic scale.

THE LINE OF LIGHT. Or more accurately "the electromagnetic spectrum"; it encompasses all forms of radiation within the infinite range of wavelengths. All forms of electromagnetic radiation travel at the speed of light, which marks the boundary of our sensing capacity. Adopted as a constant, light is the sole reference that defines speed.

Light is the ultimate unit of measurement.

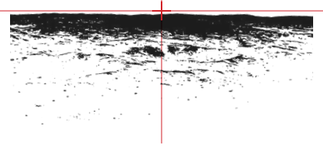


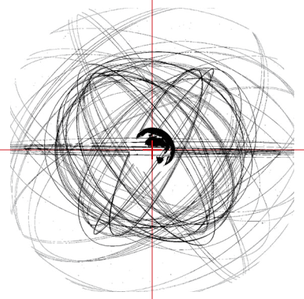
The Line of Light

EARTHRISE

Apollo and the Genesis of World-Image

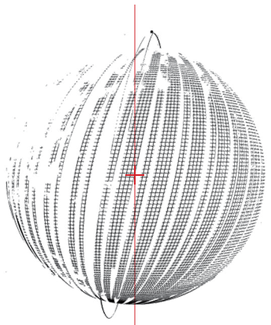
Horizon





APOLLO'S EYE

Gaze Turned Inwards

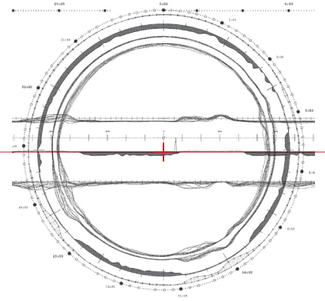


ORBIT, SCENE, RESOLUTION

Landsat and Optical Imaging

LATENT VISION

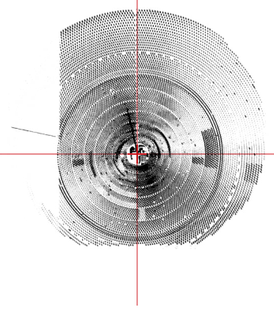
Synthetic Aperture and Image Composition



Sea Level

IMAGE TERRITORY

Land, Ocean, Coastline and Sea Level

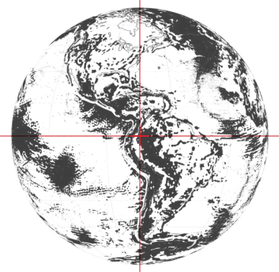


FACTORY OF THE SUN

Energy and the Image of Attention

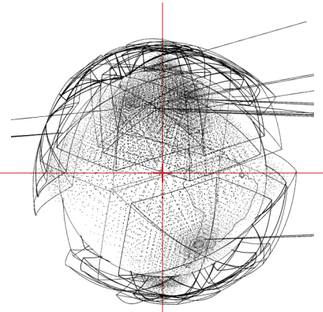
ASCEND BY GRACE

The Gravity Recovery and Climate Experiment



GROUND AND NETWORK

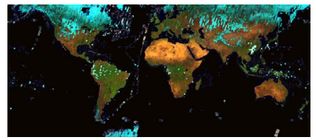
Equatorial Lines of Communication

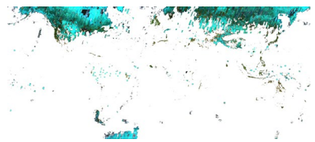


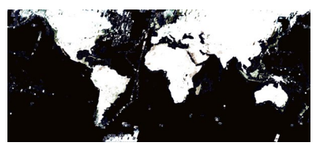
Equator

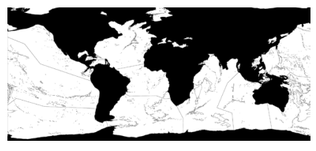
The Line of Gravity

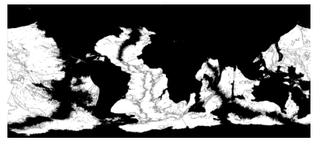
GT-LOL-3

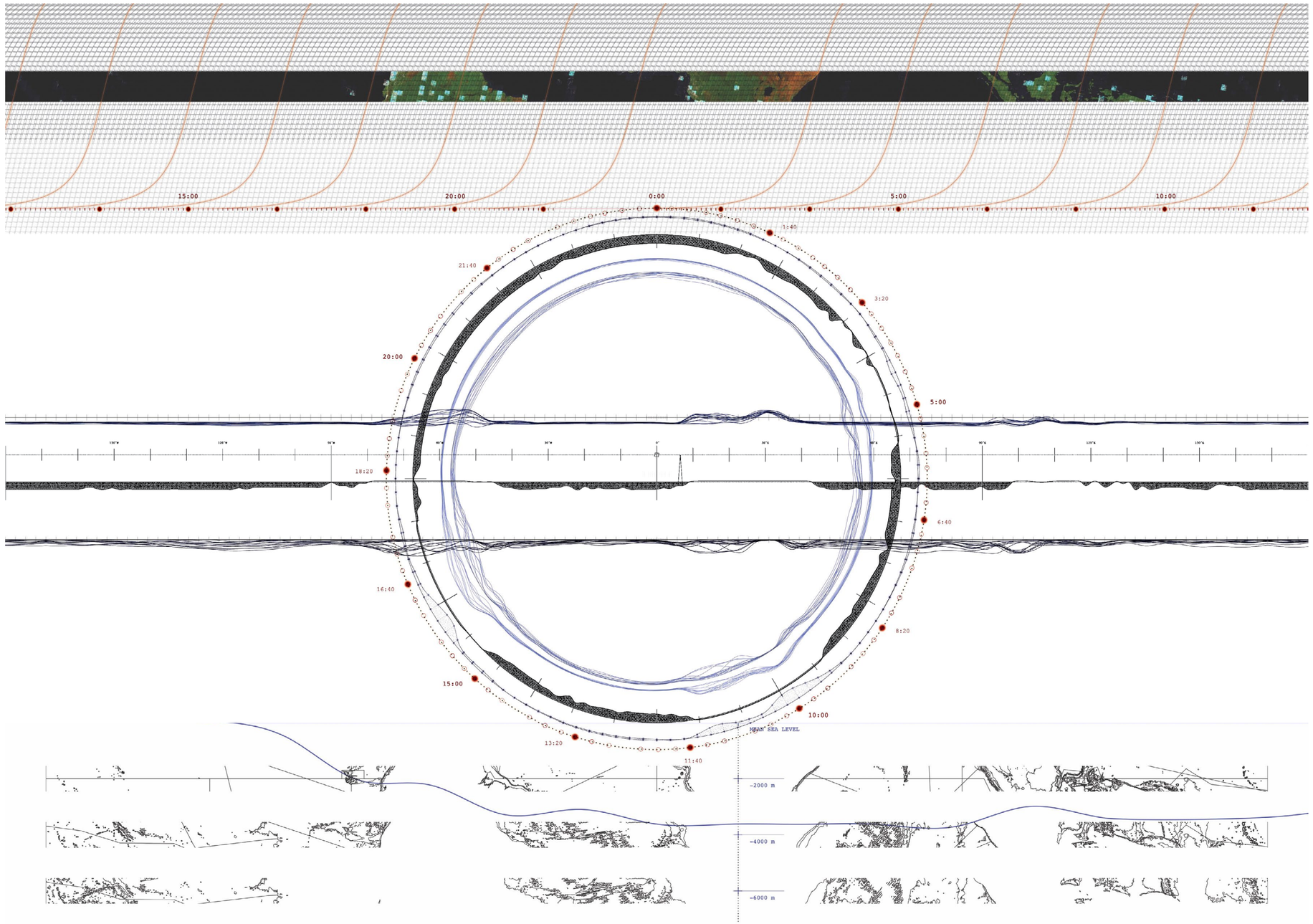




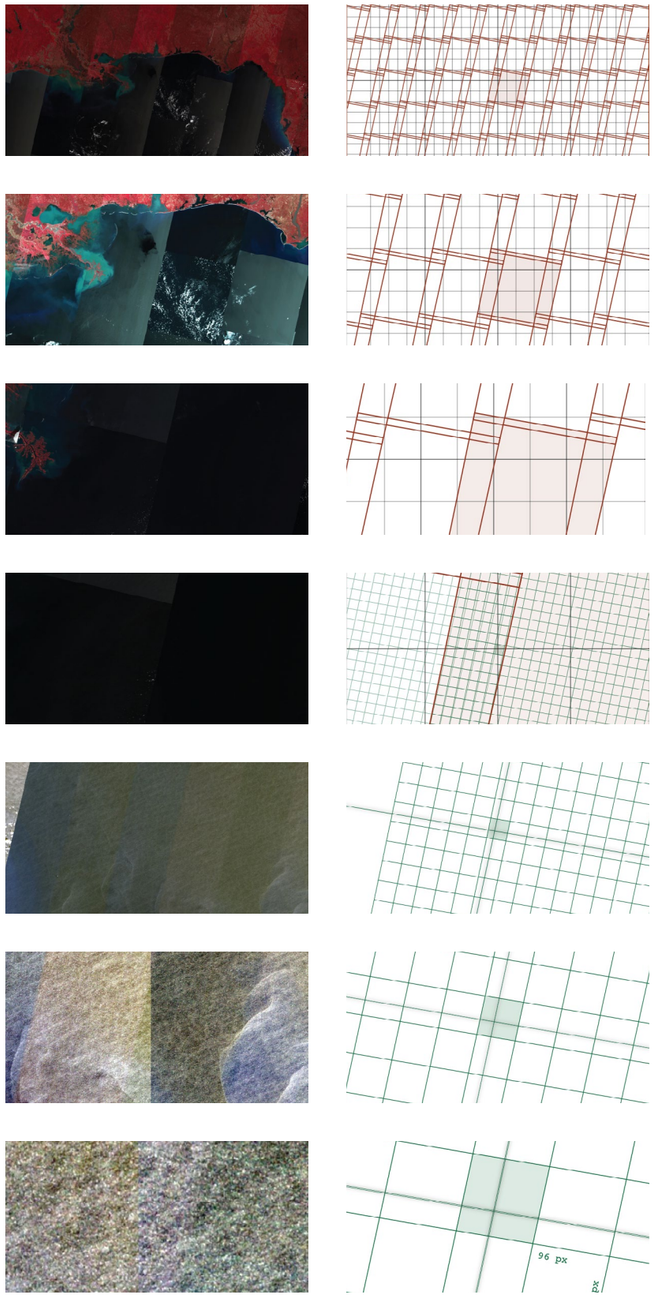


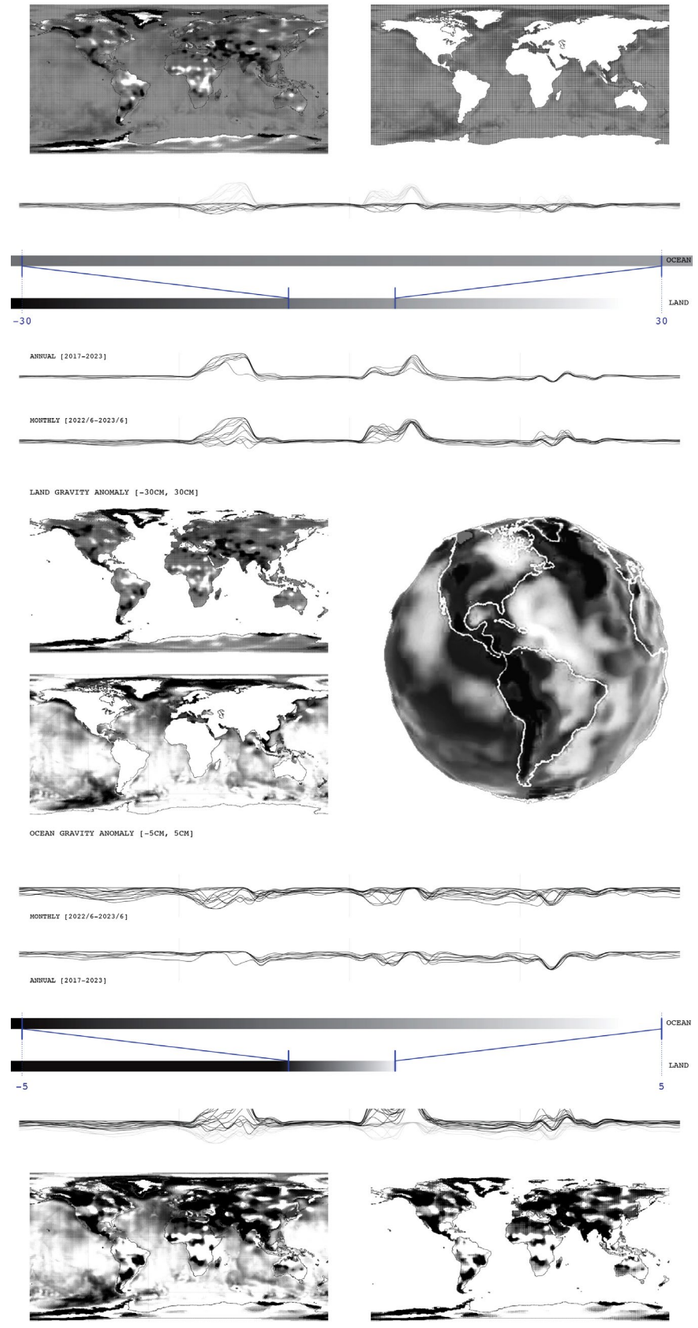


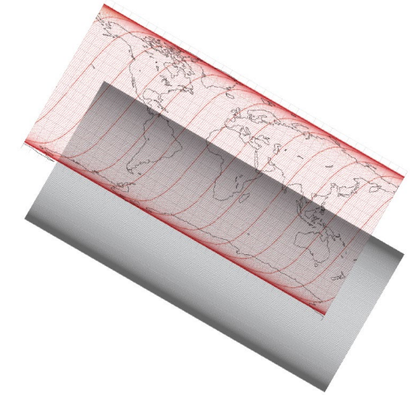



15:00
20:00
0:00
5:00
10:00
1:40
3:20
5:00
6:40
8:20
10:00
11:40
13:20
15:00
16:40
18:20
20:00
21:40
MEAN SEA LEVEL
-2000 m
-4000 m
-6000 m

GT-LOL-4



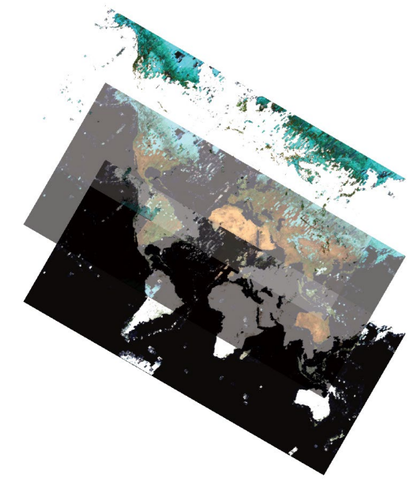




ORBIT

STRUCTURE

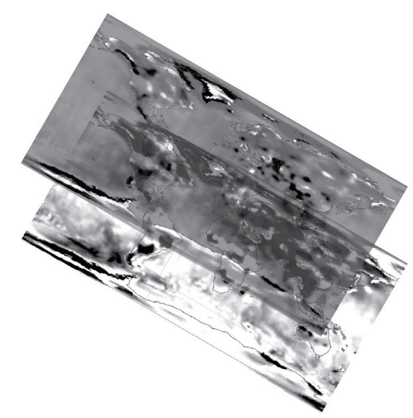
SCENE PATH



NOISE

IMAGE COMPOSITION

BLIND ZONE

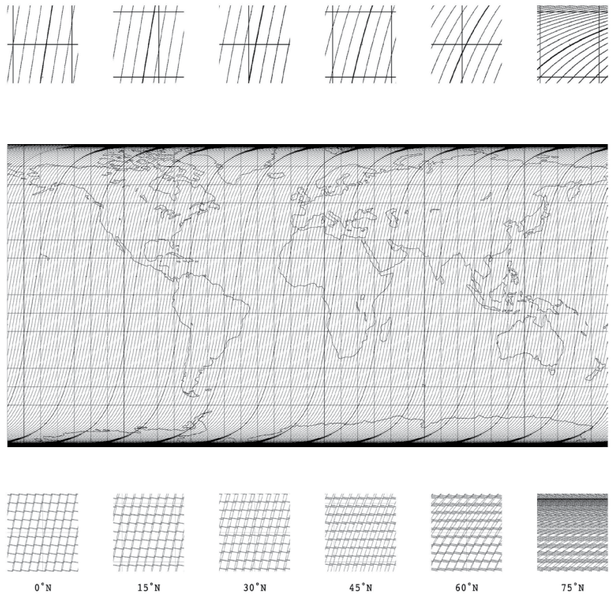


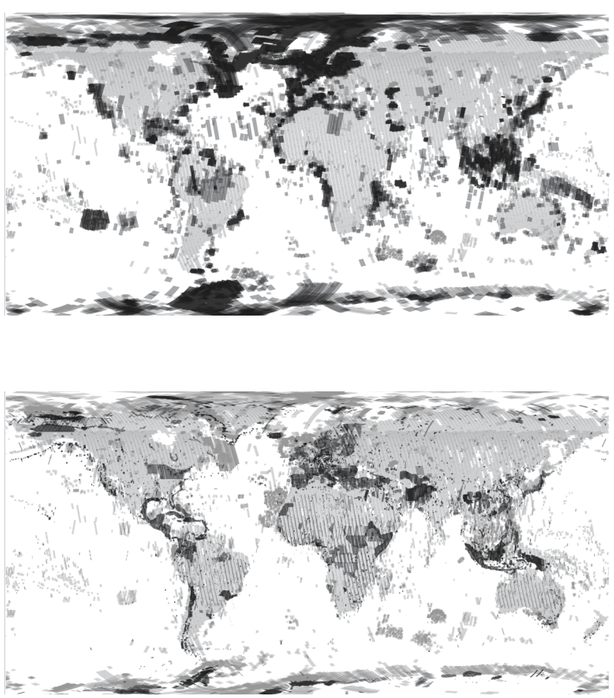
[-30 cm, 30 cm]

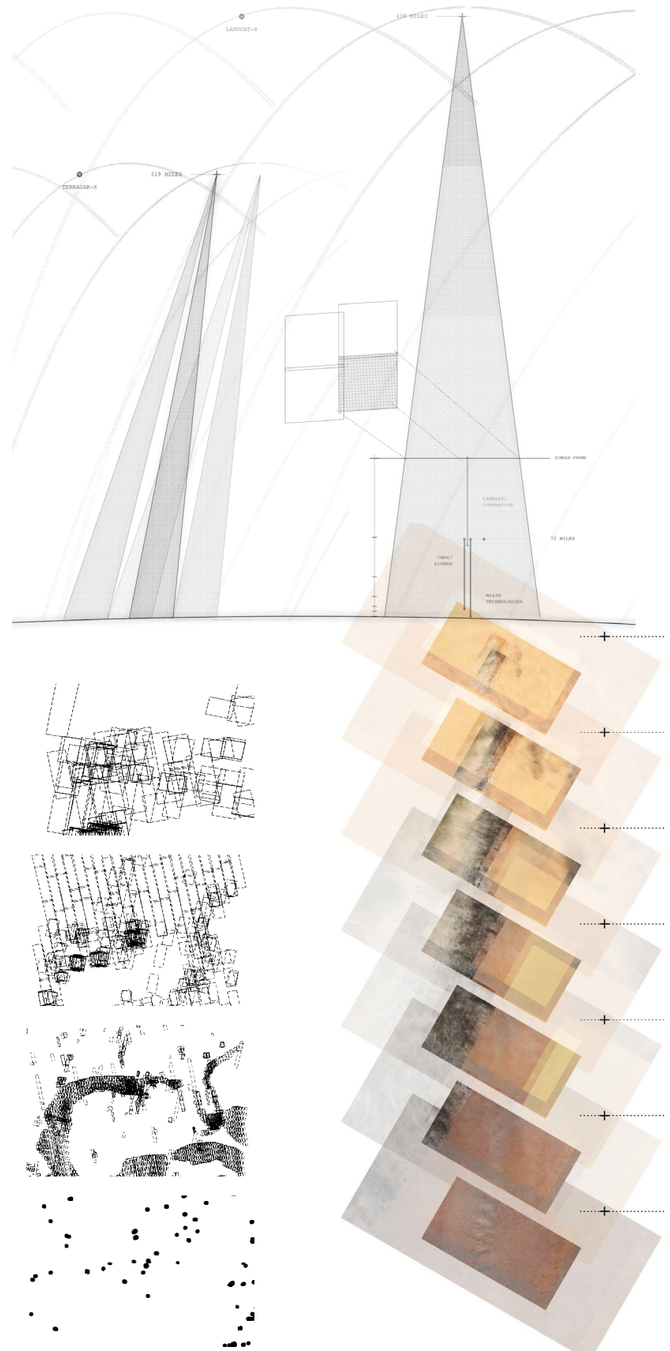
GRAVITY ANOMALY

[-5 cm, 5 cm]

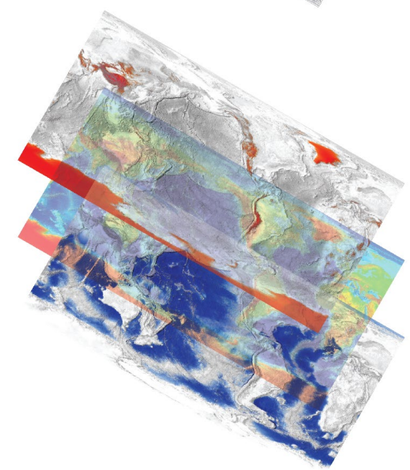
GT-LOL-5

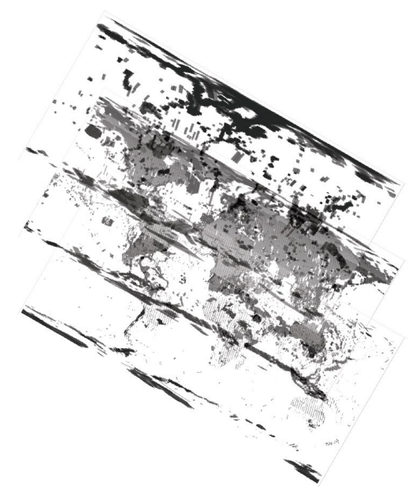

0°N
15°N
30°N
45°N
60°N
75°N




LANDSAT-8
124 MILES
TERRASAR-X
319 MILES
SINGLE FRAME
LANDSAT/
CONTINUOUS
72 MILES
CMOS/
ALIGNED
MAXAR
TECHNOLOGIES

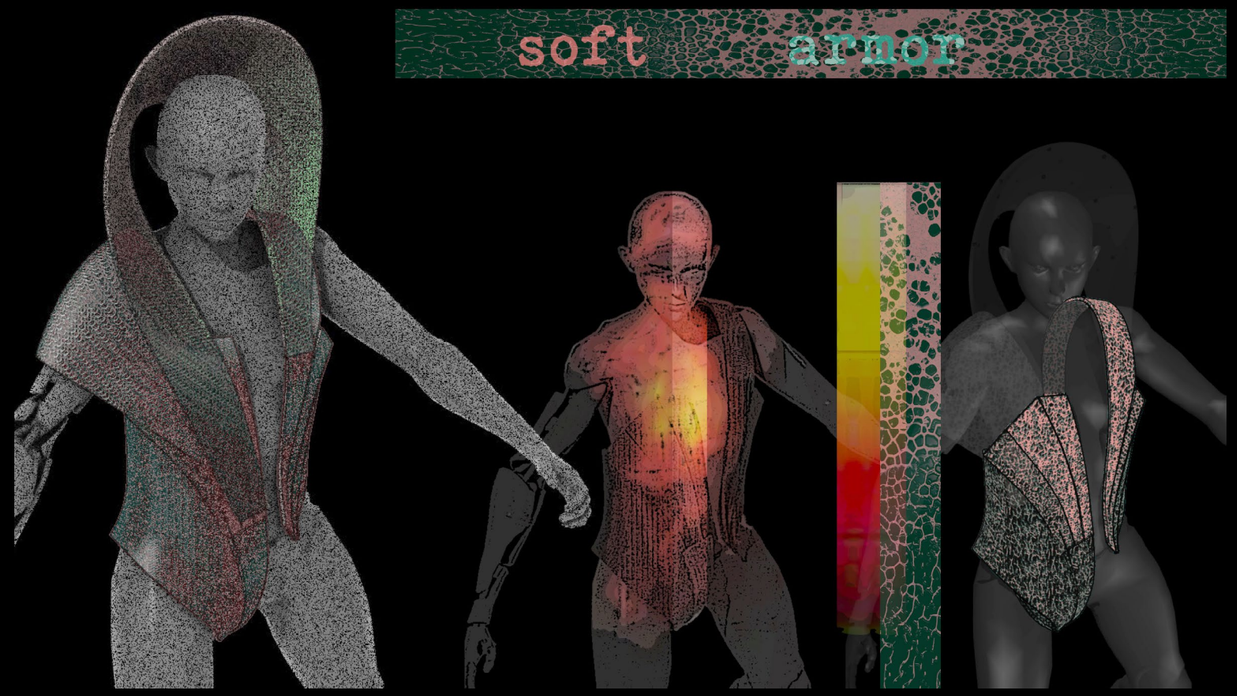
MAIN MAGNETIC FIELD
GEOMAGNETIC COORDINATES


+5,000 m
GLOBAL ELEVATION MODEL
-5,000 m


SCENE PATH
40 m
18 m
3 m
RESOLUTION

GT-LOL-6

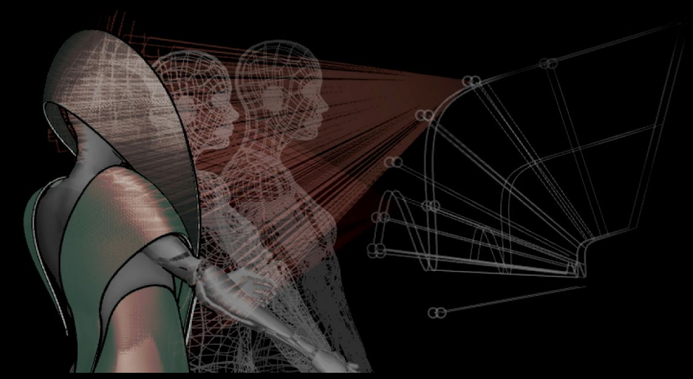
Alaska
TDRS-8
167.7°W
TDRS-10
171.1°W
TDRS-11
174.4°W
McMurdo
180°
White Sands
Ponce de Leon
Kennedy Uplink
Wallops
90°W
SSC Santiago
TDRS-7
84.3°W
TDRS-6
46.6°W
TDRS-12
41.0°W
TDRS-13
11.5°W
0°
KSAT Svalbard
SSC Kiruna
KSAT Troll
KSAT Troll
Beale
Clear
Cape Cod
Thule
Fylingdales

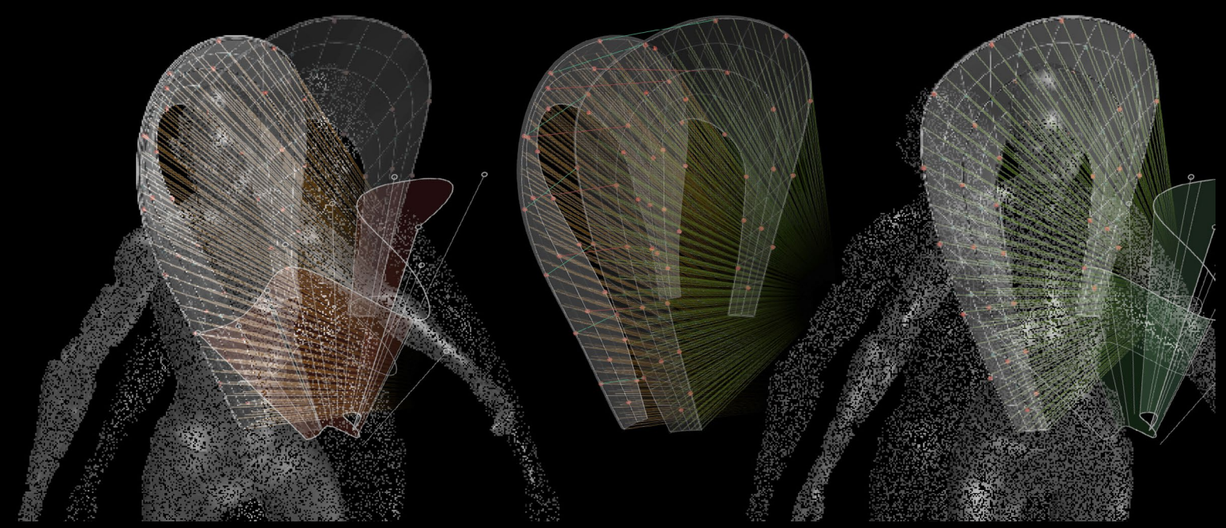


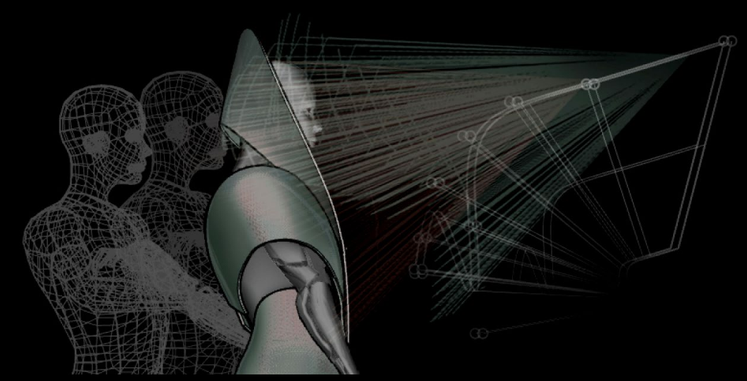
SOFT ARMOR 2023

Instructor: Diana Agrest

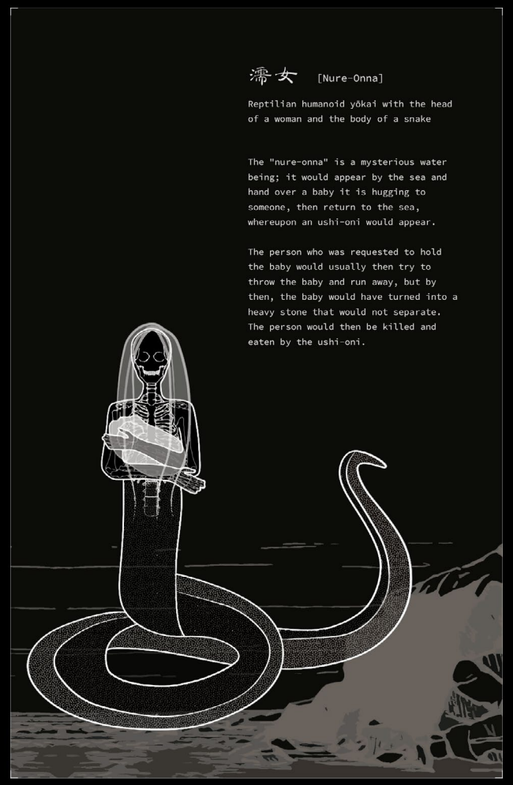
Soft Armor is a wearable body contraption, a transformative proposal that arose from a 4-part investigation on the subject of body. The project documents my process of approaching this deeply psychologically ingrained subject through its many facets, from speculative forms, to ways of transformation involving tangible and psychological forces.

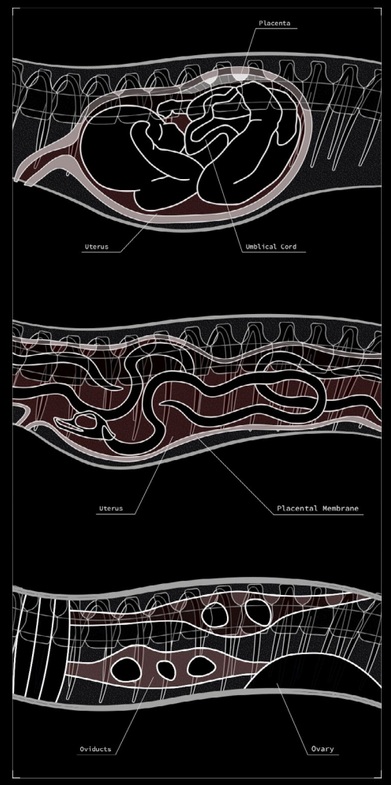


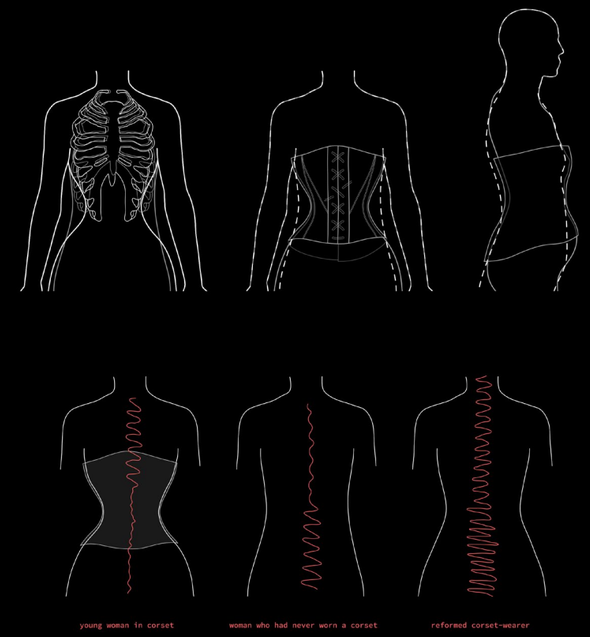




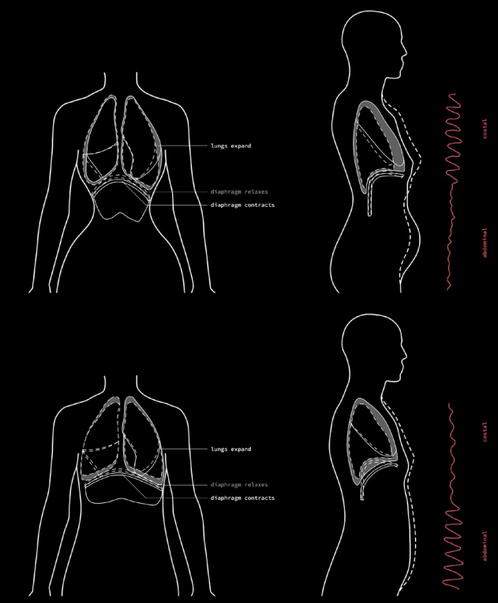
GR-SRM-2



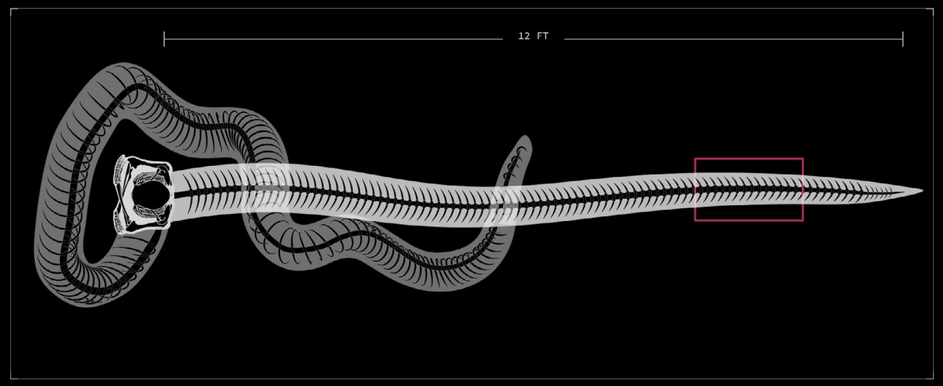


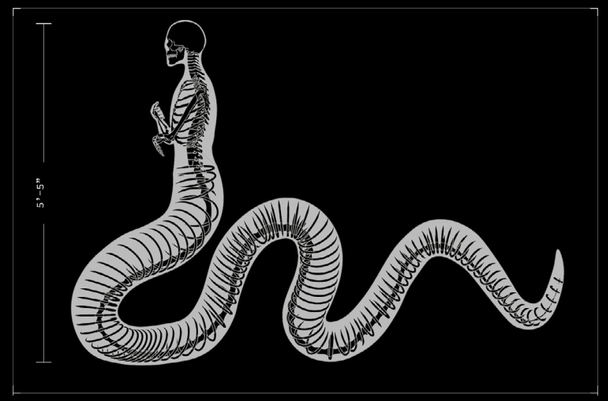


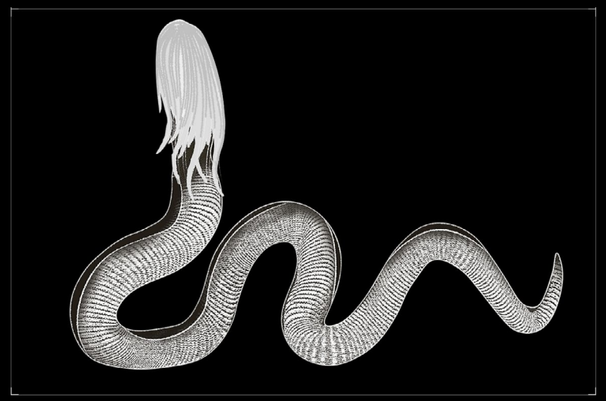
MORPHOLOGY: RESTRICTION & FORMATION



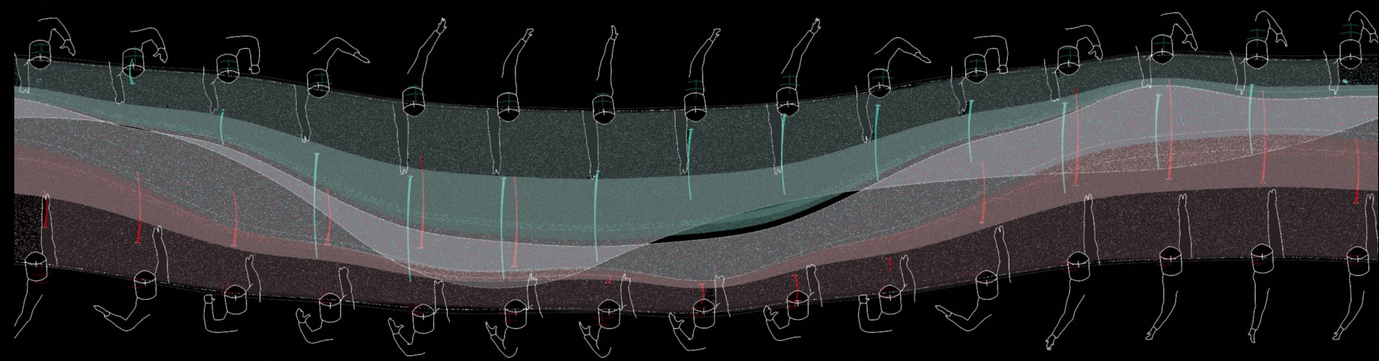
MYTHOLOGY: SPECULATION & FORM

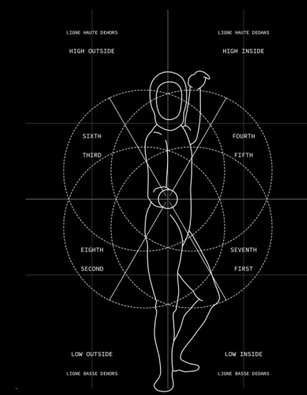




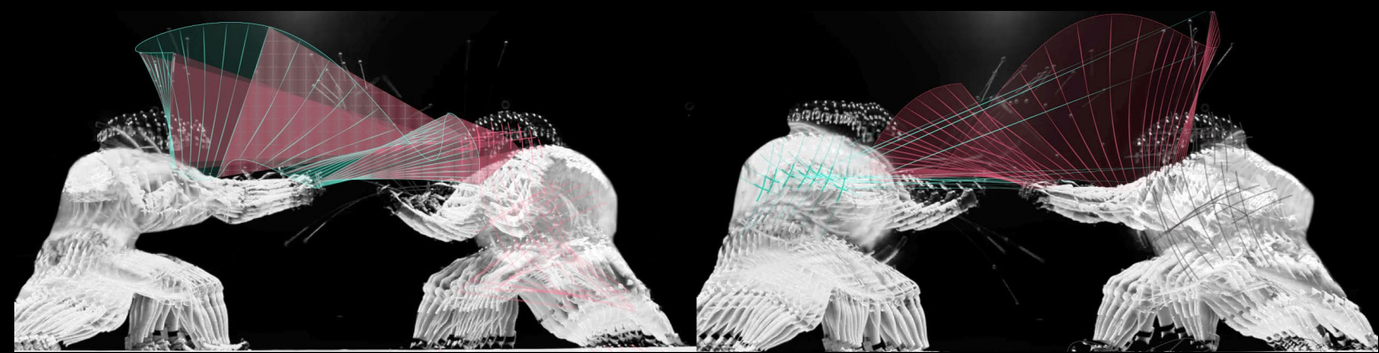


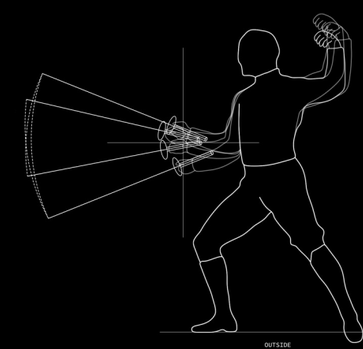
GR-SRM-3

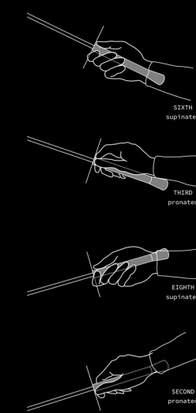


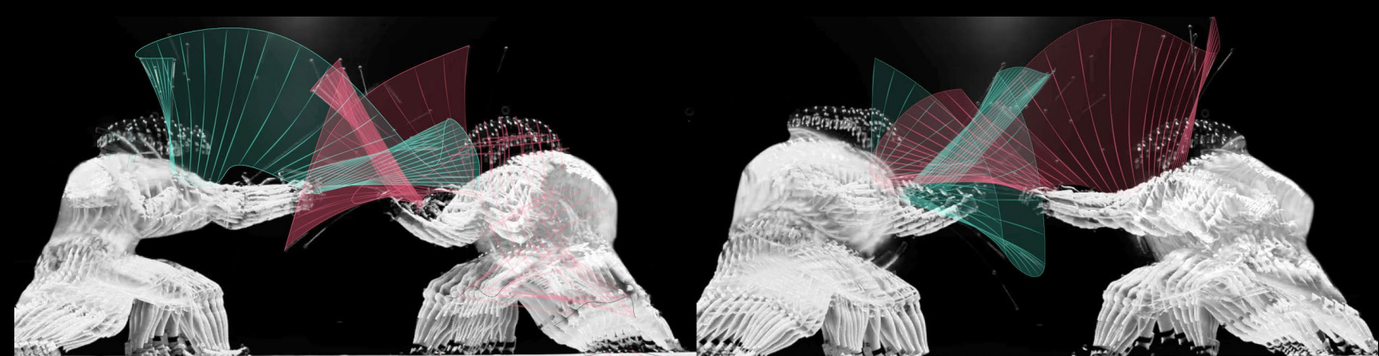


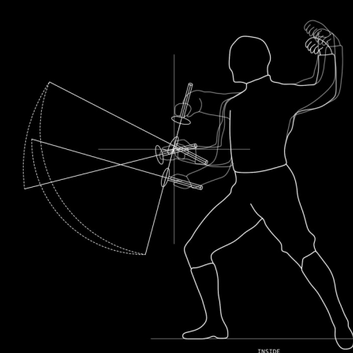
SENSORY TOPOGRAPHY

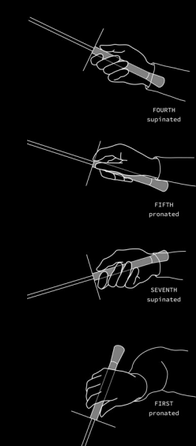












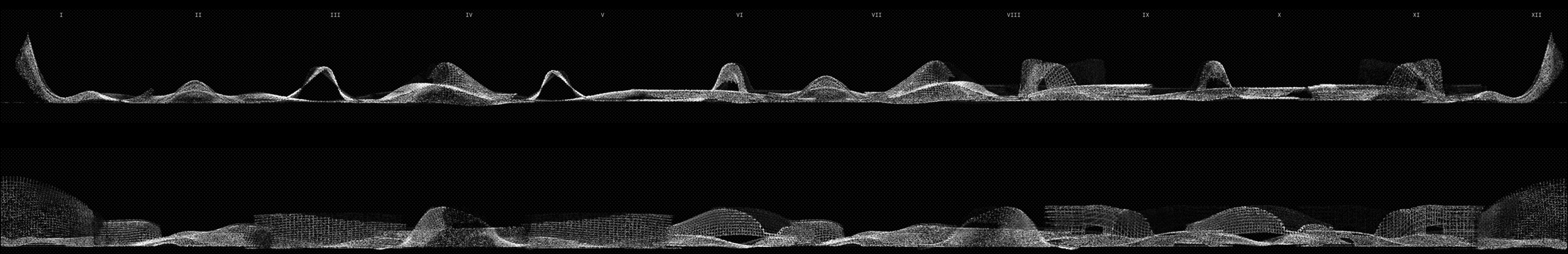
NEWTOWN SOUNDSCAPE

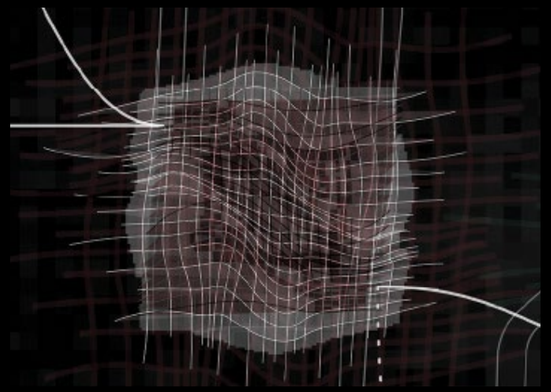
2022

Instructor: Benjamin Aranda

The project aims to introduce a mode of production to an urban landscape in New York, and to transform it into a “park machine”. While production is usually considered as energy or material generation, I interpret it to be an opportunity to create an unique experience through sensory distortion; aural, in particular.

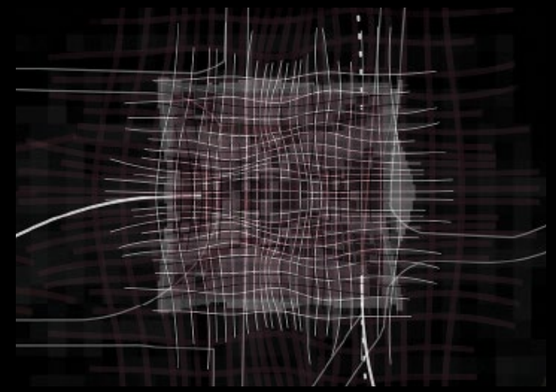
Newtown Creek provides an ideal ground for a new soundscape - formerly an industrial site, the current soundscape within the site is composed mainly of traffic sounds, both ground and aerial. Proposed structures will serve as sound distortion devices, which visitors can occupy. I imagine the experience through the site to be a sequence of oscillated sounds, formed by a series of connected nodes, or architectural follies. Each folly provides structures which both frame the space and process sounds.





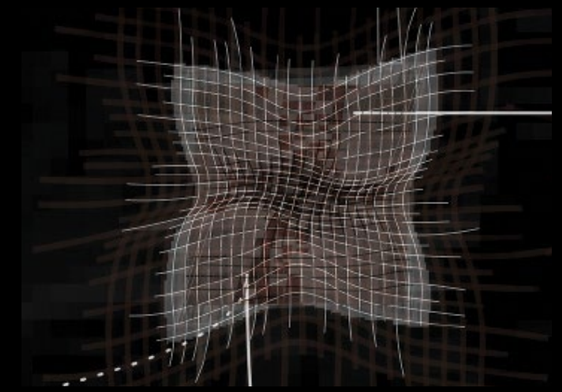
FOLIE IX [PULSE]

FOLIE XI 96’W 106’L 24’H



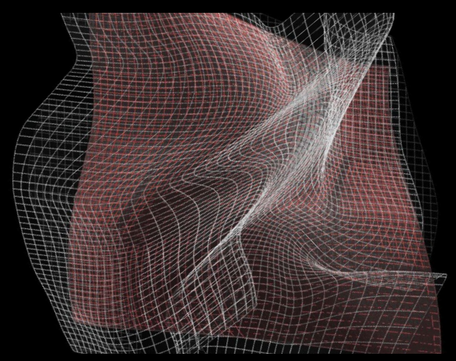
FOLIE II [ECHO]

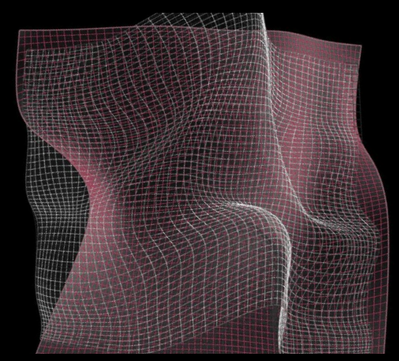
FOLIE VIII 95’W 100’L 17’H

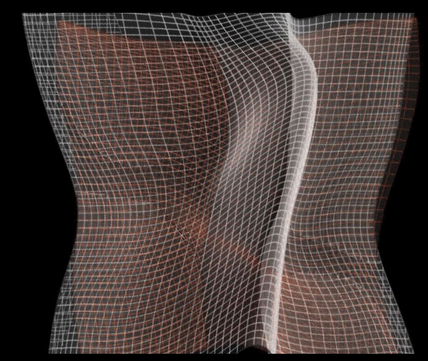


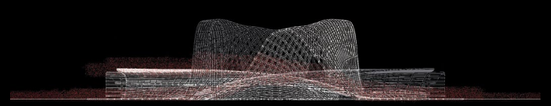
FOLIE VI [SUBTERRA]

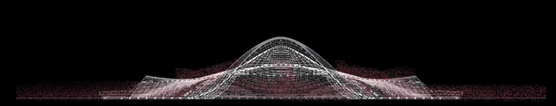
FOLIE X 115’W 107’L 24’H

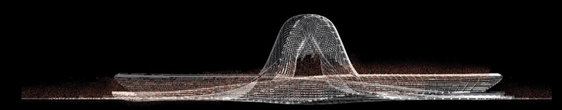


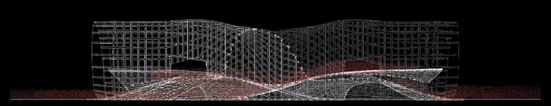


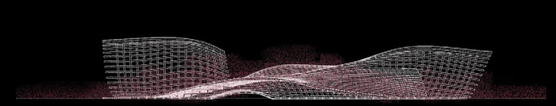


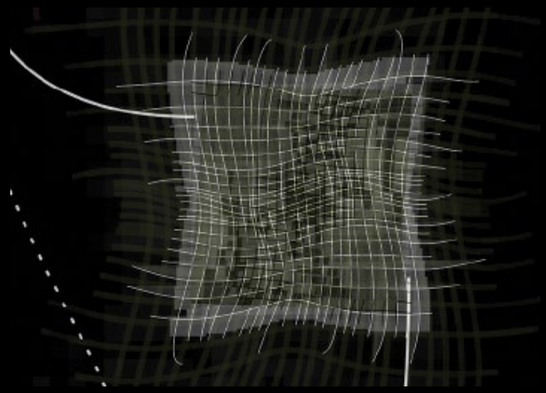






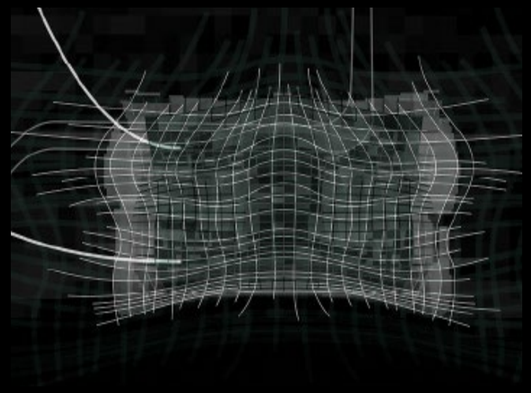






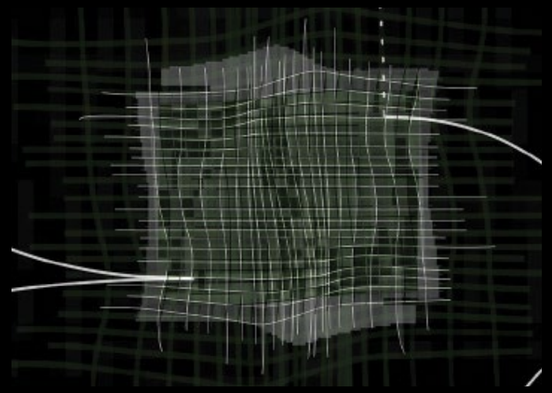
FOLIE IV [PRAIRIE]

FOLIE VII 110’W 105’L 24’H



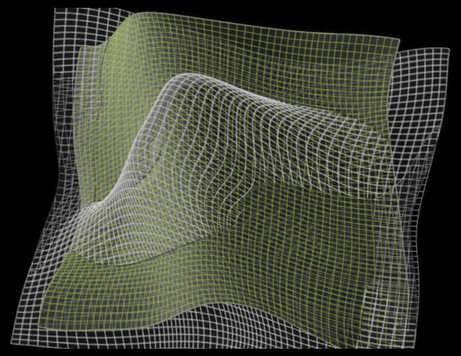
FOLIE I [ZONA TARKOVSKAYA]

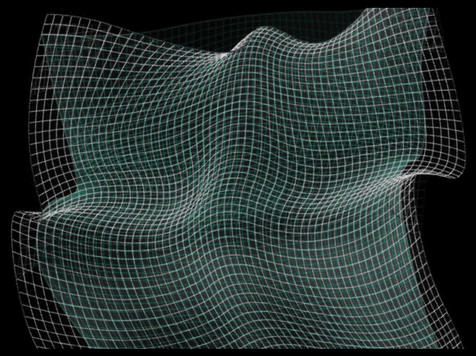
FOLIE XII 75’W 106’L 43’H

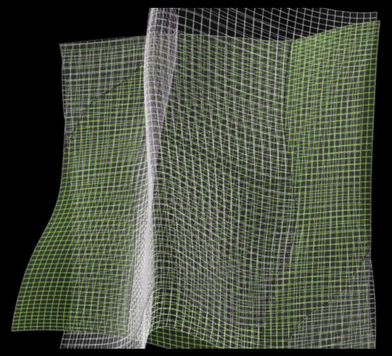


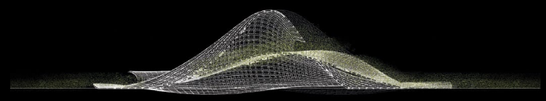
FOLIE III [CLOISTER]

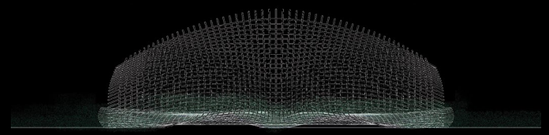
FOLIE V 104’W 93’L 21’H

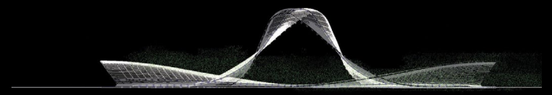


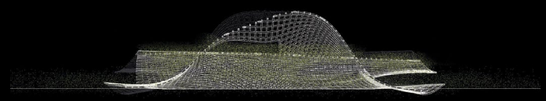


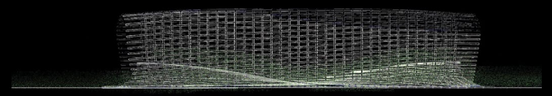






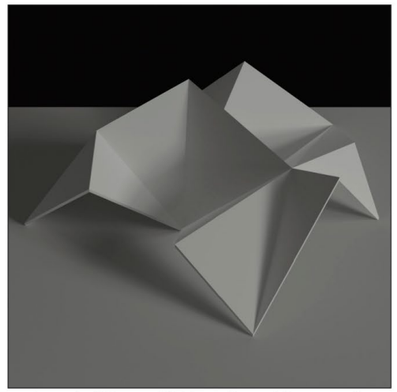




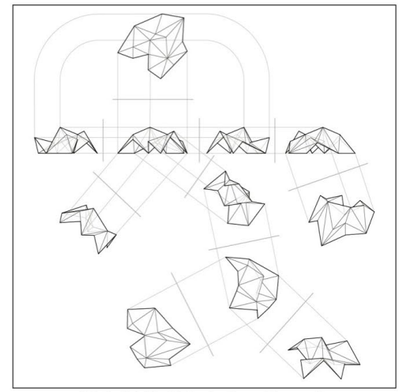


STUDENT WORK SAMPLES

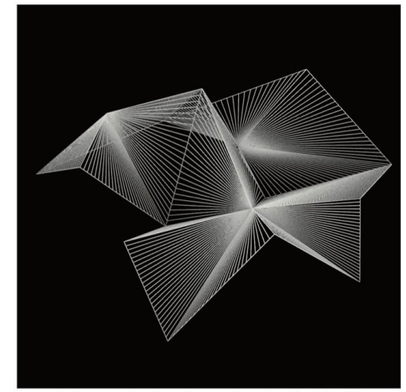
by Jiayu (Martina) Chen



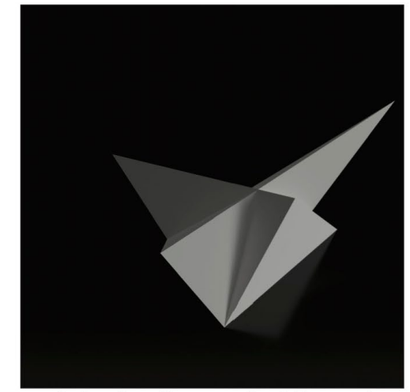
Iconic [Overall] Rendered Image A



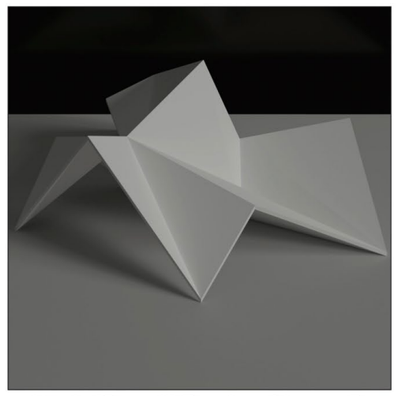
'OBJECT' Rotation Drawing



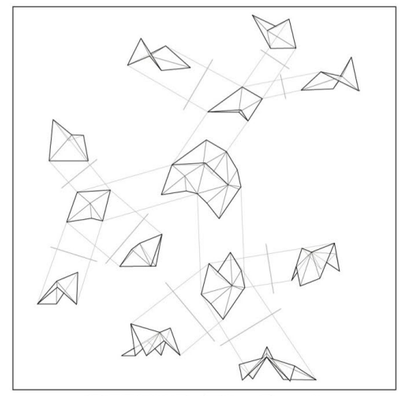
Alternate Surface Logic [LINES]



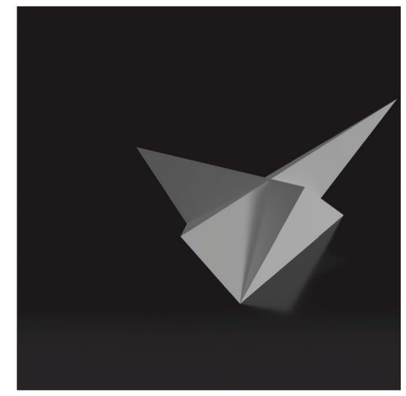
Animation [Aggregation] Frame 1



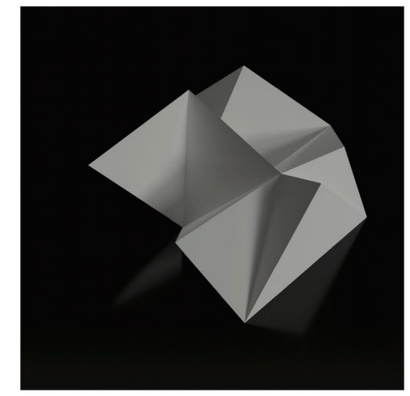
Iconic [Overall] Rendered Image B



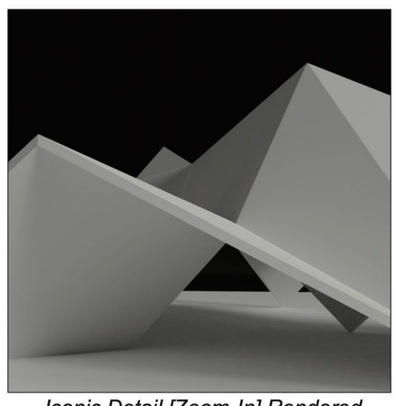
'DETAIL' Rotation Drawing



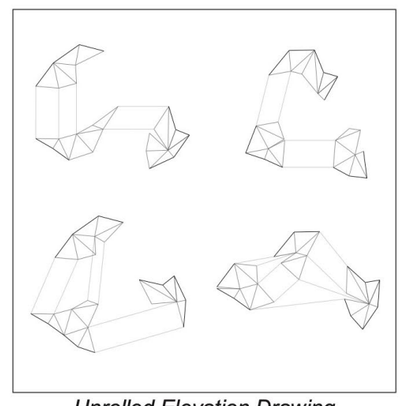
Animation LINK



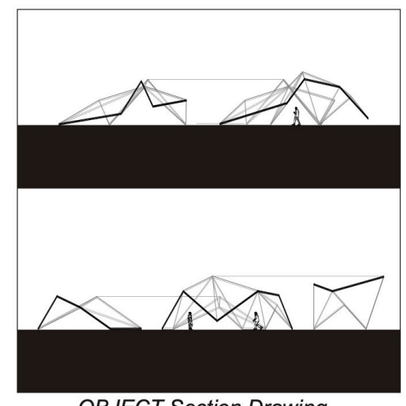
Animation [Aggregation] Frame 2



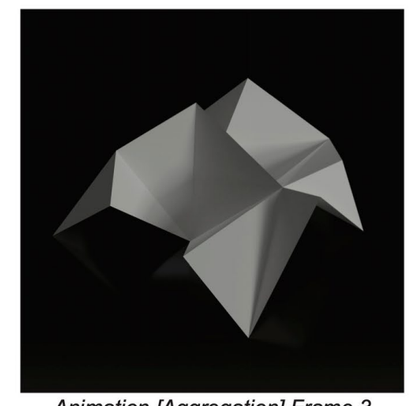
Iconic Detail [Zoom-In] Rendered



Unrolled Elevation Drawing



OBJECT Section Drawing

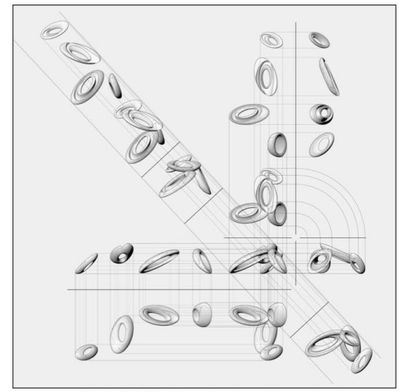


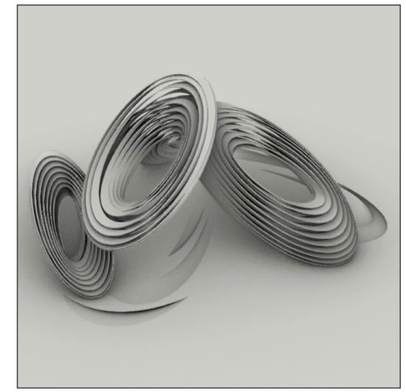
Animation [Aggregation] Frame 3

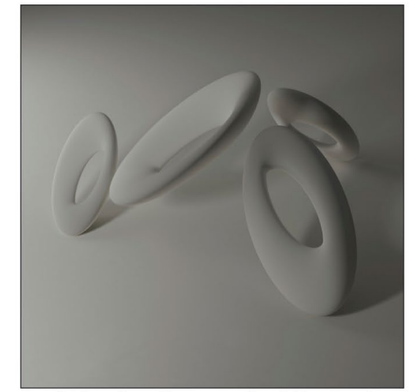
STUDENT WORK SAMPLES

by Cheng (Carrie) Shi

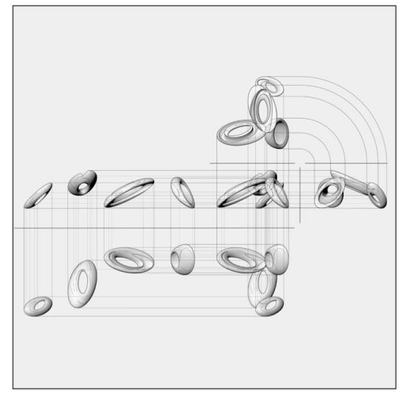
Iconic [Overall] Rendered Image A


'OBJECT' Rotation Drawing


Alternate Surface Logic [LINES]


Animation [Aggregation] Frame 1

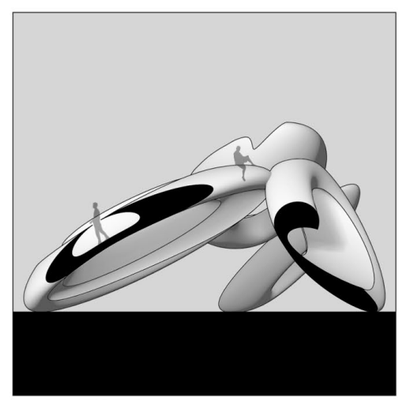
Iconic [Overall] Rendered Image B

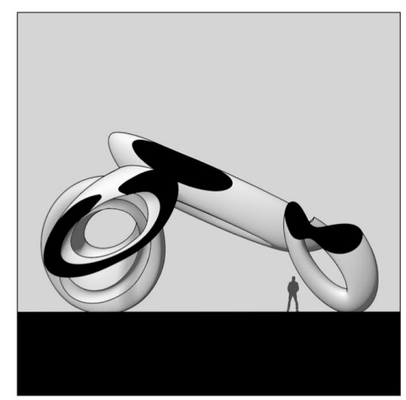

'DETAIL' Rotation Drawing

Animation LINK

Animation [Aggregation] Frame 2

Iconic Detail [Zoom-In] Rendered Image A


OBJECT Section Drawing Image A

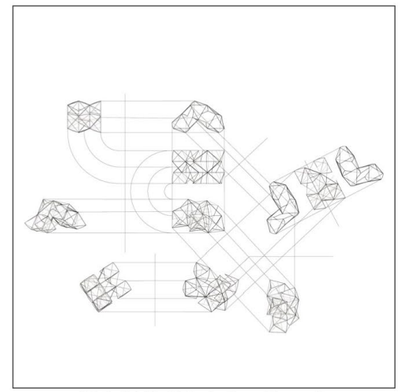

OBJECT Section Drawing Image B

Animation [Aggregation] Frame 3

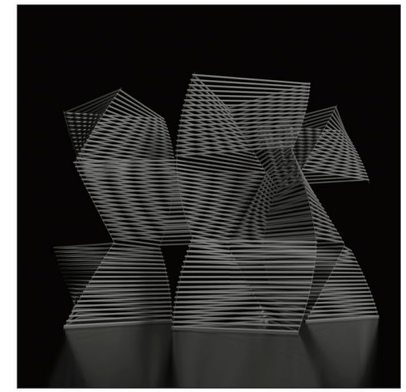
STUDENT WORK SAMPLES

by Kankan (Billy) Sun

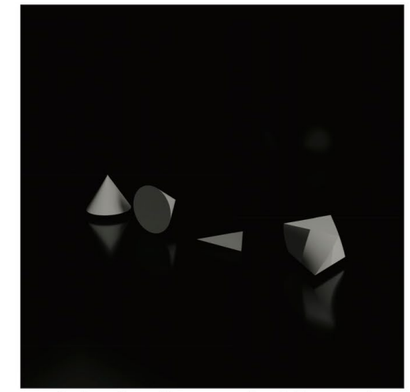
Iconic [Overall] Rendered Image A



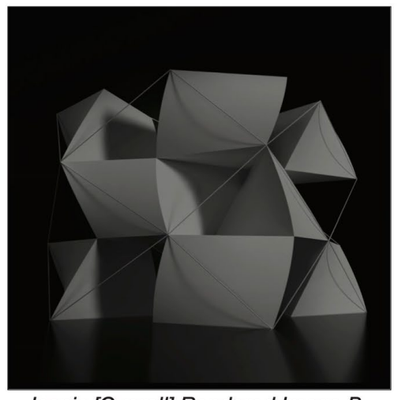
'OBJECT' Rotation Drawing



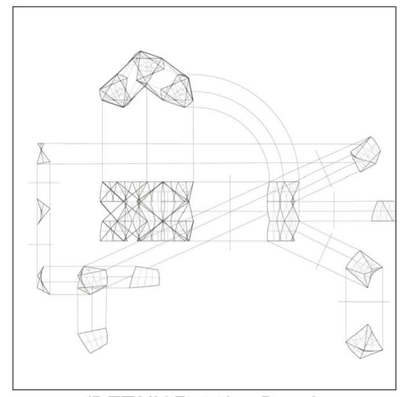
Alternate Surface Logic [LINES]



Animation [Aggregation] Frame 1

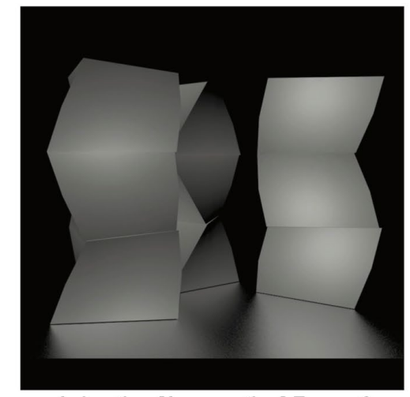


Iconic [Overall] Rendered Image B

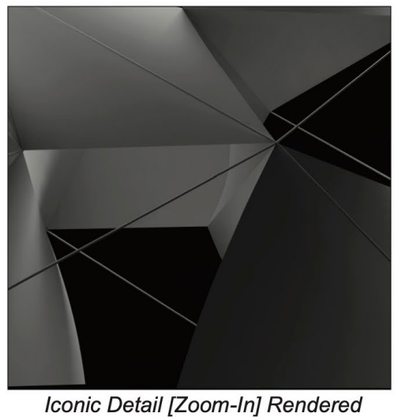


'DETAIL' Rotation Drawing

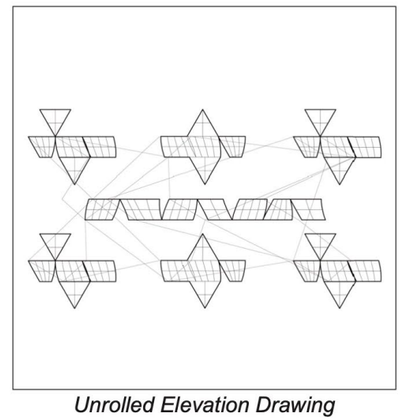
Animation LINK



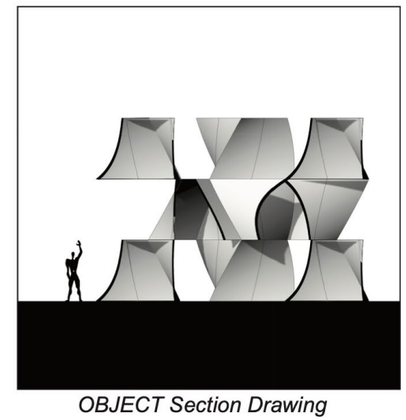
Animation [Aggregation] Frame 2



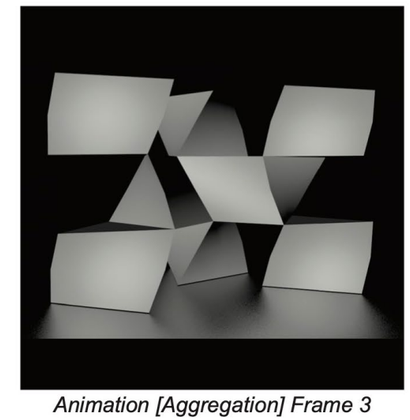
Iconic Detail [Zoom-In] Rendered



Unrolled Elevation Drawing



OBJECT Section Drawing

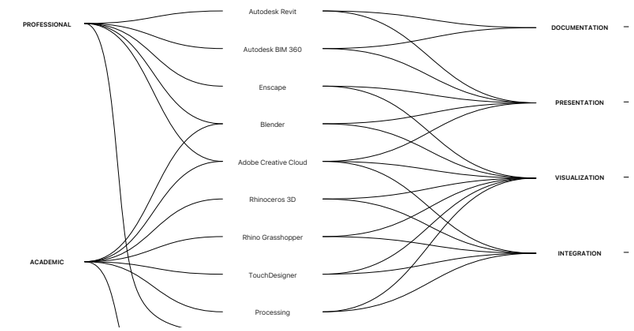


Animation [Aggregation] Frame 3

[PROFESSIONAL]

ARCHITECTURAL DESIGN 2020-22

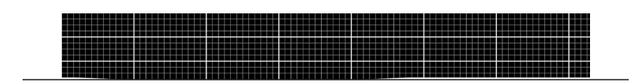
DESIGN TECHNOLOGY 2023



B.ARCH

NEW WORLD ENTERTAINMENT 2019

Instructor: Abigail Coover, Michael Szivos



(NASA X-HAB) IASO 2018

Instructor: Michael Morris, Che-Wei Wang

RENWICK HOSPITAL MEMORIAL 2018

Instructor: Dan Bucsescu

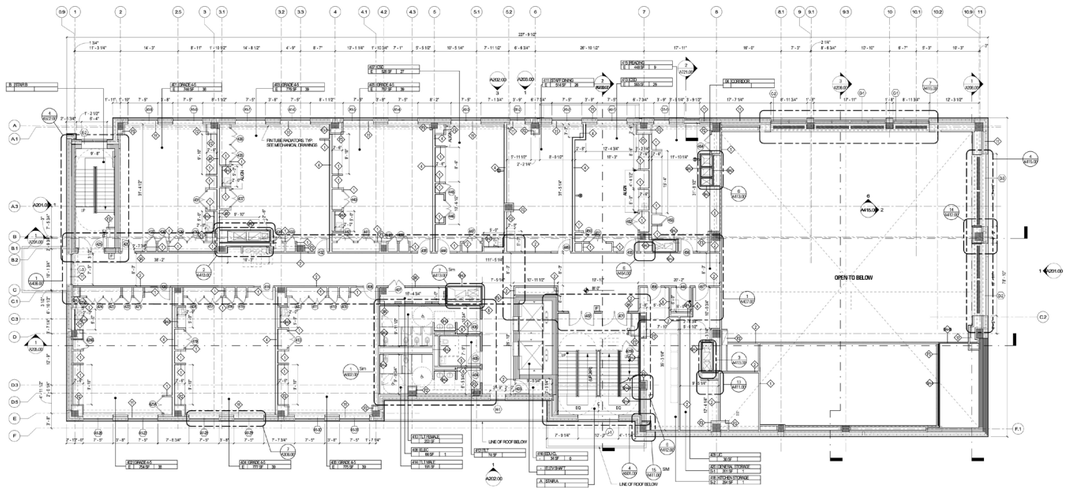
COLUMBIA ROWING FACILITY 2017

Instructor: Andrew Lyon

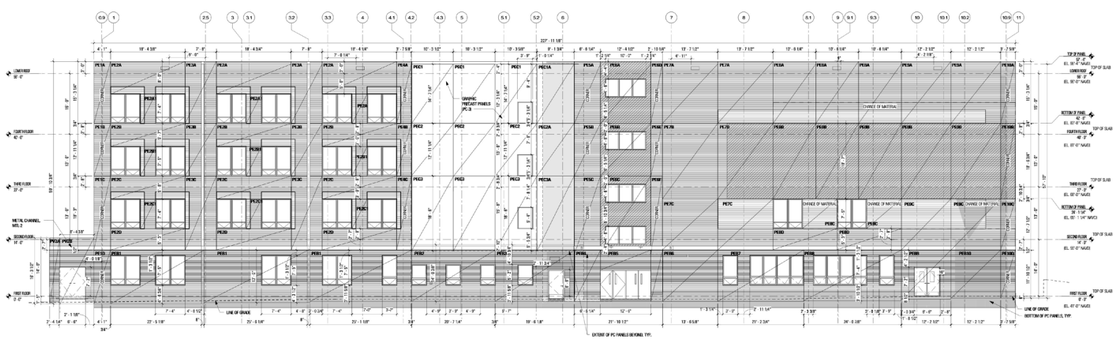
DOCUMENTATION

Revit | BIM 360

Floor Plan



Elevation



Façade Schedule

LEGEND

PANEL JOINT (SEE FABRICATION DRAWINGS)

SCHEDULE

TAG	DESCRIPTION	TYPE
BR-1A	MEDIUM FACE BRICK SMOOTH	13"
BR-1B	MEDIUM FACE BRICK TEXTURED	13"
BR-2A	MEDIUM FACE BRICK SMOOTH	13"
BR-2A	MEDIUM FACE BRICK SMOOTH	13"
PC-3	GRAPHIC ART WALL PANEL	

PANEL TYPE SCHEDULE-EAST ELEVATION

TYPE	WIDTH	HEIGHT	MARK	COUNT	FINISH
INSULATED PANEL 13" - R 20	4'-1"	15'-3 1/4"	PE1A	1	MODULAR BRICK BR-1A
INSULATED PANEL 13" - R 20	4'-1"	17'-11 1/4"	PE1B	1	MODULAR BRICK BR-1A, BR-3A
INSULATED PANEL 13" - R 20	4'-1"	18'-3"	PE1C	1	MODULAR BRICK BR-1A
INSULATED PANEL 13" - R 20	4'-1"	12'-0"	PE1D	1	MODULAR BRICK BR-1A, BR-2A
INSULATED PANEL 13" - R 20	16'-4 3/8"	15'-3 1/4"	PE2A	3	MODULAR BRICK BR-1A, BR-3A
INSULATED PANEL 13" - R 20	2'-6"	7'-0"	PE2A1	3	MODULAR BRICK BR-1A, BR-3A
INSULATED PANEL 13" - R 20	16'-4 3/8"	5'-7"	PE2B	3	MODULAR BRICK BR-1A, BR-3A
INSULATED PANEL 13" - R 20	2'-6"	7'-5"	PE2B1	3	MODULAR BRICK BR-1A
INSULATED PANEL 13" - R 20	16'-4 3/8"	5'-6"	PE2C	3	MODULAR BRICK BR-1A, BR-3A
INSULATED PANEL 13" - R 20	2'-6"	7'-4"	PE2C1	3	MODULAR BRICK BR-1A
INSULATED PANEL 13" - R 20	16'-4 3/8"	5'-3"	PE2D	3	MODULAR BRICK BR-1A
INSULATED PANEL 13" - R 20	16'-4 3/8"	16'-3 1/2"	PE8T	1	MODULAR BRICK BR-1A, BR-2A
INSULATED PANEL 13" - R 20	2'-6"	15'-3 1/4"	PE3A	2	MODULAR BRICK BR-1A, BR-3A
INSULATED PANEL 13" - R 20	2'-6"	17'-11 1/4"	PE3B	2	MODULAR BRICK BR-1A, BR-3A
INSULATED PANEL 13" - R 20	2'-6"	18'-3"	PE3C	2	MODULAR BRICK BR-1A, BR-3A
INSULATED PANEL 13" - R 20	2'-7 5/8"	15'-3 1/4"	PE4A	1	MODULAR BRICK BR-1A, BR-3A
INSULATED PANEL 13" - R 20	2'-7 5/8"	17'-11 1/4"	PE4B	1	MODULAR BRICK BR-1A, BR-3A
INSULATED PANEL 13" - R 20	2'-7 5/8"	18'-3"	PE4C	1	MODULAR BRICK BR-1A, BR-3A
INSULATED PANEL 13" - R 20	10'-3 1/2"	15'-3 1/4"	PEC1	3	CONCRETE FINISH
INSULATED PANEL 13" - R 20	10'-3 1/2"	17'-11 1/4"	PEC2	3	CONCRETE FINISH
INSULATED PANEL 13" - R 20	10'-3 1/2"	18'-3"	PEC3	3	CONCRETE FINISH
INSULATED PANEL 13" - R 20	10'-3 1/2"	16'-3 1/2"	PEB2	1	MODULAR BRICK BR-1A, BR-2A
INSULATED PANEL 13" - R 20	9'-1 3/4"	15'-3 1/4"	PEC1A	1	CONCRETE FINISH
INSULATED PANEL 13" - R 20	9'-1 3/4"	17'-11 1/4"	PEC2A	1	CONCRETE FINISH
INSULATED PANEL 13" - R 20	9'-1 3/4"	18'-3"	PEC3A	1	CONCRETE FINISH
INSULATED PANEL 13" - R 20	9'-1 3/4"	16'-3 1/2"	PEB3	1	MODULAR BRICK BR-1A, BR-2A
INSULATED PANEL 13" - R 20	6'-6 1/4"	16'-3 1/2"	PEB4	1	MODULAR BRICK BR-1A, BR-2A

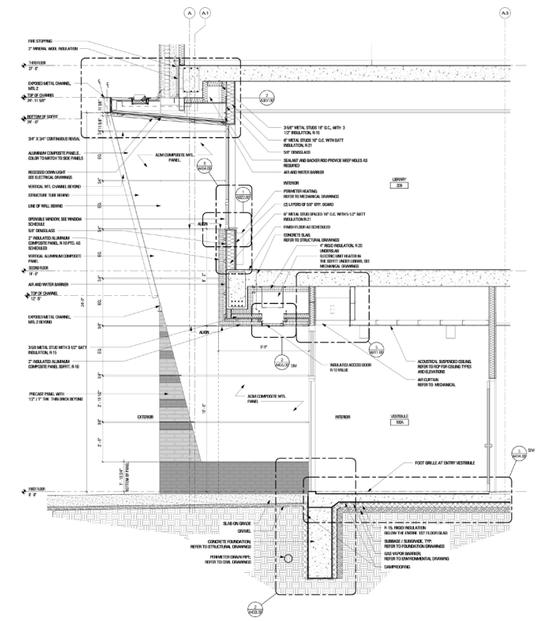
PANEL TYPE SCHEDULE-EAST ELEVATION

TYPE	WIDTH	HEIGHT	MARK	COUNT	FINISH
INSULATED PANEL 13" - R 20	12'-4 3/2"	15'-3 1/4"	PE6A	1	MODULAR BRICK BR-1B
INSULATED PANEL 13" - R 20	12'-4 3/2"	16'-6 3/4"	PE6B	1	MODULAR BRICK BR-1B
INSULATED PANEL 13" - R 20	12'-4 3/2"	12'-0"	PE6C	1	MODULAR BRICK BR-1A, BR-2A
INSULATED PANEL 13" - R 20	12'-4 3/2"	16'-3 1/2"	PE6D	1	MODULAR BRICK BR-1A, BR-2A
INSULATED PANEL 13" - R 20	2'-10 1/4"	15'-3 1/4"	PE0	1	MODULAR BRICK BR-1A
INSULATED PANEL 13" - R 20	2'-10 1/4"	16'-6 3/4"	PE0B	1	MODULAR BRICK BR-1A
INSULATED PANEL 13" - R 20	2'-10 1/4"	12'-7 1/2"	PE0	1	MODULAR BRICK BR-1A
INSULATED PANEL 13" - R 20	13'-7 3/2"	15'-3 1/4"	PE7A	2	MODULAR BRICK BR-1A, BR-3A
INSULATED PANEL 13" - R 20	13'-7 3/2"	16'-6 3/4"	PE7B	2	MODULAR BRICK BR-1B
INSULATED PANEL 13" - R 20	13'-7 3/2"	12'-7 1/2"	PE7C	2	MODULAR BRICK BR-1A, BR-3A
INSULATED PANEL 13" - R 20	13'-7 3/2"	16'-3 1/2"	PEB7	1	MODULAR BRICK BR-1A, BR-2A
INSULATED PANEL 13" - R 20	10'-6 3/4"	15'-3 1/4"	PE8A	3	MODULAR BRICK BR-1A, BR-3A
INSULATED PANEL 13" - R 20	10'-6 3/4"	16'-6 3/4"	PE8B	3	MODULAR BRICK BR-1B
INSULATED PANEL 13" - R 20	10'-6 3/4"	12'-7 1/2"	PE8C	3	MODULAR BRICK BR-1A, BR-3A
INSULATED PANEL 13" - R 20	10'-6 3/4"	16'-3 1/2"	PEB8	1	MODULAR BRICK BR-1A, BR-2A
INSULATED PANEL 13" - R 20	12'-2 3/2"	15'-3 1/4"	PE9A	2	MODULAR BRICK BR-1A, BR-3A
INSULATED PANEL 13" - R 20	12'-2 3/2"	16'-6 3/4"	PE9B	2	MODULAR BRICK BR-1B
INSULATED PANEL 13" - R 20	12'-2 3/2"	12'-7 1/2"	PE9C	2	MODULAR BRICK BR-1A, BR-3A
INSULATED PANEL 13" - R 20	12'-2 3/2"	16'-3 1/2"	PEB9	1	MODULAR BRICK BR-1A, BR-2A
INSULATED PANEL 13" - R 20	2'-7 5/8"	15'-3 1/4"	PE10A	1	MODULAR BRICK BR-1A, BR-3A
INSULATED PANEL 13" - R 20	2'-7 5/8"	11'-10 1/2"	PE10B	1	MODULAR BRICK BR-1B
INSULATED PANEL 13" - R 20	2'-7 5/8"	12'-7 1/2"	PE10C	1	
INSULATED PANEL 13" - R 20	2'-7 5/8"	16'-3 1/2"	PE10D	1	
INSULATED PANEL 13" - R 20	2'-8 1/4"	16'-3 1/2"	PEW2A	1	MODULAR BRICK BR-1A, BR-2A
INSULATED PANEL 13" - R 20	8'-4 3/8"	16'-3 1/2"	PEW2B	1	MODULAR BRICK BR-1A, BR-2A

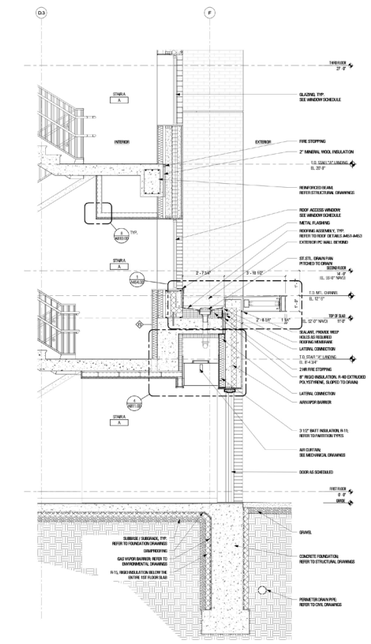
DOCUMENTATION

Revit | BIM 360

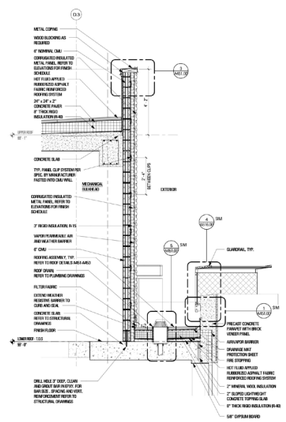
Detail Section - Stair Vestibule

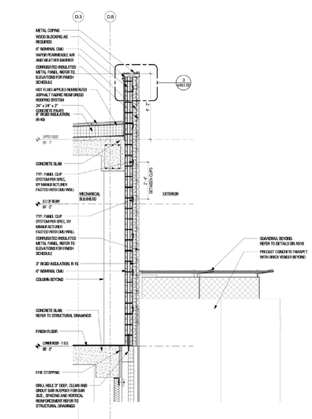


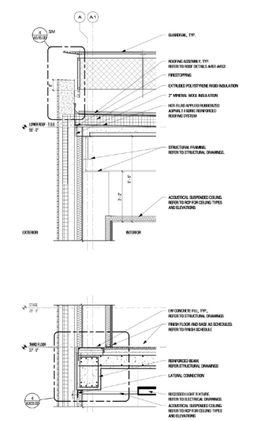
Detail Section - Stair Vestibule



Exterior Wall Sections



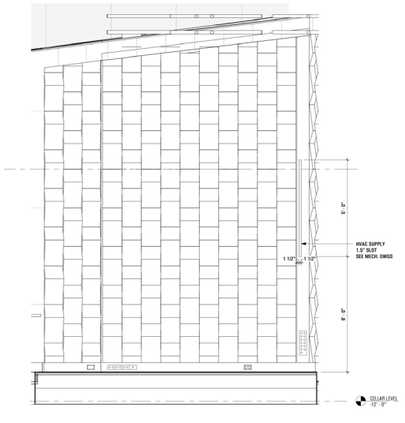




DOCUMENTATION

Revit | BIM 360

Stage Elevations



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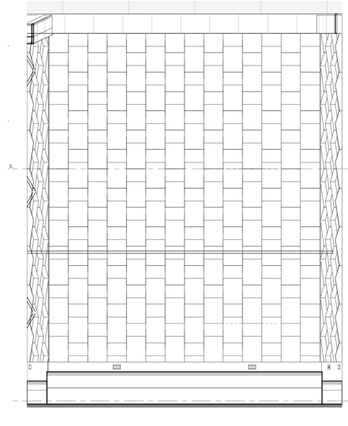

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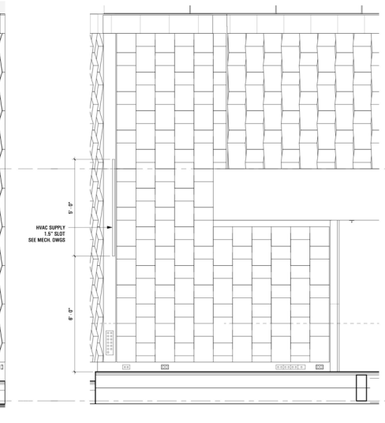
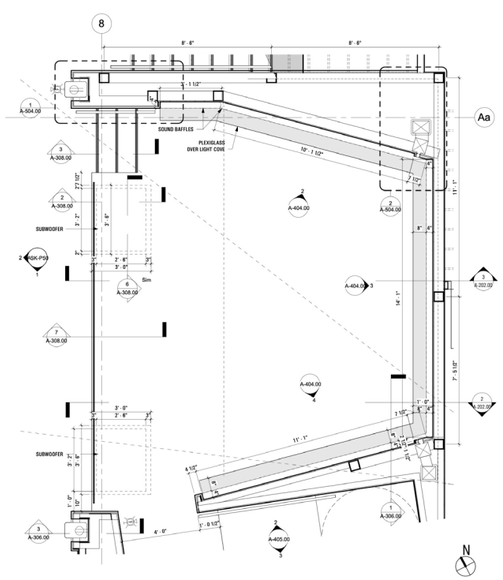
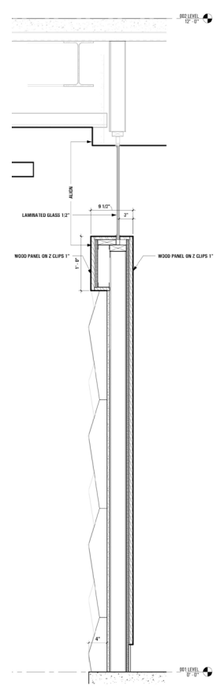


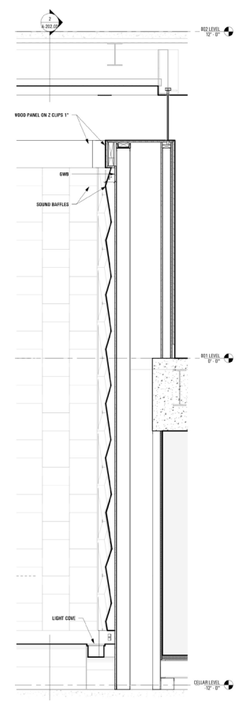
South

Stage Plan



Stage Wall Sections



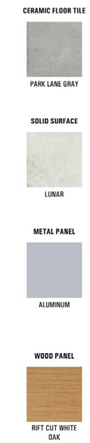


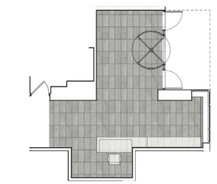
PRESENTATION

Revit | Enscape | Illustrator | InDesign

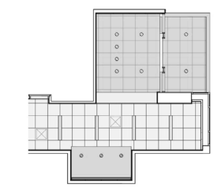
Finish Boards - Lobby

Perspective





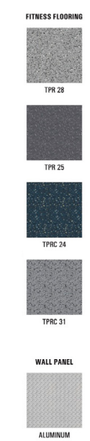
Plan

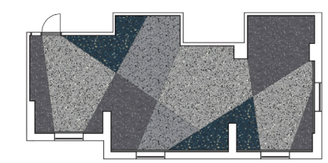


RCP

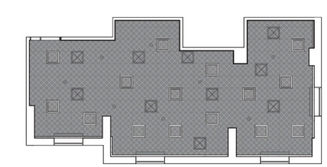
Finish Boards - Weight Room

Perspective





Plan



RCP

PROJECT OVERVIEW

PROFESSIONAL

SCA PS85 ANNEX

Ground-Up Construction

Responsibilities:

Interior design including renderings, sourcing materials, selecting finishes, detailing customized furniture and equipments.

Exterior design including detailing building envelope and customized panels and signages.

STORM KING SCHOOL

Ground-Up Construction

Responsibilities:

Schematic design including space and occupancy planning, building envelop design, landscape design.

Preparing drawings and renderings for client presentations.

PROJECT OVERVIEW

PROFESSIONAL

COLUMBIA UNIVERSITY ARTIST COVE

Interior Construction

Responsibilities:

Design development including visualization and sourcing materials.

Construction documents detailing customized wall panels and lighting equipments.

FORDHAM UNIVERSITY FITNESS CENTER

Interior Construction

Responsibilities:

Design development including visualization and sourcing materials.

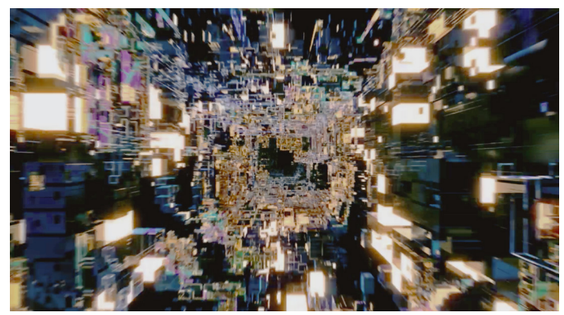
Preparing drawings and renderings for client presentations.

VISUALIZATION

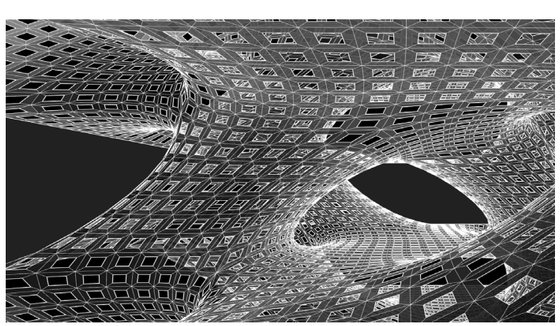
Rendering — Enscape

Animation — Lumion

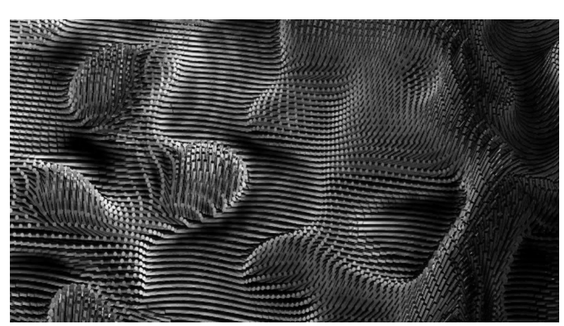
Animation — Blender



Parametric — Grasshopper

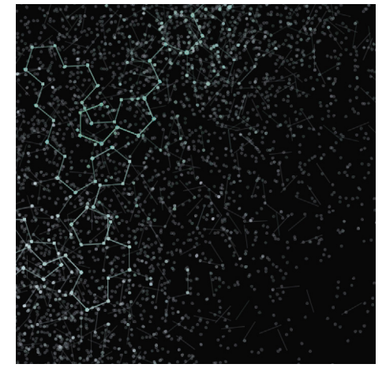


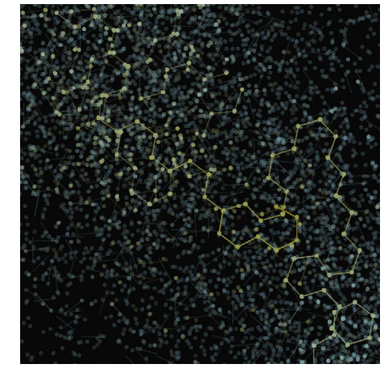
TouchDesigner

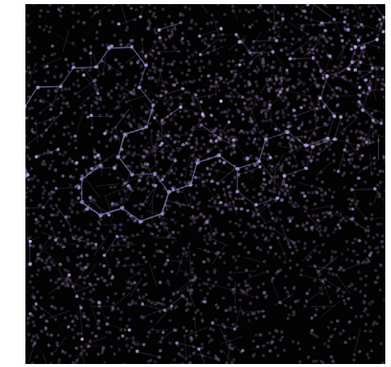


DESIGN/TECHNOLOGY INTEGRATION

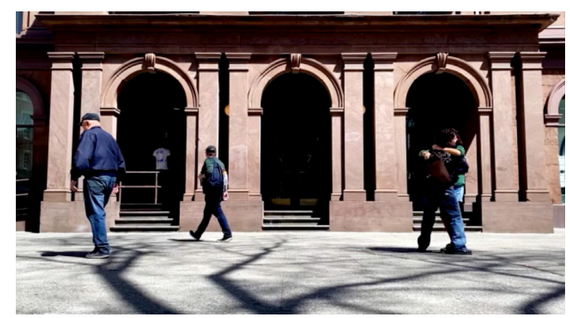
Generative — Processing

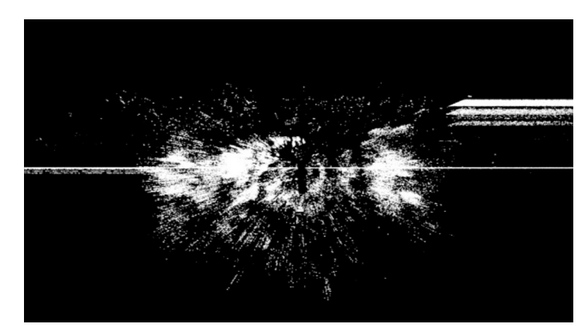






Interactive — TouchDesigner



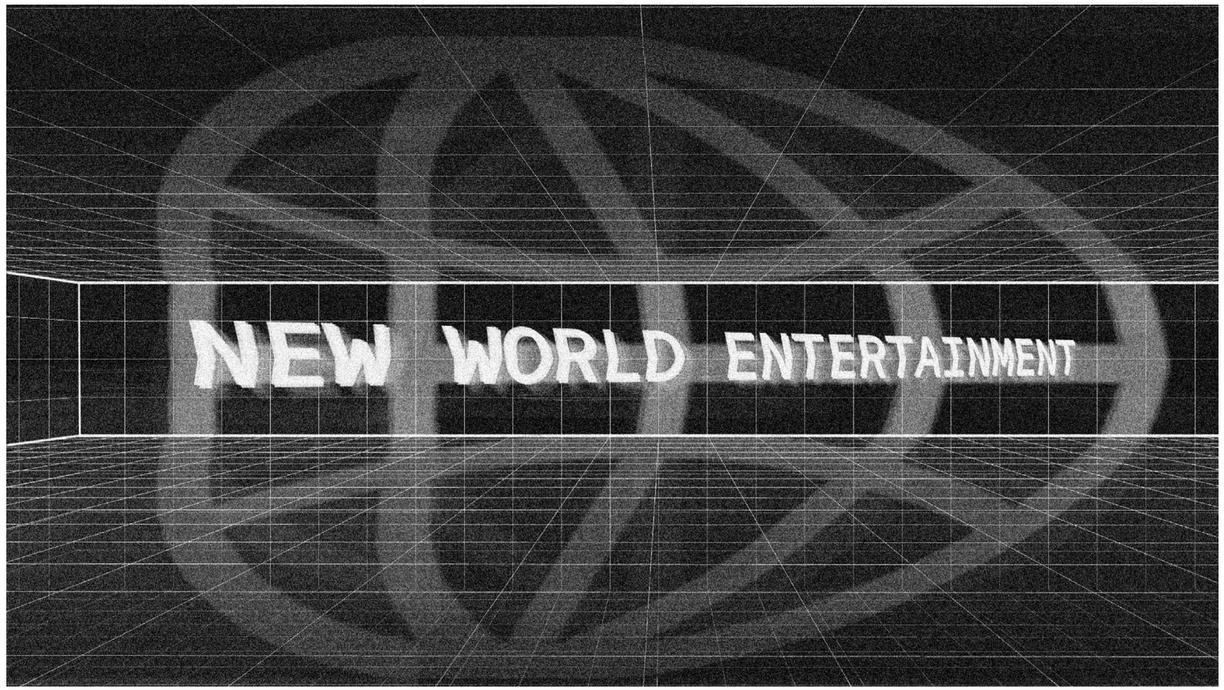


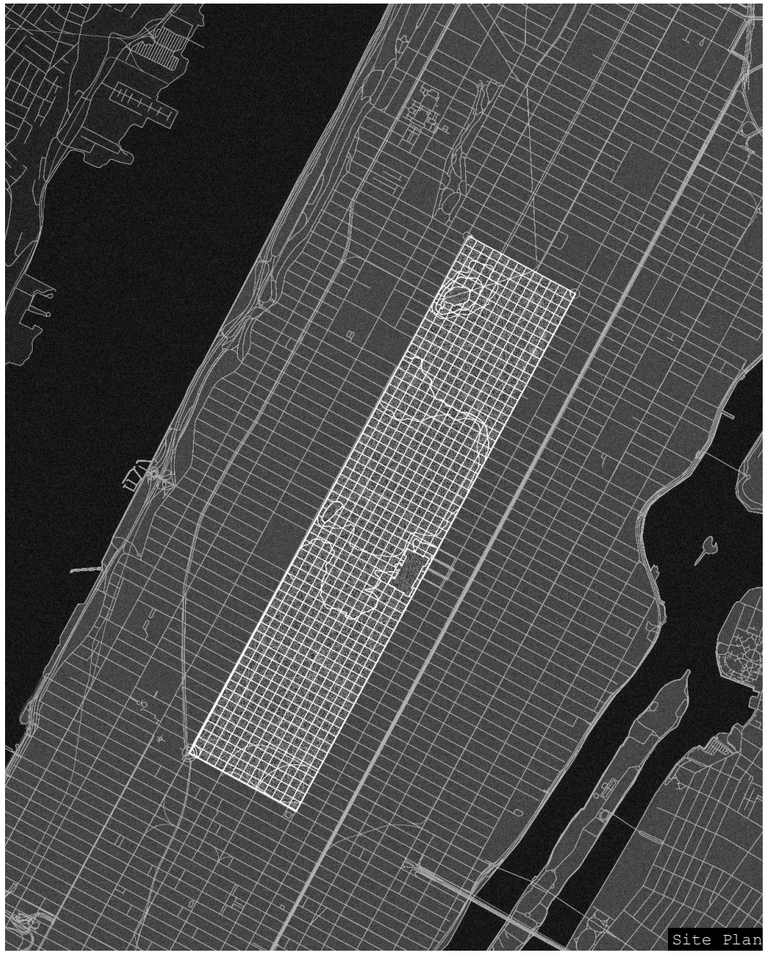
NEW WORLD ENTERTAINMENT

[Proposal]

NWE is an immersive space, a vision of the future.
Screens will render any environment of your desire.

An allegorical superstructure, it exists in an ambiguous state between physical spaces and visual representations; between active and passive perceptions.
It is a blank space, a tabula rasa, with screens covering every surface; waiting to be activated by users.




Site Plan

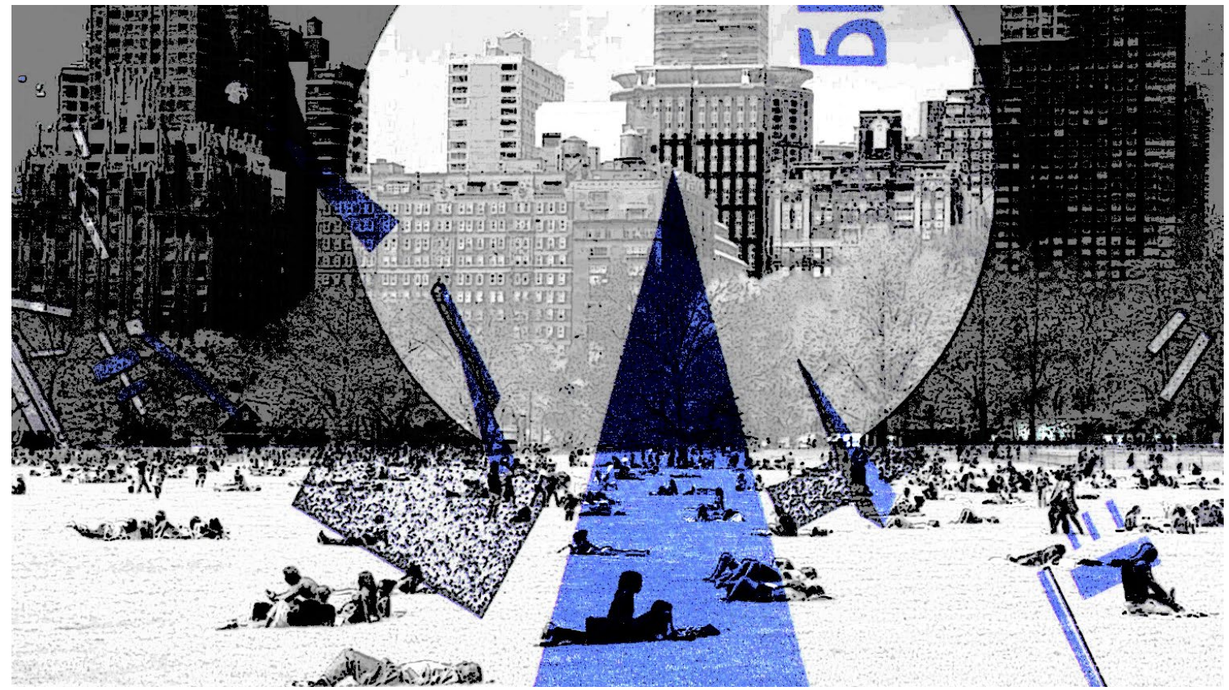
The new proposed superstructure will cover Central Park in its entirety.

It takes the form of a flat box with 3 levels, each level composed of identical rooms arranged in a 13x63 grid, dividing the rectangular site equally.

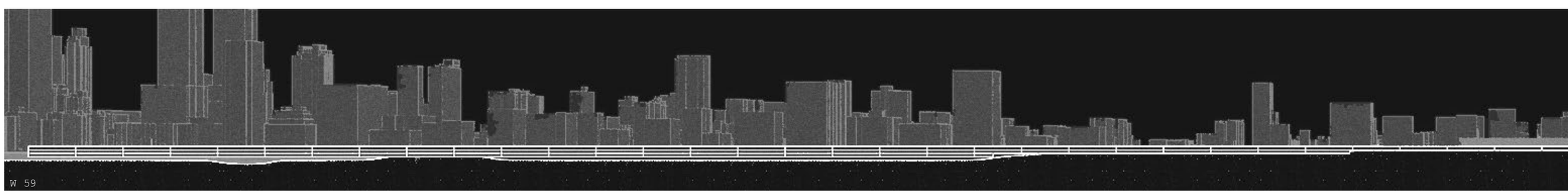
Hooverville, Central Park, 1930-1935.

Sheep Meadow, Central Park, circa late 19th century.

Central Park: synthetically crafted nature; an unequivocal space of leisure intersecting with the world of labor; a conundrum of dwelling and ownership.

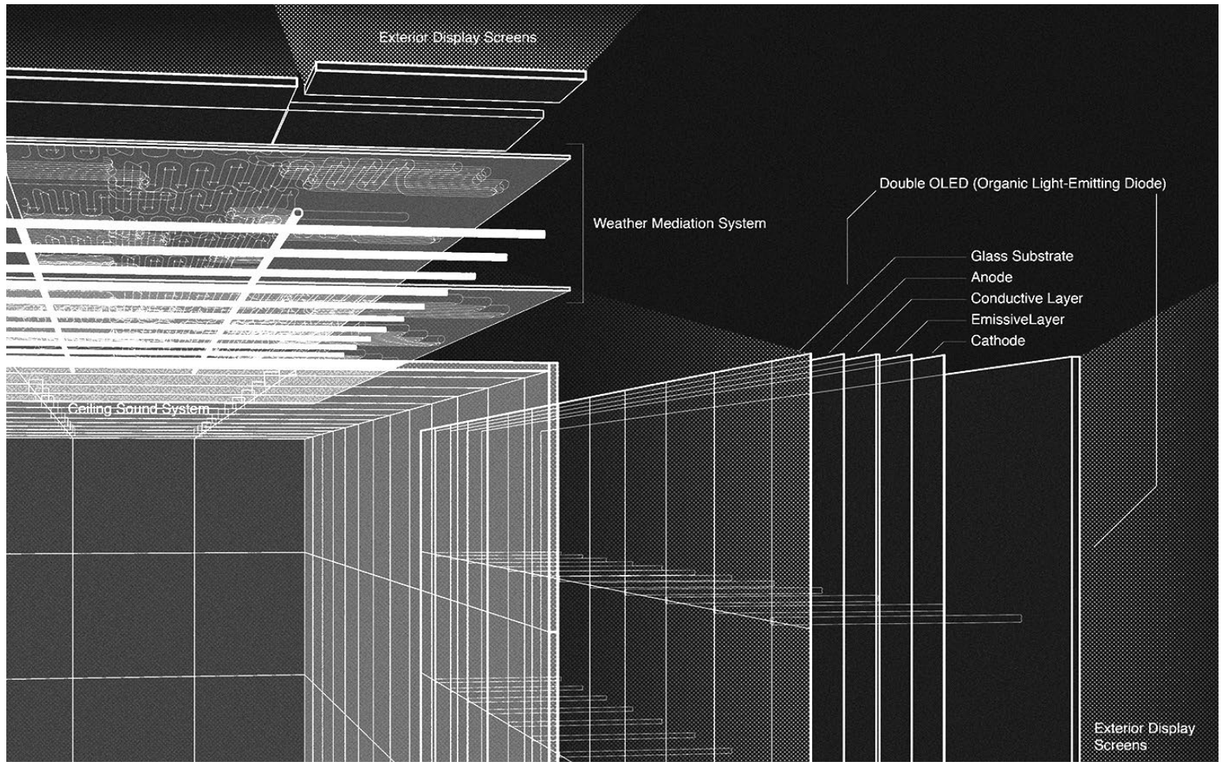


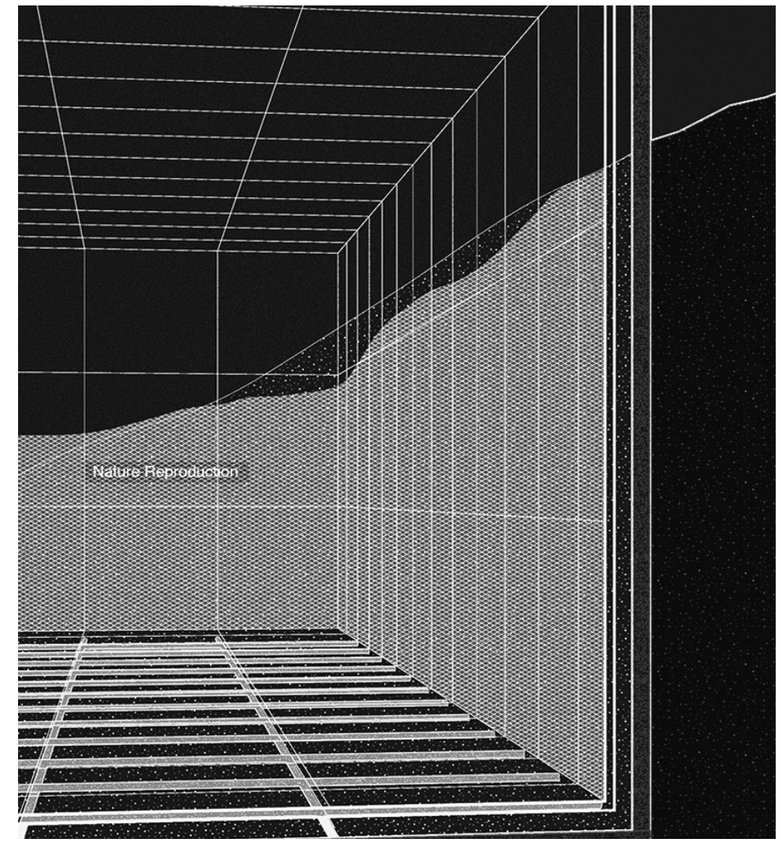
Ref: El Lissitzky. (1919). *Beat the Whites with the Red Wedge*.

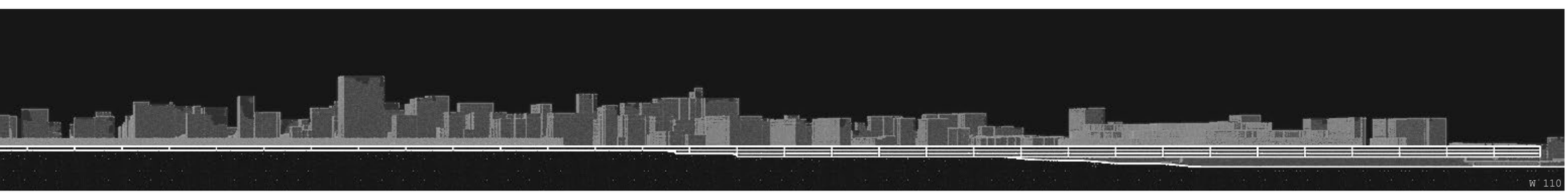


The gridded Cartesian structure ensures the homogeneity of space, creating a new landscape, a flattened terrain, a mediated horizon.

Nature is preserved in virtual forms; and in such forms, people will find leisure.







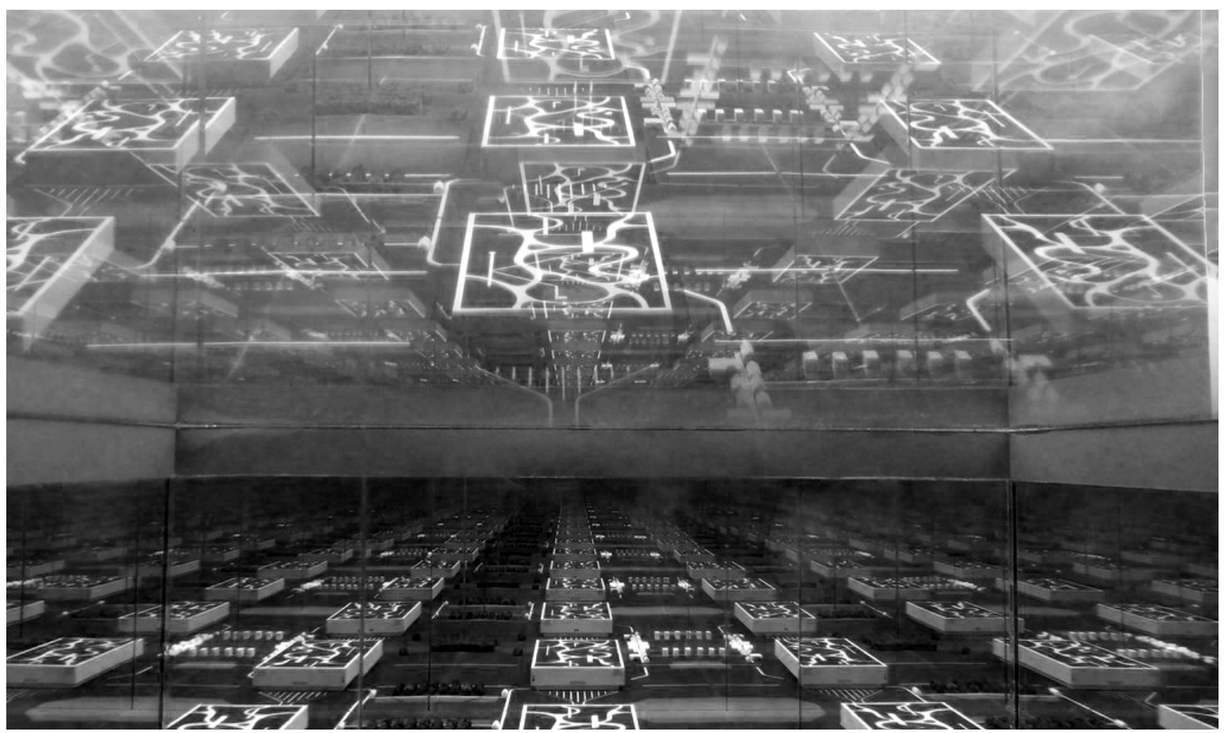
A technological upgrade from the synthetic nature that had been Central Park.

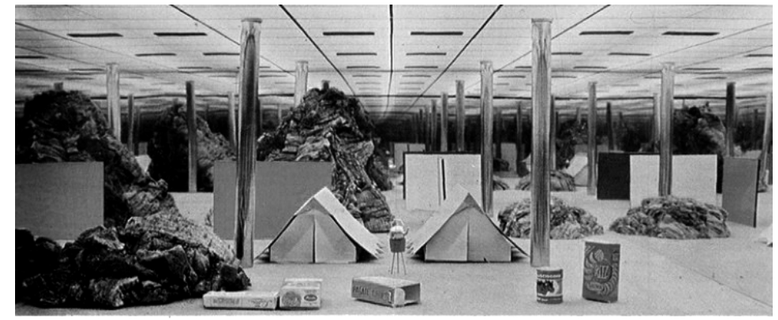
NEW WORLD ENTERTAINMENT

[GENEALOGY]

NWE is a cultural critique in the form of a hyperbolic satire.
Technology begins to augment sensorium and reality.

Our contemporary lifestyle is transformed by technological advancement; and though technology is an apparatus external to the physical body, it begins to augment the way the physical body experiences time, space, and reality.





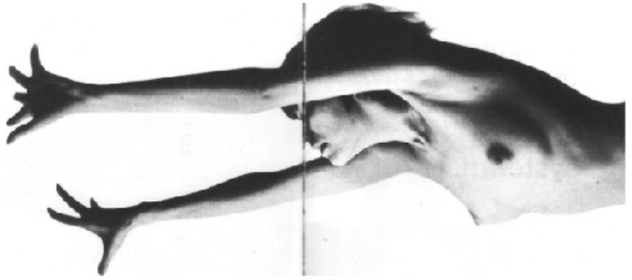
In No-Stop City, Branzi manipulates the stylistic geometries and forms of modernism to create catatonic spaces. In exaggerating the expansive scales and repetitive forms of architectural archetypes such as factories, he curates a world of endless genericism.

Branzi holds to the follies of the century's new obsession: the prevalence of consumerism and the popularization of modernism. No-Stop City problematizes modernism, a stylistic ideology shaped by the ever-increasing productivity and homogeneity.

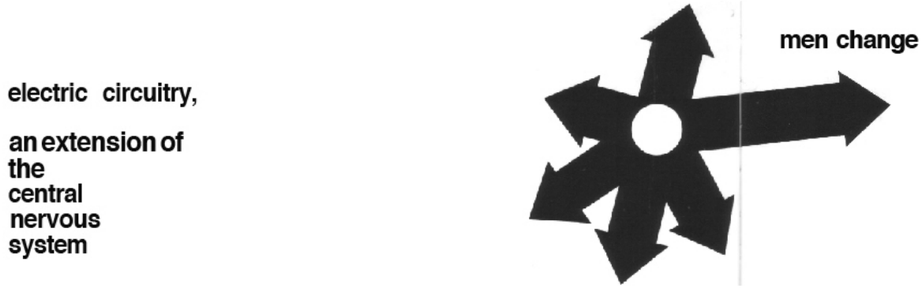
Ref: Branzi, A. (2006). *No-Stop City: Archizoom associati*. Orléans: HYX.

A medium, or technological modality of production and dissemination, is embedded with a unique temporal/spatial manipulation that is inherent to a specific technique. Therefore, the specific content or aesthetic quality of the resulting product is not the message, but rather the technological process is the message. A technological process is external to the body, although the body may augment this process. When the result of a technological process creates a relationship to time/space/memory that alters lived reality and differs from the body's conception of them, the physical body is transformed. The technology is no longer wholly external. Rather, technology becomes an extension of the human body and human sensory perception.

Instead, all technology definitively connotes "progress." Technology can be manipulated for various purposes to uphold various ideological doctrines, but to completely void the agency of the medium is to believe that content or outcome is fully dependent. It grants the hierarchy of individuals over the machine, a common enlightenment doctrine; and enables ideology to be diffused.



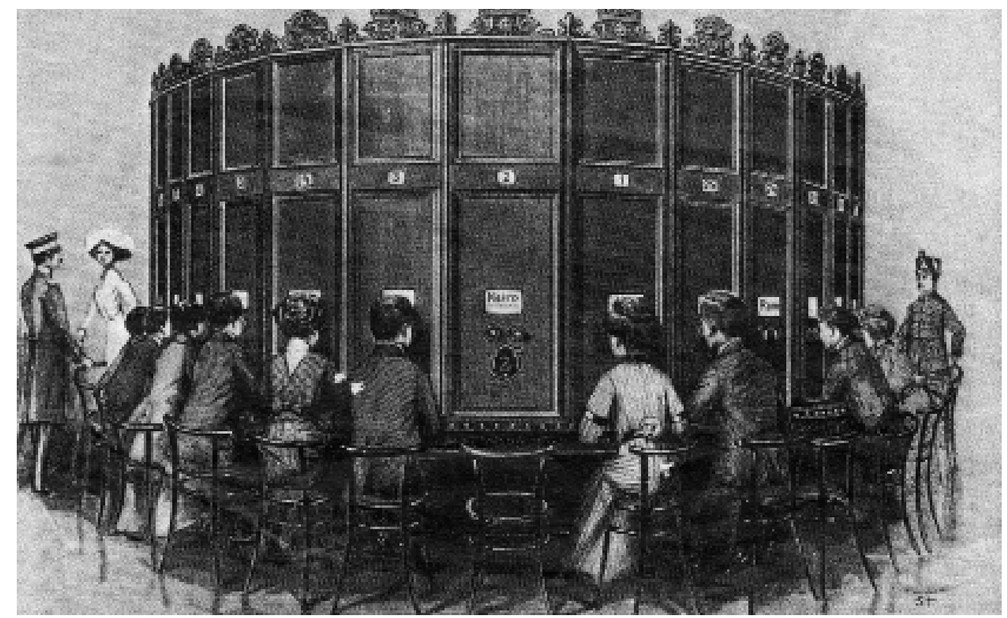
By asserting that the technology is neutral, it transforms the medium into a moral and individual issue; it becomes a way to sustain nationalism and hegemonic systems and create supposed moral hierarchies. If technology is "neutral", it suppresses a critique of capitalism and the ways technology alienates labor.



Ref: McLuhan, M. & Fiore, Q. (1967). *The medium is the massage*. Toronto: Random House.

Initially an unequivocal domain of spectacles, television has transformed into a compressed and synthesized process of global homogeneity. Television’s shift in function from a commodity-facilitating medium into a process of data communication correlates to new means of capitalist accumulation.

The power of mass media lies within the fact, that the creation of these machines has introduced a completely different scale to the world we live in. We communicate faster, calculate more accurately, produce more efficiently and travel further distances, in a dimension that was unimaginable before. The concerns for a totalitarian influence have started to take shape in our society, which reflects multiple facets of mass media.



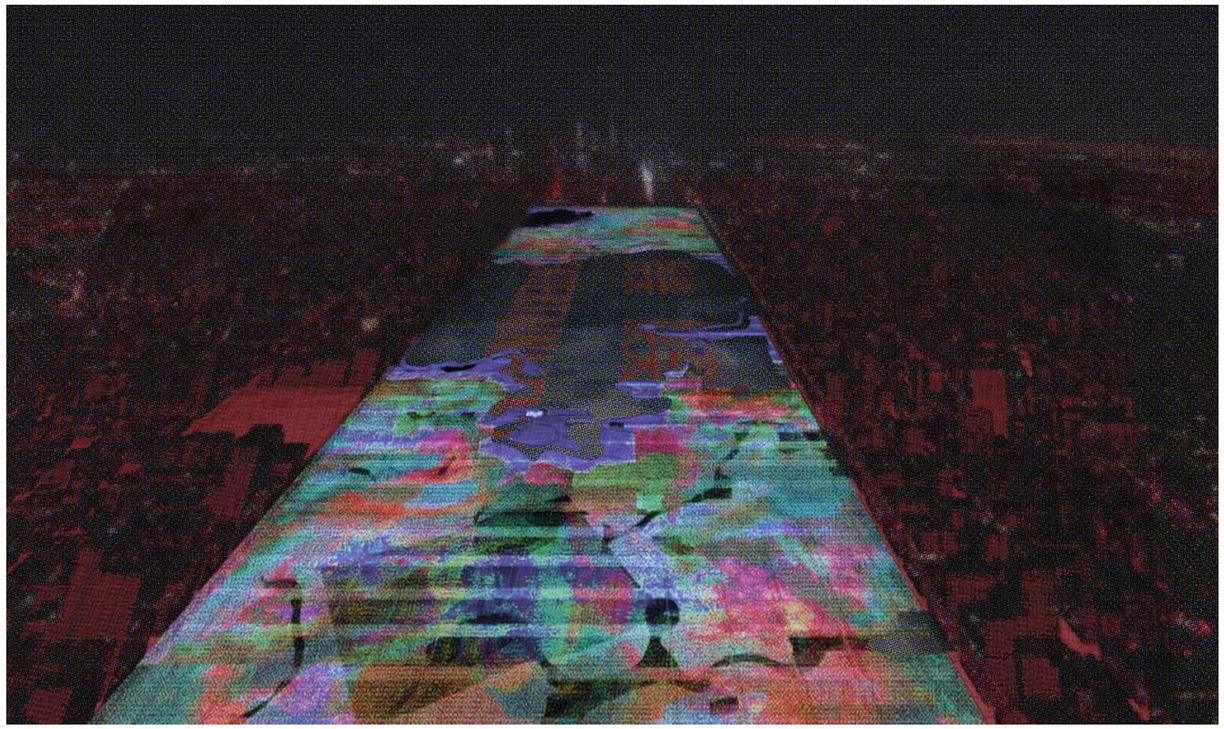
Ref: Crary, J. (2001). *Suspensions of perception: Attention, spectacle, and modern culture*. Cambridge, MA: MIT Press.

NEW WORLD ENTERTAINMENT

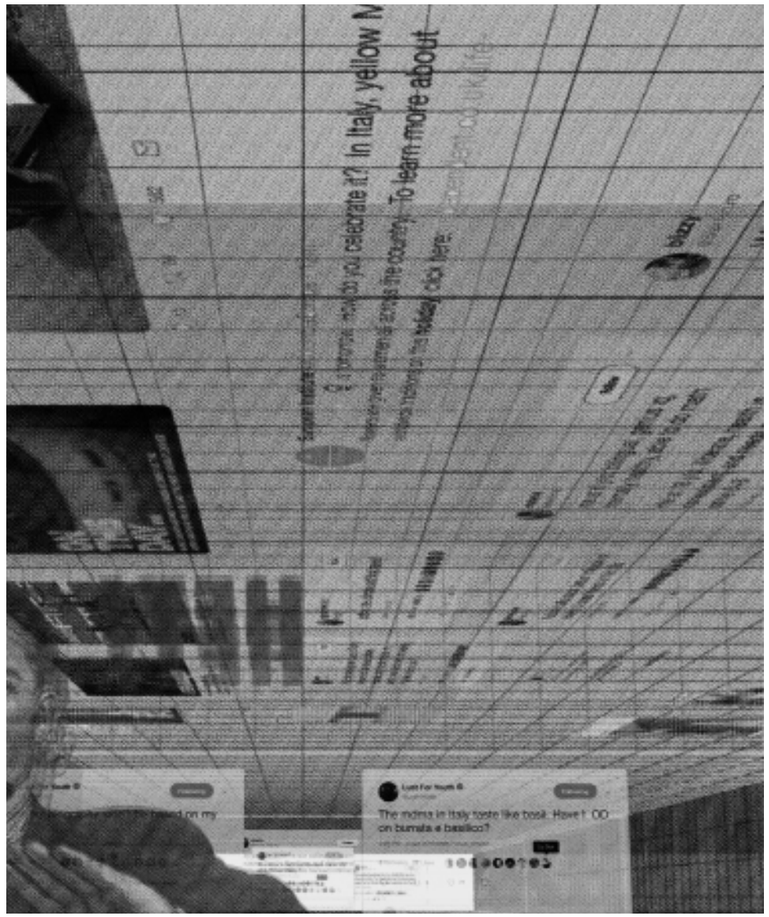
[MEMORANDA]

NWE is the manifestation of infinite pleasure in homogeneity.
Enjoy the colonization of techno-leisure.

The illusory pretense obscures the value of commodity and the established social hierarchy. It upholds homogeneity and would mediate any conflicts in material conditions and proprietorship.



The concepts of labor and leisure become hardly differentiable in a world without differences.
In a world free from material scarcity, economy is measured in the unit of pleasure.



With intentions, it can alter mankind’s inherent fear and desire; and all that have dominated their collective psychological cognition.

Digital apparatuses expand the capacity of human perception. Acquiring information is no longer an autonomous process, sometimes it’s hardly even an incentive. Screen becomes the main interface between the body and information networks, the primary instrument for education and entertainment. In this space of infinite freedom, you can communicate at full capacity.

Technology will further incarnate in the physical body, extracting material conditions from the external and preserving their virtual integrity, then project and alter the original.

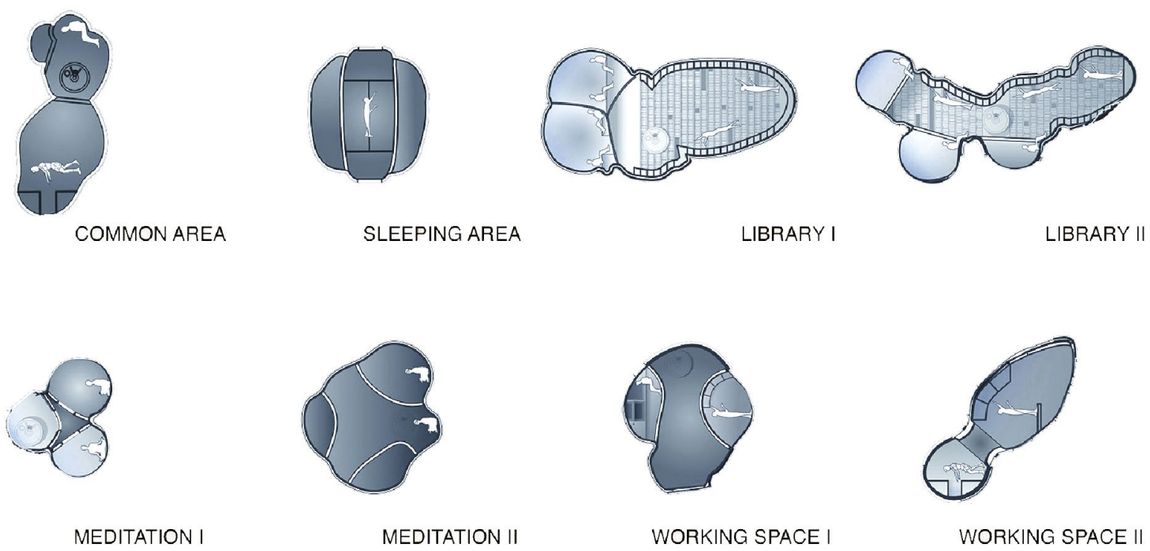
NASA X-HAB - IASO

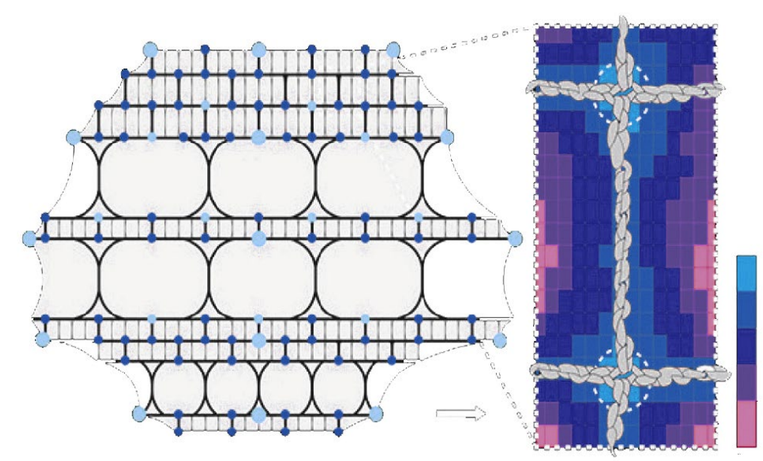
2018

Instructors: Michael Morris; Che-Wei Wang

IASO is a transit hub, a recovery and preparation center for space exploration missions. It is located on Phobos, moon of Mars. The transit hub aims to help crews of astronauts recover and prepare for missions on Mars; and their journey back to Earth.

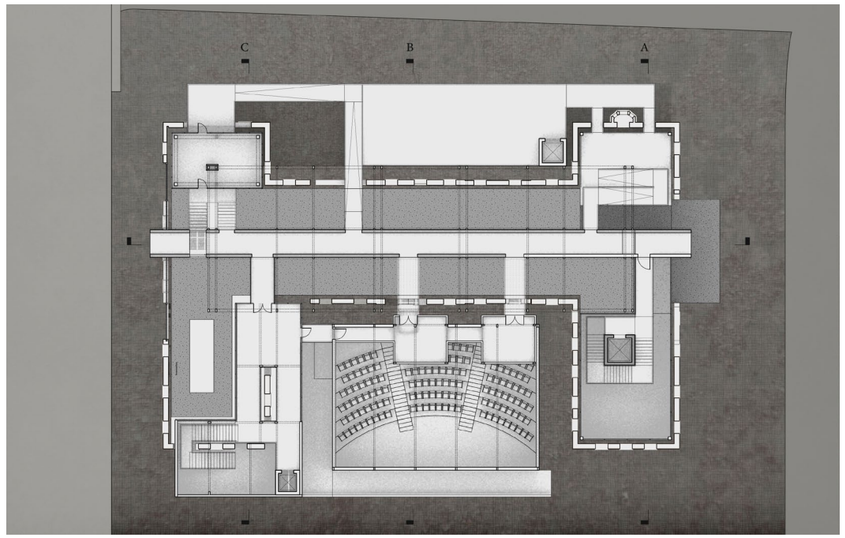
Modular structures of IASO allow for expansion in the future; it can host multiple mission crews simultaneously. The transit hub is formed by an aggregation of inflatable modules that host community activities.

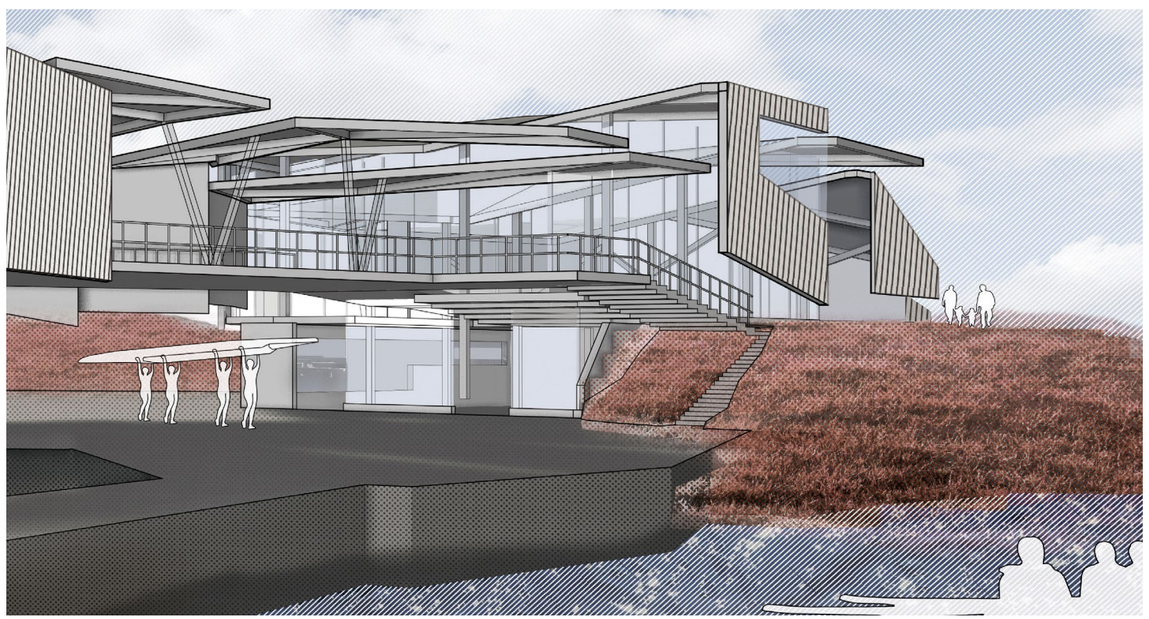


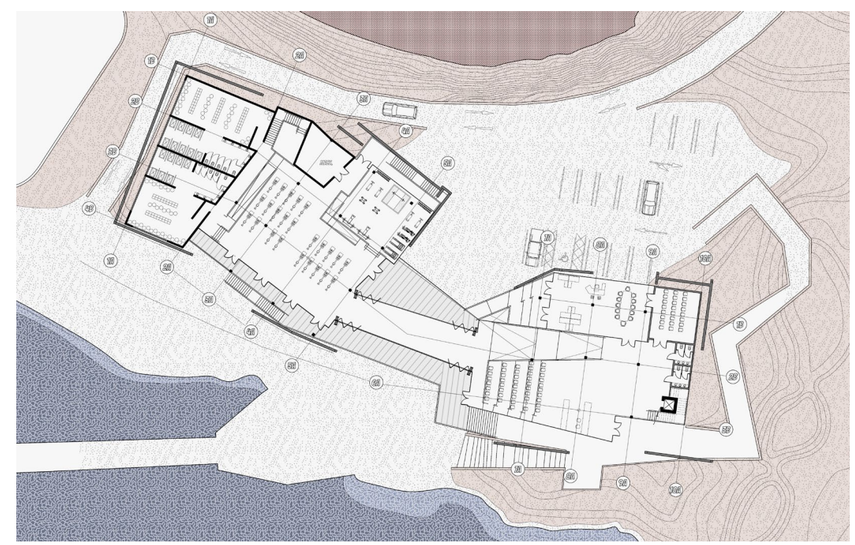


RENWICK HOSPITAL MEMORIAL

2018





COLUMBIA ROWING FACILITY

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