GSAPP PORTFOLIO
Nan Wei
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The Expected Unexpected

“...as an intentional repetitive grid generating unexpected effects. A series of spaces unique to the architecture school.”
Unexpected Mix of Typical Programs

The programs are mixed unexpectedly, therefore different combinations of programs can activate diversity of student’s ideas.

Adaptability

A flexible and sizeable experimental lab brings the proportion and perspective of the human body back to architectural education. Students will therefore gain understanding and enlightenment by seeing and touching directly.

Preservation and Insertion

The site is located in the IRT powerhouse, a history building occupying a typical NYC block.

Self-exploration

The architectural education relies on self-exploration. Every student will have unexpected development in this procedure. Therefore, the studios are interspersed with typical programs, and arranged to meet the different needs in self-exploration procedures.
There are two different typologies applied: The expected rules are constituted by a series of grids, arranged in a 3D matrix. The adaptive space is a sphere split into serials of movable pieces.

Tyology - Sphere

The expected rules of grids divided the sphere into movable pieces for Experiment Lab to adapt diverse activities in future.

Tyology - Blocks

In every block, the stepping typology allows programs to share the same space and interact directly with the studio and the education. The way students will use it is diverse.

The expected rules are constituted by a series of grids. Besides, aparting from the general layer, we bring the grids from 2D into a 3D matrix.
The movements are primary constituted by 2 elements: A series of Joints between blocks to engage the grids to be a inseparable whole. A Ribbon connects the sphere to the in-between space of the matrix, guiding publics to the school.

Creating unexpected interactions within expected storylines makes movement complex and fun while still being convenient and

Responding to the contacts between floors in a typical block, we simply distributes multiple stairs between every two blocks for a easy vertical connections.
The challenge of preservation is how to revitalize the historical building without overly change it. We therefore encourage the school having a mutual relationship with the existing facade and the structure.
Data Landscape

MSAAD Summer Semester (Team of 2)
Instructor: Karla Rothstein
Project period: 2022.05 - 2022.08
Invisible Order

The heart and engine of the megacity is the data center, hiding in buildings where windows are covered, light is blocked, and human access is limited. The data center network is shown in this map where most of the data centers are in lower Manhattan where they're closer to the coast with undersea cables entering New York City.

To understand data transmission and transformation in the city, we investigate three urban orders that act as the front-end interfaces between human and data centers: urban programming, urban graffiti, and urban surveillance.

These orders closely influence our physical experiences in the city. While we carry out activities in the city and experience the physical world mostly through our vision, these orders express themselves in ways that are visually accessible to the human body. We think that their meaning and functions are achieved by visually perceived by human eyes.

Post-digital Public Space

We propose a new typology of data center acting as a post-digital public space that embraces human interactions and public activities. Data centers have long been the engine and backstage of the city. With the increasing use of internet, data storing and processing, the significance of the physical location of human bodies are challenged by the multi-dislocation of our virtual selves.

Data centers become the space that is most populated with our existence in virtuality while is also most absent of our existence in reality. Data technologies change the way we perceive information from using biological senses to machine-aid senses through all kinds of projection interfaces.
In total energy consumption of data centers, servers and cooling systems respectively take up 43 percent of the total energy consumption. The total annual energy consumed by cooling systems alone in the United States in 2020 are equivalent to the power usage of 70 billion standard US households, which is around 35 times the global population. The water usage is also enough to supply the entirety of global population.
Prototype: Streaming Machine

Thus, we’re proposing a new data center prototype called the Streaming Machine to redirect and reuse the water running through the data center’s cooling systems to serve public activities and entertainment/sports programs. On the City scale, the streaming machine is collecting the waste heat generated inside the data spines by different users crossing the city to serve varied programs in our building.

By utilizing the gravitational momentum of the water and the heat of the water, the building generates power of its own to reduce the urban energy burden, while processing the water for diverse municipal programs, public pools, deep diving, indoor skiing, hot springs, and water therapy. Water conditions and properties vary from program to program, creating different physiological effects to human bodies and setting up an intimate relationship between humans (bodies) and machines (servers) through water.

From the offline scale, Streaming Machine is situated on the Hudson River bank in south-east corner of Manhattan. From the online perspective, Streaming Machine is site-less and cohabited by the countless online communities in New York City.
Threshold between Online and Offline

Simultaneously the online users in the city and the on-site visitors are posing their effects on transforming the water landscape and live experience in the architecture. Here, water becomes the threshold and interface among online/digital activities happening in data servers and offline/public entertainment in urban environments.

Encouraging this symbiosis between online activities and in-person gatherings, the streaming machine allows people to become the creators of energy to revitalize offline gatherings after the pandemic and during the post-digital era. The more digital activities online, the more energy can serve the public space and the surrounding communities. Overall, the streaming machine performs as a constantly fluctuating environment that autonomously responds to the intensity level of online activities across the city and acts as the interface and threshold between online and offline.
From 1928 to 2023, the edge between Hudson river and the Queens is becoming sharper and sharper. The ecosystem of shoreline and the water front activities are disappearing. And the sharp edge is hiding publics from acknowledging the coming crisis of climate change.

To revitalize a resilience and productive shoreline, we want to bring markets and fish farms to the site and gathering people and other living species to the edge of city by creating a soft edge.

Fluctuating: the Living Market

Resilience & Productive Shoreline
The Fish Market is located at the connecting point of subway and ferry systems, truck routes and fish vessels.

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Ferry station

Fish Market

Subway station

Trucks

Storage

Fish Farm

Vessel from New Haven, New Port, Boston

Truck from Booth

LIE: Trucks from Long Island

The Fish Market is located at the connecting point of subway and ferry systems, truck routes and fish vessels.
Inspiring by the trip to Fish Market in Venice, the roof is slightly rotated and folded to shape the skyline view of Midtown Manhattan.

Also, the folded roof are slightly elevated at the north side to allow more softer indirect sunlight coming during avoiding the direct sunlight.
ARCHITECTURE CONCEPTS FROM 1968 TO THE PRESENT
Instructor: Bernard Tschumi

Critical Regionalism—Thermal Vals by Peter Zumthor

"Critical Regionalism seeks to complement our normative visual experience by readdressing the tactile range of human perceptions. In so doing, it endeavors to balance the priority according to the image and to counter the Western tendency to interpret the environment in exclusively perspectival terms."

-Kenneth Frampton

"...jagged mountains and the heading: 'The Vals Valley 80 Million Years Ago.' The ad hung on the wall of my studio for a long time...”Boulders standing in the water” as I recall, that was my remark about the first sketch for the baths, reproduced below. It became a driving force: stone and water.”

"The work on this space - we call it a meander - played a substantial role in shaping the blocks. But the blocks owe their shape not only to the spatial wishes that the meander had to fulfill. The bath is also conceived in terms of the blocks. Above all, as a construction. But also as a composition."

-Peter Zumthor

80 million years ago, the Valley was submerged underwater, creating a strong relationship between the rocks and water. This image served as the starting point for the design of Therme Vals, where rocks stand in water to create a unique and compelling bathing experience.

The design context for Therme Vals encompasses not only specific landscapes, materials, and historical backgrounds but also the memory of the intense pressure between water flow and rocks 80 million years ago. The relationship between water and rocks becomes the core concept of Therme Vals, recalling the pressure and penetration. The plan includes a group of scattered rocks that disperse from the side of the mountain based on different bathing programs. The top rock plates touch each other with tiny gaps, articulating a hidden grid system that builds a rhythm. The dense and tight structures between rock units vibrate with the penetration of water as it meanders through the rocks and flows out of the mountain, converging into the central pools.

Since the rock units are organized dispersedly, the circulations of Therme Vals are interwoven and multi-path, and the structure of this space is like fabric. The meandering space is a large, communal space for bath guests to walk around in. In this process, the elements of space gradually increase from one to four: starting with the mountain rocks, then moving on to the integration of water and rocks, followed by the entrance of natural light into the space, leading people outside, and finally, the distant mountain scenery comes into view.

Interestingly, the design of this space doesn’t seem like created for man, but people walk through a cave-like, meandering space formed over thousands of years of erosion. The path people traverse was once carved by water, and the scenery they see has also been witnessed by the water. In the process walking from one space to another, visitors are not isolated but accompanied by water. For example, to enter the central pool, guests go through a narrow staircase into the pool, and they gradually sink into the water. In this process, the viewpoint of the visitors approaches the ground level as the pool deepens, and the space is experienced in a totally different way. After turning the corner, the scenes suddenly open up: the mountains, clouds, water, and rocks come into view, all while visitors are submerged in the water, looking up at the scenes of the entire valley.

Water in Therme Vals guides visitors through the experience of recalling memories of 80 million years ago when the water had been. The tension between the pressure of the mountain and the penetration of water is depicted throughout the journey, dissipating pressure constantly. From the mountain to the outside, from narrow to open, from the cave to the pool, from darkness to light, from modern times to ancient.
The space gradually reveals elements of rocks, water, light, and the valley. The tension between rocks and water dissipates as visitors are guided through the experience of recalling memories of the past.
THE HISTORY OF ARCH THEORY
Instructor: Mark Wigley

Theory Analysis

THE EYES OF THE SKIN
ARCHITECTURE AND SENSE
By Juhani Pallasmaa
RE-THINKING BIM
Instructor: Joseph Brennan
Steven Holl’s City of the Ocean

Steven Holl’s City of the Ocean project is a good reference for Hudson Yards because of its innovative spatial form and use of public space. The development is located in the French port city of Biarritz and is designed to be a sustainable mixed-use development that prioritizes public space and community engagement. In addition to its use of public space, the City of the Ocean project is also notable for its innovative spatial form. The development is designed to be navigable, with clear axes and sightlines that make it easy for people to move through the space. This makes the development more inviting and welcoming to visitors, and it also helps to create a sense of community and engagement.

Hudson Yards is a large-scale mixed-use development that includes a variety of commercial and public spaces. By prioritizing public space and creating a navigable, welcoming environment,
Rotation Revolution