

Preface

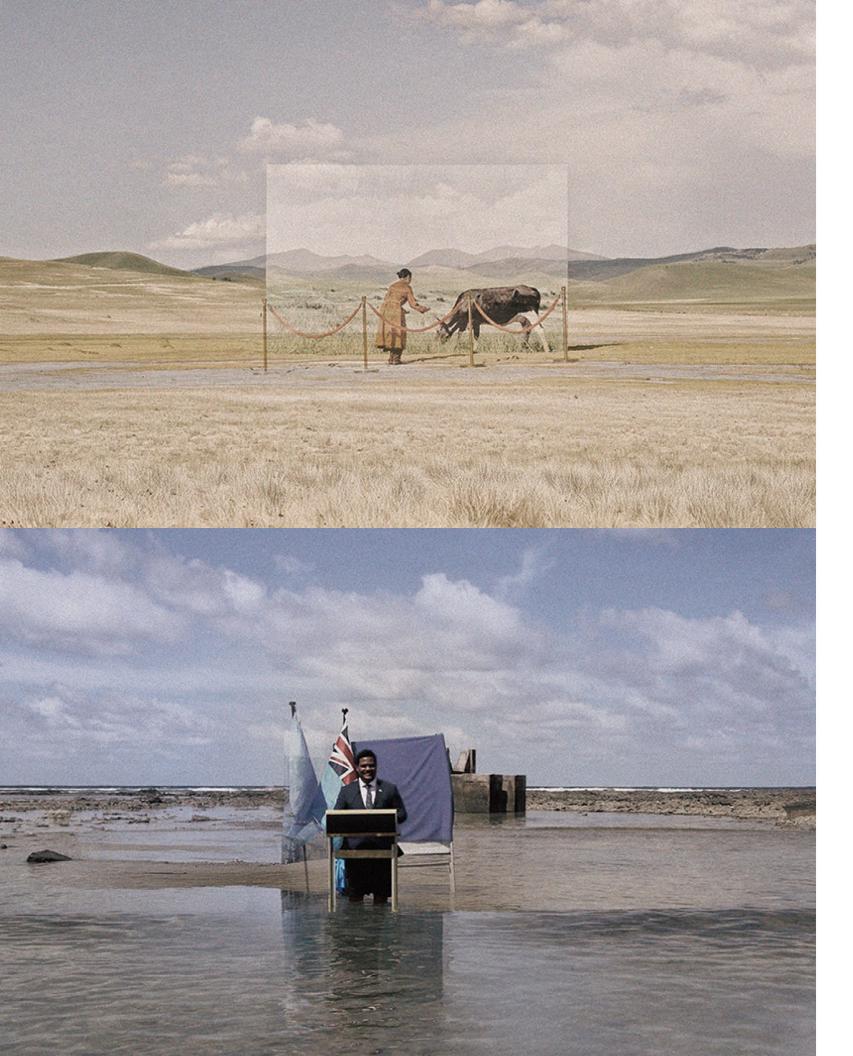
My year at Columbia was, above all, a study of layers. Some needed to be unfolded, others overlapped. At times, it felt like analyzing a literary text; at others, like a scientist carefully examining each cell, each process with precision. The unexpected layers hidden beneath a single event, or the surprising juxtaposition of two seemingly unrelated ones, were deeply engaging—but what captivated me most was the act of identifying, naming, and navigating these layers themselves.

Revisiting this journey while compiling my portfolio became an unexpectedly moving experience. From the summer that already feels distant to the spring that still feels unfinished, the narrative has never stopped flowing. I find myself wondering when, where, and in what form these moments might return to me in the future.

This portfolio holds stories that cannot be fully captured in a single book. Every moment at GSAPP was a challenge—whether I succeeded or fell short, I believe something invisible yet invaluable was added to me each time. I hope that someday, this will become a space to remember summer, fall, winter, and spring of 2024–2025.

I extend my deepest gratitude to the faculty, students, staff, and my family who shared and supported this journey over the past year.

Every Island is a Mountain Advanced Design Studio | 2024 Summer Mars 500, the Russia, China and European Space Agencies Transscalarities | 2024 Summer **Ten Seminars and Nine Assignments** 16 Architecture Concepts from 1968 to the Present | 2025 Spring 18 Whisper Field Advanced Design Studio | 2025 Spring PermaNest 30 Advanced Design Studio | 2024 Fall 42 Cloud The Outside In Project II | 2024 Fall 52 Re-"Making Studio" Generative Design 1 | 2025 Spring



O1 Every Island is a Mountain

Climates, Models, Images | Advanced Design Studio IV Professors: Marco Ferrari & Elise Misao Hunchuck Teaching Associate: Vaishnavi Chandra Kumar Partner: Junhyuk Kim

A mountain and an island. Mongolia and Tuvalu. Though vastly different in geography, both landscapes are considered principal sites of the amplified effects of the global climate crisis—rising sea levels overtaking islands, and desertification ravaging mountain plains. Increasingly, residents with nowhere to go are labeled climate refugees.

We began with two staged photographs depicting the current environmental crisis in each region. These images frame Mongolia and Tuvalu within the broader, often nameless "climate crisis," which—when unpacked—can be traced back to shared roots in colonization and imperialism. Colonization imposed static Western ideologies onto regions defined by movement and adaptation, disrupting ways of life and landscapes in ways that cannot be reversed.

Every Island is a Mountain is our response, composed of three elements: topographical models, a six-channel film, and two pairs of images. The models—at global, regional, and local scales—reveal that every island is a mountain beneath the sea, and every mountain is an island in the sky. The film, projected onto the models, narrates the parallel histories of Mongolia and Tuvalu, including their colonial pasts and forced modernizations under Soviet, British, and American control. Nomadic identities were redefined by colonizers to justify claims of terra nullius. Urbanization and infrastructure developed during colonization brought concentrated populations to regions with fluid soils and lifeways. Today, practices like cropland expansion in Mongolia and land reclamation in Tuvalu continue despite ecological unsuitability, exacerbating soil degradation and threatening habitability.

The collection includes four image sets for the past, one for the present, and one for the future. Together, they build a layered narrative of Mongolia and Tuvalu today and suggest speculative futures for these two separate but parallel places in the world.



Past, present and future. Tuvalu and Mongolia

This collection traces a visual narrative from past to future, showing how historical forces—such as colonization, sequentially shifting ways of life, and environmental change—shaped present-day Tuvalu and Mongolia. By layering these pasts, the work expands into a speculative future for these two parallel but distinct worlds.



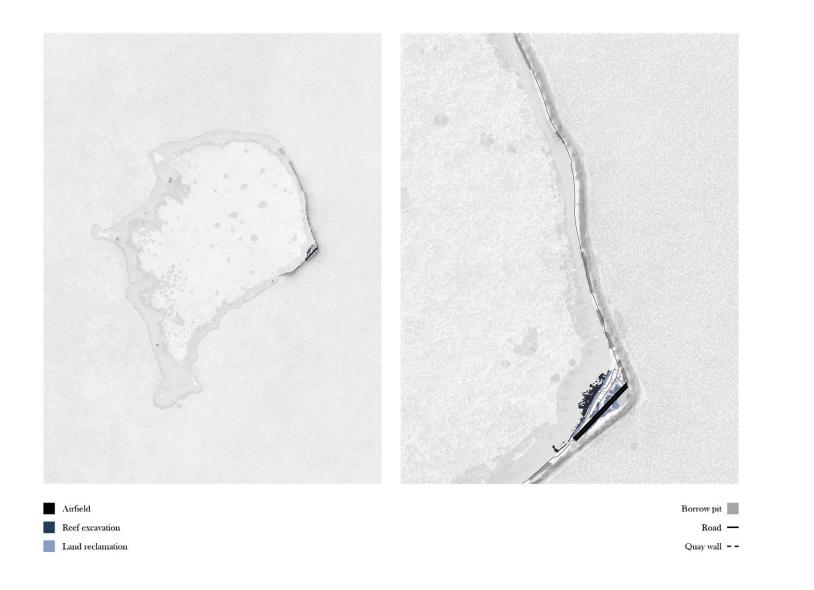


Colonization (1960-2024)

The Indigenous peoples of Tuvalu and Mongolia have historically been characterized by fluid lifestyles. Mongolians and Tuvaluans were often accused by their colonizers as practicing forms of nomadism in order to claim terra nullius. But the Mongolian people used to traverse vast expanses in response to the inherent volatility of their terrain. Similarly, the Tuvaluans exhibited migratory patterns across multiple islands in response to the fluid geographies of their environment.

However, the dominance of these two countries by superpowers resulted in significant shifts in the landscape. The Soviet Union maintained direct control over Mongolia from 1921 until its dissolution in 1992, with the objective of containing the influence of China and Japan. In 1941, the U.S. military constructed airfields in Tuvalu, a British colony, to impede Japan's rapid southward advancement during World War II.

Both the Soviet Union and United States constructed infrastructure which contributed to population concentration: in the 1960s, the Soviet Union embarked on a development initiative in Ulaanbaatar, encompassing the construction of roads and railways, as well as numerous apartment complexes catering to collective housing. In 1942, the United States constructed military facilities, including an airfield and naval bases for which a portion of the swamp and lagoon was reclaimed through the use of rubble from borrow pits, while reefs were excavated for the construction of ship passages.

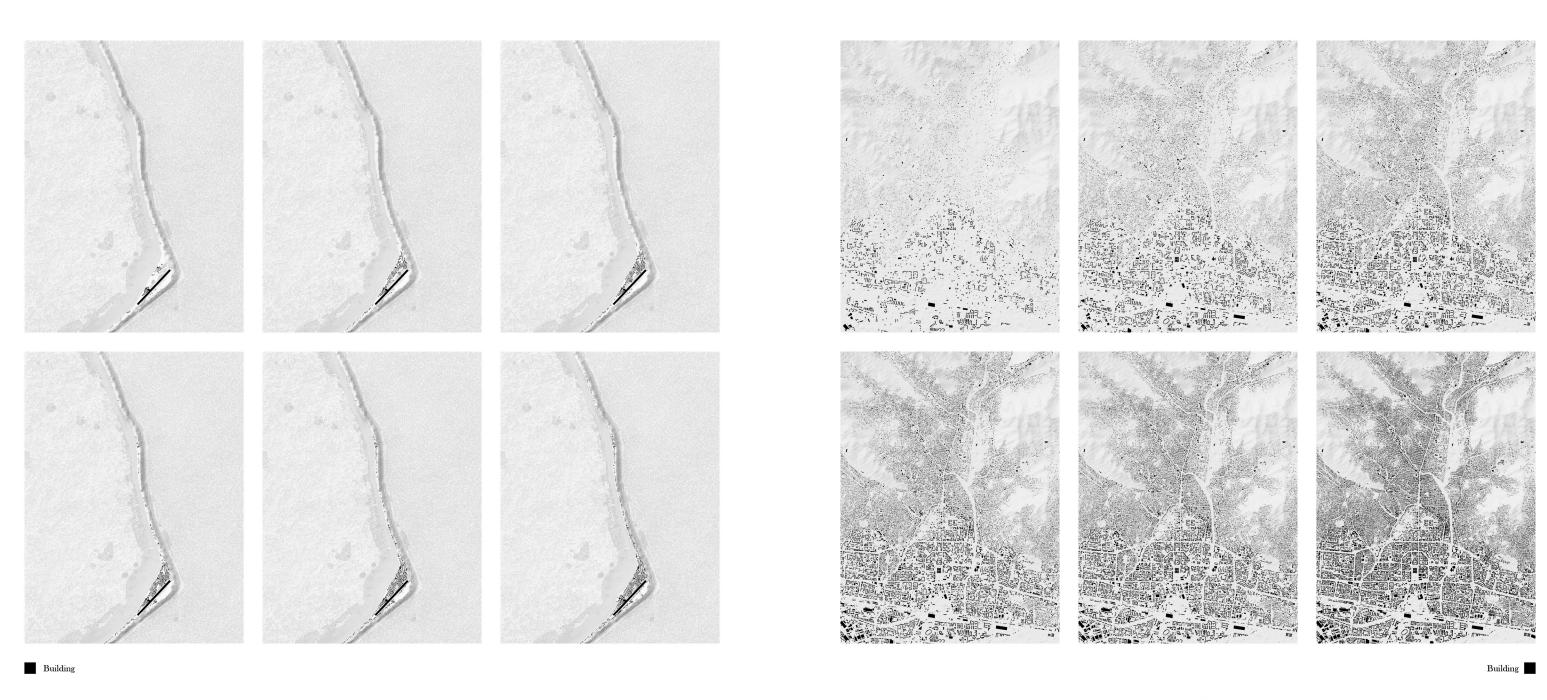




Tuvalu

Patterns of Settlement (1960-2024)

Colonization forced two populations into established settlements in specific locations. To promote the adoption of communism, individual Mongolians were gathered and resettled in one location. In Tuvalu, the concept of a modern "nation" and defined borders under British colonization hindered the development of mobile settlements. The Western private ownership model replaced the traditional clan-based land ownership structure.

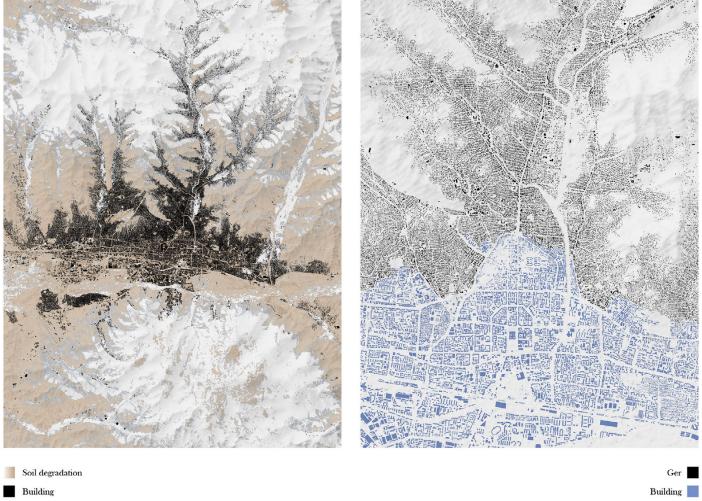


Tuvalu

Consequences of Settlement

Ulaanbaatar's residential neighborhoods are experiencing severe soil erosion and degradation, which presents a significant environmental challenge. In the heavily populated Fongafale region of Tuvalu, sedimentation processes have been disrupted, preventing the island from responding to natural changes. Furthermore, this pattern of settlement expansion is concentrating the population in areas that are considered insecure. The growth of unplanned ger districts results in significant and harmful air pollution due to the overuse of coal. In Tuvalu, formerly wetland areas are increasingly being developed for residential use, which increases the risk of flooding.





Tuvalu

02

Mars 500, the Russia, China and European Space Agencies

Transscalarities | AAD Required Professors: Andres Jaque Mentor: James Heard



1.Genta, G. Next stop mars: The why how, and when of human missions, 116 Cham, Switzerland: Springer, 2017. 2. Norberg, Carol. "Space Exploration." In Human spaceflight and exploration 154-158. Berlin: Springer, 2013. 3. "About 'Mars-500' Project." "mars-500" project. Accessed July 5, 2024. http://mars500.imbp.ru/en/about.html. 4. Basner, Mathias, David F. Dinges, Daniel Mollicone, Adrian Ecker, Christopher W. Jones, Eric C. Hyder, Adrian Di Antonio, et al. "Mars 520-D Mission Simulation Reveals Protracted Crew Hypokinesis and Alterations of Sleep Duration and Timing." Proceedings of the National Academy of Sciences 110, no. 7 (January 7, 2013): 2635-40. https:// doi.org/10.1073/pnas.1212646110.

5. "Mars Crew Emerge from 18-Month Mission That Never Left the Car Park." The Guardian, November 4, 2011. https://www.theguardian.com/science/2011/nov/04/mars-500-astronauts-emerge.

6. "Fake Mission to Mars Leaves Astronauts Spaced Out." The Guardian, Jan-

Science is often used as a performance to emphasize the capabilities and power of the state rather than to discover and solve real problems. The Mars 500 program, a simulation of a 520-day round-trip to Mars conducted by Russia, China, and ESA(European Space Agencies) between June 2010 and November 2011, is one of the most solid examples of this exploitation. The goal of the 10-million-dollar project was to determine the psychological and physiological effects on crew members during a mission to Mars which might negatively affect the goal of colonizing the planet. However, the experiment was merely about confining subjects within a limited space, without concrete relation to the voyage to Mars.

The program was held at the Russian Institute for Biomedical Problems in Moscow.2 For 520 days, the crew lived in a confined space with limited

communication with the outside world. The facility consisted of four hermetically sealed interconnected modules including a medical module, a habitat module, a utility module, and a simulator of a Mars landing module, and a module for simulating the Martian surface.2 During the experiment, most crew members experienced at least one of the following difficulties: impaired sleep quality, wakefulness deficits, and altered sleepwake cycles.

While the Mars 500 experiment aimed to recreate an authentic voyage to Mars, it left out several crucial factors. For instance, the program didn't consider the consequences of weightlessness, and potential radiation poisoning that could occur in space. Also, the simulation didn't address the fact that the length of the Martian day is longer than that of Earth by 0.65 hours a day. Considering the length of the project, this time difference might have considerably worsened the mental and physical health of participants.

Moreover, the conclusions of the simulation were relatively general; psychological support is vital, maintaining circadian entrainment, sleep quality and quantity, and optimal activity levels are important.4 Additionally, rather than providing a specific solution for a trip to Mars, these discoveries are being used to discuss how they can be applied to people working in similar isolated environments on Earth.

The same story is now repeating itself. In 2023, NASA launched CHAPEA mission, which was a replication of the Mars 500 project. The mission lasted 378 days in a confined 3D-printed space set up at the Johnson Space Center in Houston. The aim and limitation of the project are even similar: assessing human health and performance during the trip to Mars is the primary objective, and they 'won't be able to' test the radiation effect or reduced gravity. NASA stated that this mission will be informative for the Mars mission that might launch in the late 2030s or early 2040s, although the validity of the experiment and its clear objectives still remain elusive.

"Today, after a motionless trip of 520 days, I'm proud to prove, with my international crewmates, that a human journey to the red planet is feasible," said Romain Charles, a participant in the Mars 500 program.5 The Mars 500 project was not an actual preparation for migration to Mars. Rather, it was a performance to imply that the concept of 'exploring' and 'colonizing' Mars is feasible. After a decade, NASA's CHAPEA is working on the same simulation, as if the previous experiment never happened. Another millions of dollars are disappearing for a replication of the same performance.

com/science/2013/jan/07/fake-missionmars-astronauts-spaced-out. 7. "Neurobehavioral and Psychosocial Factors Team." NSBRI. Accessed July 22, 2024. http://www.nsbri.org/ SCIENCE-and-TECHNOLOGY/Neu robehavioral-and-Psychosocial-Factors/ index.html. 8. Wall, Mike, "NASA's 1st Year Long Mock Mars Mission Wraps up in Houston." Space.com, July 6, 2024. https://www.space.com/nasa-simulated-mars-mission-chapea-1-end. 9. Page, Thomas, "NASA Will Lock up Four Researchers for a Year in a Simulated Mars Habitat." CNN, May 16, 2023. https://www.cnn.com/2023/05/16 world/chapea-nasa-mars-analog-spc-scnintl/index.html.

10. "Chapea Mission 1." NASA, July

in-space/chapea/chapea-mission-1/.

10, 2024. https://www.nasa.gov/humans

uary 7, 2013. https://www.theguardian.

Ten Seminars and Nine Assignments

Architecture Concepts from 1968 to the Present | History & Theory cProfessors: Bernard Tschumi Teaching Associate: Emma Sumrow

The ten seminars and nine weekly assignments were not merely exercises in learning the architectural theories of a particular era; rather, they offered a critical framework through which to re-encounter these theories as someone living in the present. Though it was not required, I made a deliberate effort to articulate a clear position in each assignment, believing that neutrality and indifference are often separated by only a fine line. Yet, throughout the process, I came to understand that nothing is ever fully self-evident. No theory speaks solely the truth, nor is any theory entirely false. No theory applies universally, but neither is any theory entirely inapplicable. Interpreting these nuances through various case studies was a rich and intellectually engaging experience.

Among the many themes discussed, what captivated me most was the relationship between architecture and the non-architectural-between architects and non-architects. Architectural theories, often written from within the discipline, tend to generate a noticeable distance from lived reality. Navigating the tensions between the possibilities and discomforts that arise from this gap has long been part of what architectural theory attempts to do-and perhaps it is also the terrain we must continue to explore. While architectural theory increasingly takes on a kind of formal or conceptual sophistication, I believe there remains an urgent need to reflect on how such theory can truly engage with the lived realities of individuals in everyday life. Or should it? Perhaps we need more open dialogue about whether architectural theory must be accountable to the everyday, or whether its value lies elsewhere. This tension itself may be one of the most critical questions we, as both practitioners and thinkers, need to confront.

Architecture Concepts from 1968 to the Present | 2025 Spring



































05 Whisper Field

Climates, Models, Images | Advanced Design Studio VI Professors: Dr. Markus Miessen & Vaishnavi Chandra Kumar Teaching Associate: Eskinder Fekade Lakew Partner: Ka Heun Hyun

This study investigates how political expression is constrained and manifested within Korean communities in Seoul and New York from legal and spatial perspectives. It conducts an in-depth analysis of the relationship between "group size," "psychological barriers," and "free political speech" in New York.

Using the peak period of impeachment discussions against former President Yoon Suk-yeol in late 2024 as a case study, we analyze demonstrations held in Gwanghwamun, Seoul, and Manhattan's Koreatown, New York. In Seoul, the convergence of fixed infrastructures—stages, screens, tents installed by organizers—with participants' portable infrastructures—placards, light sticks, personal chairs, food trucks—enabled large-scale gatherings in which each participant's identity was vividly expressed throughout the space. In contrast, in New York, institutional and psychological constraints—precarious immigration status, fear of censorship, stigma within the community—limited demonstrations to small, sporadic events with significantly weakened sustainability.

Building on this, we ask: "How can a democratic platform for political expression be constituted in the New York context?" The Whisper Field project proposes a third space for expression by combining the physical form of a traditional payphone booth with the security of a VOIP system, allowing users to record, store, and replay messages within a secure network. Whereas traditional gatherings amplify voices outward and gather participants in one location, Whisper Field exchanges voices quietly over the network and disperses participants. This approach builds a secure communication network and expands the horizons of democratic dialogue by enabling free exchange among individuals with divergent opinions.

In a context where institutional and psychological constraints coexist, how can a democratic space for political expression be designed to enable dispersed individuals to safely exchange political opinions?

Freedom of Speech for Foreigners

On December 8, 2024, a Korean student at Columbia University shared a poster promoting a pro-impeachment rally in New York within a Korean students' group chat. The post was immediately deleted by the group administrator, sparking controversy. Some defended the deletion as an attempt to prevent conflict, while others criticized it as censorship. Four months after the incident, we find ourselves keenly aware of how risky political expression can be for foreign residents in the U.S. Even seemingly minor political statements can be construed as grounds for deportation.

To explore this question, we conducted interviews with four Korean residents in NY who had direct or indirect experiences related to the impeachment protests. Those who participated in the Seoul protests emphasized how the protests fostered mutual respect, and a strong sense of solidarity among like-minded individuals. In contrast, as seen in the Columbia group chat incident, Korean residents in New York demonstrated significant hesitation toward political expression. The New York protests, rather than aiming to inform the international community, primarily served as spaces for solidarity among those who already shared the same views. An interviewee who had participated in protests in Seoul but avoided doing so in New York mentioned that fear of political labeling within the tight-knit Korean community also acted as a significant barrier to political expression.

Korean graduate students might not be very active or might even be hostile towards such

Protest was

They seems like to alobal audience

Enjoy protesting because, unlike the polarizing nature of online spaces, protests offer real-time feedback and a sense of solidarity with likeminded individuals.

evelopment in the plaza, including that "people commonly introduce themselves based on their identities when speaking, and also strictly regulating inappropriate and non-inclusive speeches.

There is a lack of politically engaged spaces among NY Korean

She felt disconnected from conservative NY Korean communities, particularly church groups that often dominate community networks.

In physical protests, the fact that many people come together for the same purpose feels unfamiliar, but it also creates a sense of shared experience—and from that, a feeling of lidarity. "Also, there was a shared sense

that the atmosphere should not be t. There was also a strong resistance to

In New York, I didn't even know the protest was happening. I only heard about the arguments that broke out. I didn't know there was an open chatroom, and even if I had known, I would've felt hesitant to join as an international student.

Nowadays, people are too quick to

Even if I had known about the protest, I think I would've hesitated...There's the instability of my visa status, and the risk of being labeled is a bit

If complete privacy were guaranteed-if no one could know my political stance—then I think I could participate in a protest.

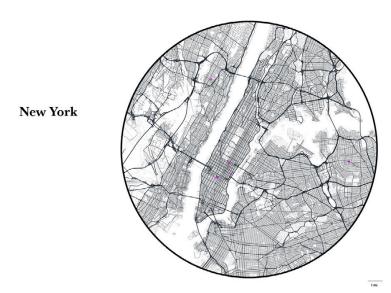
In the U.S., protesting goes beyond simply expressing an opinion; it serves as a symbol of

Korean-American community in New York

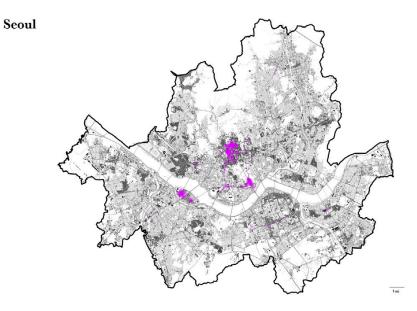
Korean-American community in New York is structured around separate activity-based communities, making it difficult to unite everyone

In December, many people joined the protests, resonating with the broader issue of opposing martial law. However, now even those with strong progressive views are shifting towards alternative forms of engagement, such as book discussion

There is a growing tendency to believe that raising one's voice in public is meaningless.



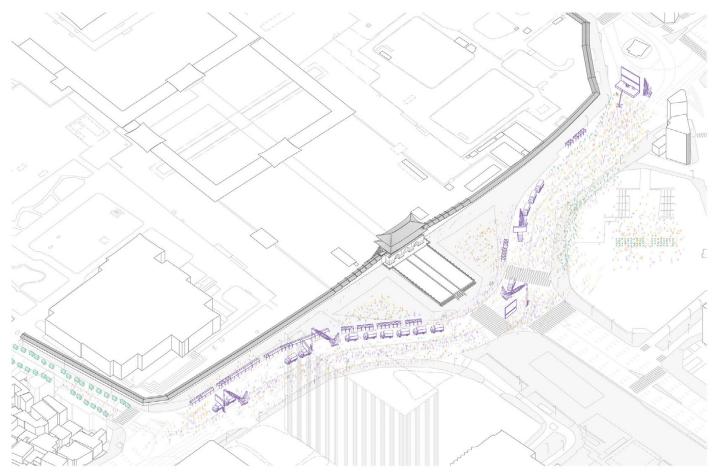




Size and Frequency of Demonstration for the impeachment

Interview Transcripts

At a protest in Gwanghwamun Plaza in Seoul, we observed a clear layering of infrastructures. Protesters occupied the road, erecting a main stage at the edge, where speeches and performances took place. Trucks equipped with screens and speakers, broadcasting equipment, and support tents were strategically (DDDD) placed throughout the site. At the same time, People such as foreign residents who couldn't attend the protest demonstrated their solidarity by sending food trucks to serve meals at the demonstration sites in Korea. Participants with family brought their own mobile setups like folding chairs and mats. They also expressed their identities through custom flags, and light sticks. People filled the space reacting to the infrastructure. And made the protest scene. An organic mass movement emerged, respecting roadways and public crossings, forming a literal belt of people across the city center.

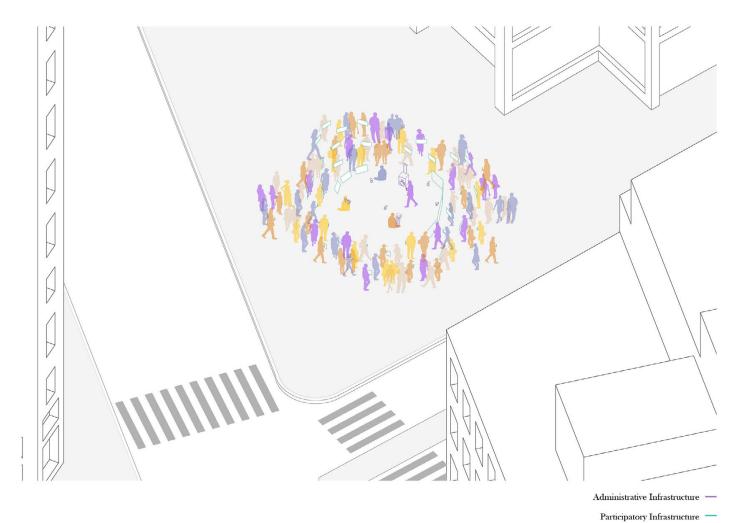


Administrative Infrastructure

Participatory Infrastructure

K-Town(2024)

In contrast, at the protest in Koreatown, New York, the gathering took a circular form, facing inward rather than extending linearly. The infrastructure was much smaller and informal: the stage was replaced with a microphone; professional cameras were replaced with smartphones. Although less elaborate and more ephemeral, the New York protests nevertheless were a medium for solidarity and expression, with extents and impact reaching as far as Seoul. However, since February 2025, no further protests related to Yoon's impeachment have taken place in Manhattan.



Seoul New York

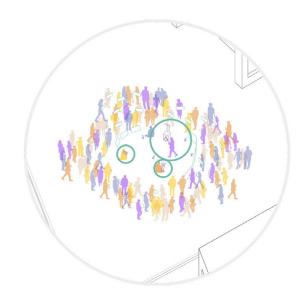
Size and Density in the Crowd

In political expression, numbers and density have always played a crucial role. Legal definitions reflect this—New York, for example, classifies gatherings of 20 or more as official demonstrations. The protest scenes we analyzed reveal similar patterns: both large and small infrastructures amplify sound to strengthen internal cohesion or attract new participants. However, high-density protests can also become discouraging depending on the social climate, and in societies with underlying closedness, such gatherings risk becoming more insular and less communicative with the outside.

(d) "Demonstration" shall mean a group activity including, but not limited to, a meeting, assembly, protest, rally or vigil, moving or otherwise, which involves the expression of views or grievances, involving more than 20 people.

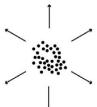
Definition of Demonstration in New York City Law





Devices for Spreading Information

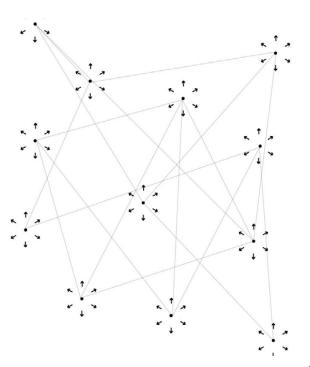
Historically, protests have relied on physical congregation to amplify the collective voice: Protest sets a physical site, bringing people together and create political momentum through density.





But what happens if the group disperses? What if two groups of 19 people gather separately, creating two distinct centers of influence?



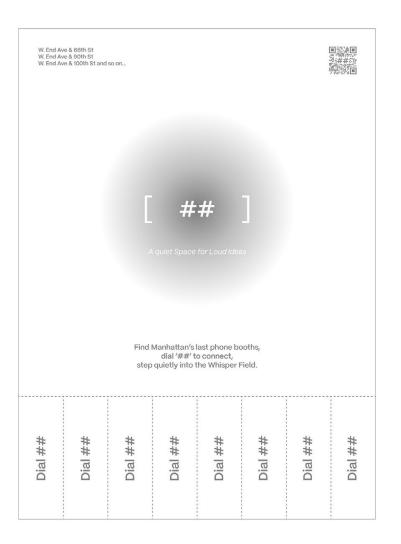


What if the group fragments even further — scattering individuals across the city? Rather than weakening the movement, What if this fragmentation could instead create a new kind of network one capable of linking separated individuals into a broader civic dialogue? Could a decentralized network of civic expressions rather than a single massive gathering — emerge?

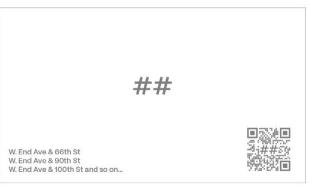
Spread of Whisper Field

Whisper Field proposes a networked model of political dialogue among dispersed individuals. Unlike traditional protests that emphasize physical concentration, Whisper Field invites individuals to speak privately into isolated booths — yet once recorded, their voices ripple across Manhattan, connecting with other Whisper Fields scattered throughout the city. It is not merely a system for transmitting messages, but a distributed platform that sustains a living conversation across distance and difference — enabling participants to exchange ideas, expand their sense of public space, and compose new forms of collective meaning.

We'll boost engagement by using analogue methods such as adding stickers to every booth, stocking mini business cards inside, and handing out city-wide flyers that point people to each booth. By blending curiosity with the playful fun of a treasure hunt, we can spark fresh momentum for political discourse—inviting more people to voice their views instead of merely accepting them.







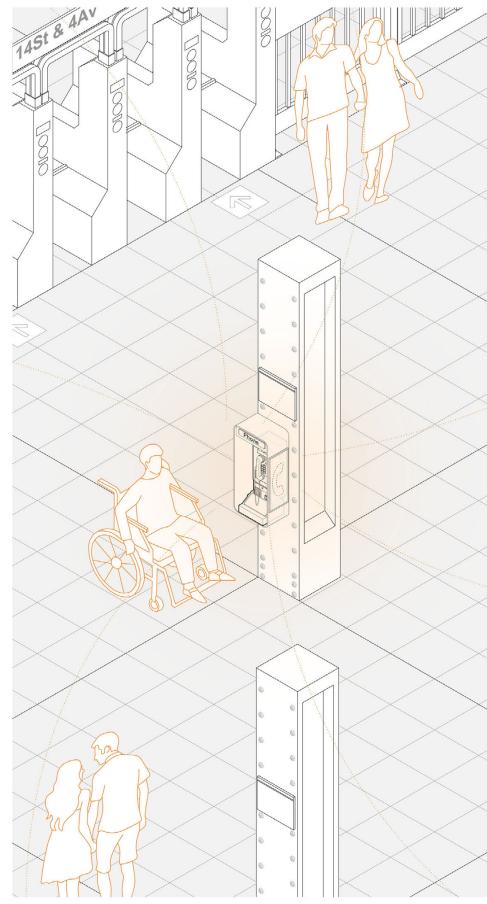








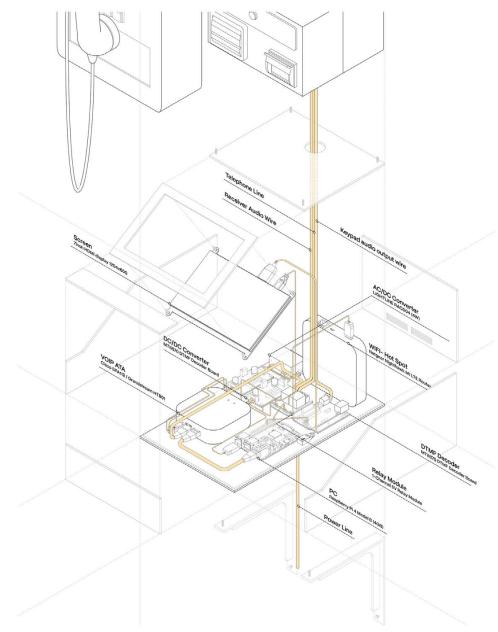






Whisper Fields in the City

Whisper Field attempts to embed a democratic vein of communication into already existing infrastructures within the city, in a way spatially engraving the 'right to freedom of expression' making it inherent to New York City's fabric. We propose Whisper Field as one possible pathway—creating Field of conversation which could span from general everyday topic to politically sharp topics. But the question 'How can we design democratic spaces where individuals can safely express political opinions' - is something that needs multiple solutions. We hope to generate more options through the multitude of voices that will speak through the field.





HOMING STUDIO | Advanced Design Studio V Professors: A.L. Hu Teaching Associate: Pietro Rosano

As a NYCHA housing complex, Fulton Houses embodies the rare concept of permanent housing in modern society, situated right in the heart of New York. Its residents remain rooted in their homes, creating a foundation for building a sustainable community. This enduring characteristic of Fulton Houses serves as the basis for reimagining what permanence can mean in today's ever-changing urban landscape.

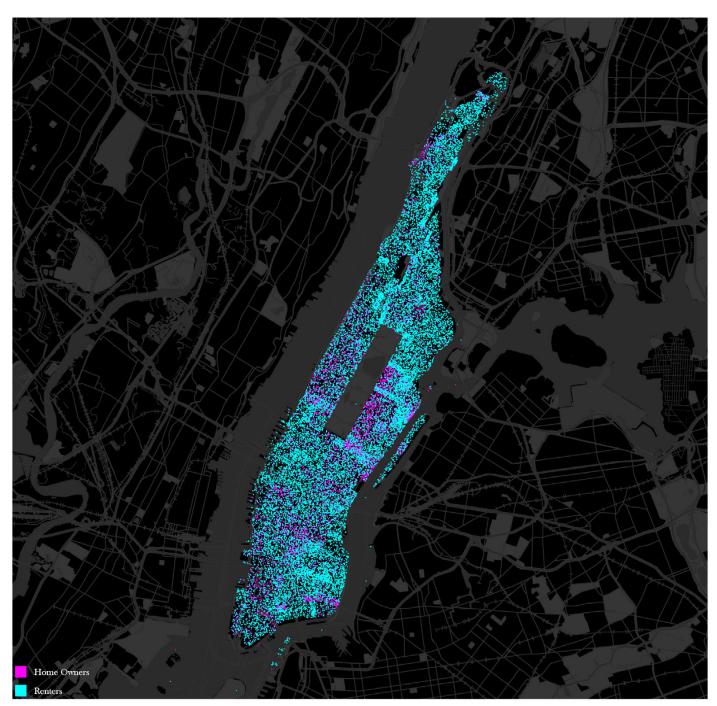
PermaNest questions what true permanent living means in current society where we rarely find such concept. Permanence is not about stagnation but about actively adapting and changing. Building an active community where diverse needs and changes can arise requires first establishing a stable community, which in turn demands spaces that allow informal relationships to form naturally. The various indoor and outdoor spaces in this project will provide the foundation for these relationships to form slowly yet securely. In the long term, these spaces might be used in more diverse ways, expanding from initially designed by the architect, responding to residents' needs and the changing times.



Consequences of Settlement

Traditionally, home is viewed as a permanent, private space that remains constant regardless of how far we extend our social activities. However, this sense of permanence is gradually disappearing due to capitalism, specifically due to the continuous fluctuations in land and property values.

In this context, NYCHA in current society serve as a unique community where residents can live almost permanently since they operate on a model where residents pay rent based on their income—30% of their income—as long as they qualify for the system. Therefore, they are shielded from fluctuations in the private rental market, creating a rare form of permanent housing with maintaining low housing prices. As a result, many who began living here decades ago are still here today, evidenced by the rapidly growing elderly population. As a new 'Permanent home' Fulton House is being renovated into a flexible campus that can adapt to change, featuring a wider range of programs and varying levels of privacy while maintaining a shared, adaptable environment.



True permanence is a flexible space that respects diversity. People, including residents, have diverse mindsets, and each era demands different needs. The ability to adapt to these is true permanence. Achieving this will allow Fulton House to have permanent home and community, not just for residents but also for the neighborhood.

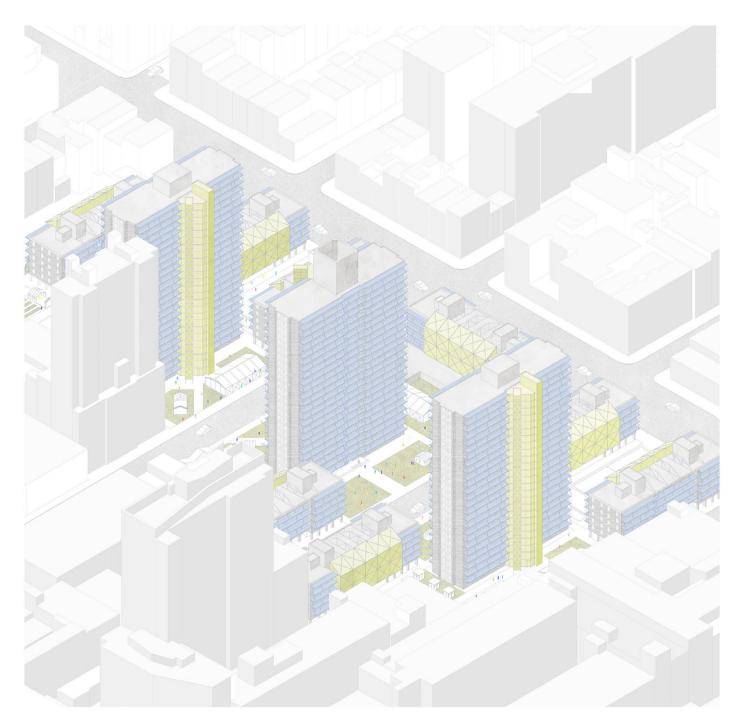
By maintaining individual units while introducing spaces with varying layers of openness and privacy both inside and outside the units, this approach increases the variety of spatial characteristics available for residents to choose from. At the same time, it creates the potential for long-term evolution into a collective living model, offering flexibility and adaptability to meet diverse needs.

Flexible Structure Set



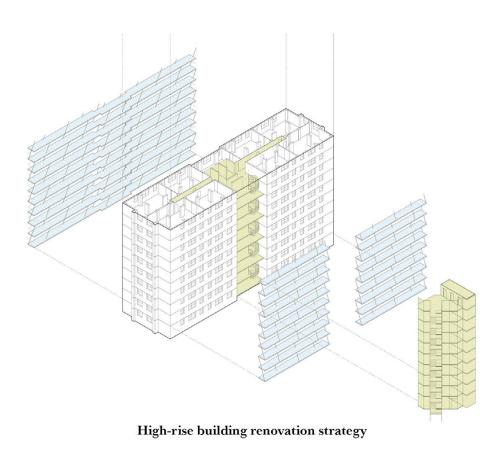


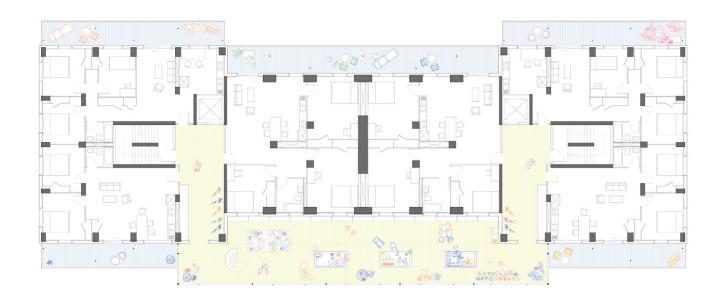
This integrated approach transforms Fulton Houses from a stagnant campus into a dynamic, connected community. Flexible indoor and outdoor spaces encourage informal relationships to develop naturally, laying the foundation for an active and resilient community. Over time, these spaces will evolve beyond the architect's initial design, adapting to the changing needs of residents and society. In redefining permanence, this project challenges the traditional notion of permanency as immobility. Permanence in the modern era is about active engagement and adaptability. By creating spaces that embrace diversity and change, Fulton Houses can become a model of true permanence-not just for its residents but as a living, evolving heart of Chelsea.- Underutilized spaces will host small private workspaces or mobile cabins that residents can reserve, promoting productivity and creativity within the community.



New Fulton House

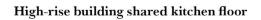
Low-rise building renovation strategy



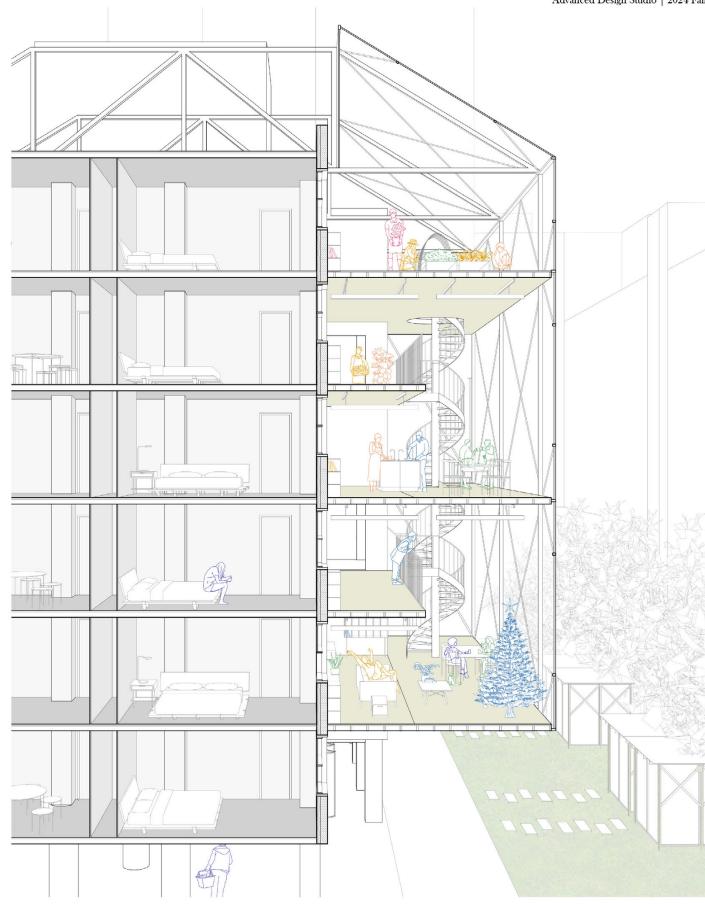


Low-rise building gardening floor

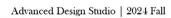




















The Outside In Project II | Building Science & Technology Elective Professors: Laurie Hawkinson & Galia Solomonoff Structural Engineer: Hubert Chang/Silman TA: Tristan Schendel

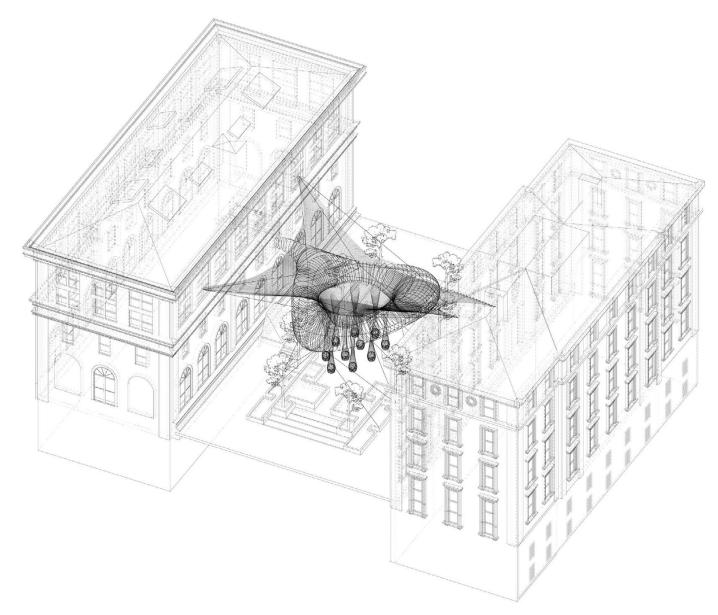
Cloud envisions a participatory experience that emphasizes the interconnectedness of peoples' actions in shared spaces. Stretched above the inflatable is a large net that positions seating within, which descends into the Plaza through the center, creating a device for people to modify and curate the space. Measuring 20 meters (66 feet) wide and suspended by 25 cables, this floating inflatable reframes the relationship between Avery Hall and Avery Plaza, questioning notions of connectivity between interior and exterior spaces. Powered by four electric blowers, the metallic form expands from the 400-level window and classroom, inviting visitors inside its contemplative interior and challenging boundaries of conditioned space.

The pavilion encourages playful interaction between people, their environment, and one another. The centerpiece of GSAPP's 2024 Open House on October 21, Cloud remained open until October 30, hosting various events and creating a provocation to bring the broader Columbia community and GSAPP together.



Design

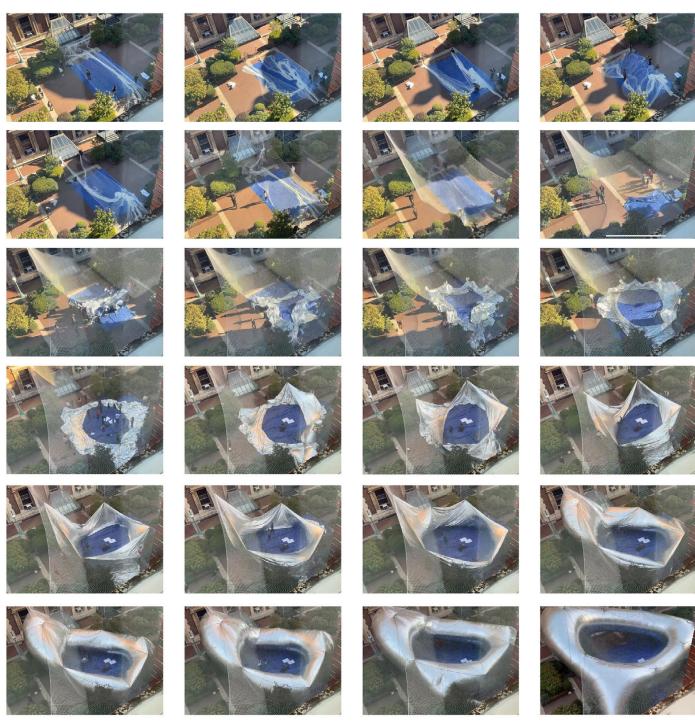
Avery Plaza—surrounded by Avery, Schermerhorn, Fayerweather, and St. Paul's Chapel—sits atop one of the world's largest architectural archives, embodying layered individual and collective knowledge. Emerging from Avery Hall, the inflated installation appears to burst with ideas, its floating halo hovering above the plaza to refract light, generate memory, and create a space of distinct value. This alien yet familiar form blurs the boundary between inside and outside, with its anthropomorphic and zoomorphic shape crafted from inorganic materials and visible sewing patterns. Suspended above, a soft, adaptable net symbolizes the invisible forces linking diverse disciplines, forming an interactive, spatial network. The final installation shapes a localized climate that merges the physical and social dimensions of the plaza, sparking new, interconnected ideas. As a realized translation of student aspirations—from concept to constructed object—it also serves as a pedagogical platform, teaching design-build practices, coordination, and intuitive decision-making.







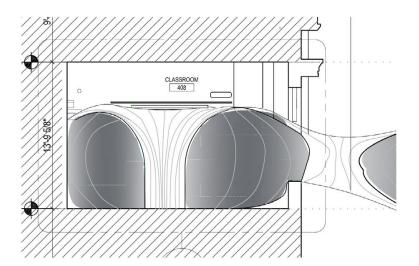
To install the Cloud pavilion at Avery Plaza, we began by laying out the large net piece on the ground, securing carabiners at the ends. These carabiners were then attached to ropes extending to both the Avery and Fayerweather buildings, allowing us to lift and suspend the net between them. Once positioned, we left the net with a gentle slack, providing flexibility for the installation. We then positioned the inflatable structure, Cloud, in its un-inflated state and attached a complex system of carabiners and ropes at connection points for structure and lifting. As we began inflating the pavilion, we simultaneously pulled the ropes, gradually elevating Cloud within the net, lifting it steadily into place. This synchronized process allowed the pavilion to gracefully take form, creating a suspended and solid, yet airy structure in the courtyard.

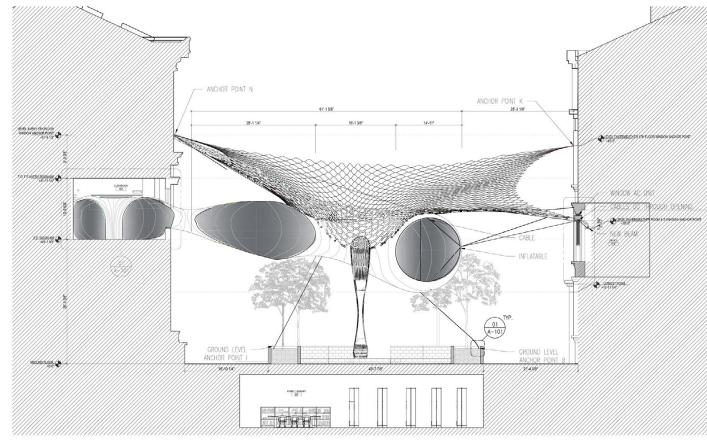




Room 408

Room 408 is the space created by the inflatable's invasion into the Avery building. Upon entering through the air-inflated silver doors, visitors can step inside the inflatable. In the air-filled space, a pillar in the center of the room not only holds the inflatable's shape, but also beautifully illuminates the dark room. Inside, the work of the 2023-2024 students is displayed on two projectors for GSAPP's Open House. An oculus in Room 408's window facilitates a connection between the Room 408 inflatable and the Cloud inflatable on the Plaza outside. The two parts are connected visually and materially, allowing visitors to occupy the inflatable and experience its materiality up close.











O7 Re-"Making Studio"

Generative Design 1 | Visual Studies, Computation Professors: Danil Nagy Teaching Associate: John Masataka Jiang Partners: Ka Heun Hyun, Junhyuk Kim

Re-"Making Studio" is a parametric design tool developed as part of the Generative Design course. Addressing the widespread issue of inefficient and potentially hazardous layouts in educational fabrication spaces, the project introduces a customizable Grasshopper-based system to optimize spatial arrangements of machines, desks, and trash bins.

The tool operates on a set of user-defined inputs, including room boundaries, exclusion zones (like doors and columns), machine dimensions, and safety spacing requirements. It uses these parameters to sequentially generate usable geometry, place machines along wall segments with appropriate clearance zones, and fill the remaining space with clustered desks and bins without causing collision or circulation issues. All key components—such as safe distances, desk clustering, and buffer zones—are controlled through adjustable sliders for flexible experimentation.

Initially implemented in Columbia's own Making Studio, the system produced improved spatial efficiency, safer machine placement, and structured desk distributions. Its adaptability was further demonstrated through application in the University at Buffalo's expanded fabrication lab, where it automatically generated multiple layout options based on the room's unique geometry and constraints.

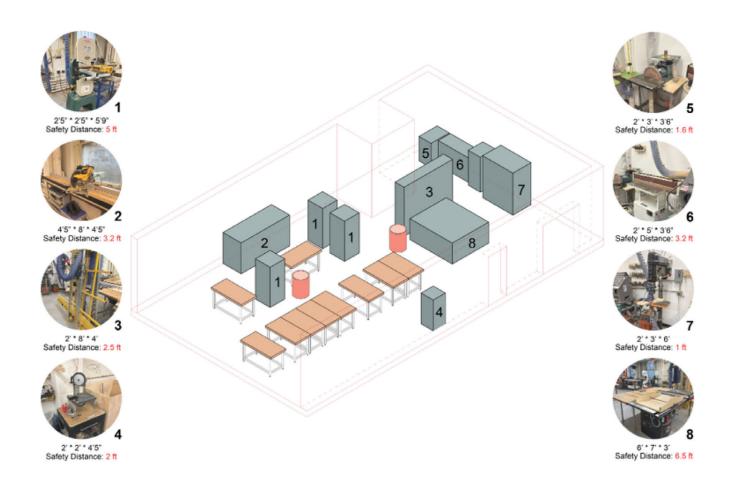
By blending computational logic with practical needs, Re-"Making Studio" offers a scalable solution for design-build classrooms, co-working spaces, and institutional workshops. The project exemplifies how parametric design and digital fabrication tools can address real-world spatial challenges through clear visual feedback, safety integration, and quick iteration.

Why Re-"Making Studio"?

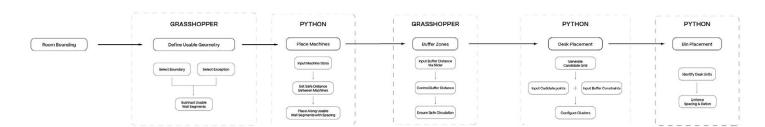
The Re-Making Studio project tackles a common issue in educational making studios: inefficient and potentially hazardous workspace layouts. This Grasshopper tool was developed to assist designers and administrators in optimizing machine and desk arrangements based on spatial constraints and safety considerations. Our primary testing ground was Columbia University's Making Studio, but the tool is designed to adapt to any fabrication labs.

Core Value Proposition

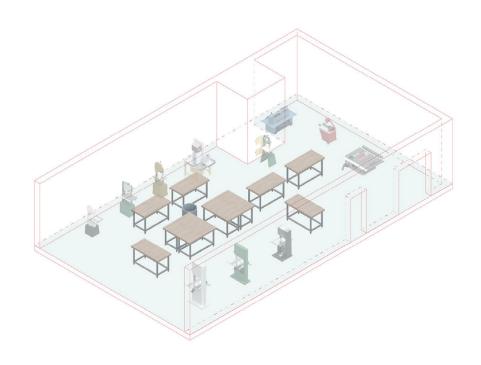
Student Safety: Ensures buffer zones around machines to prevent accidents.
Efficient Space Usage: Maximizes usable desk space without requiring room expansion.
Customizable and Scalable: Works with various room shapes and user-defined parameters.



Current Status of GSAPP Making Studio

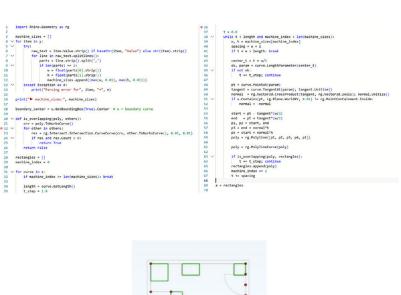


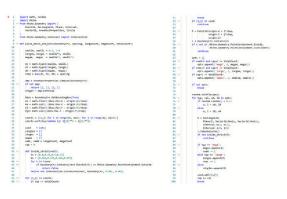
Programming Process

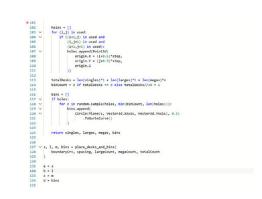


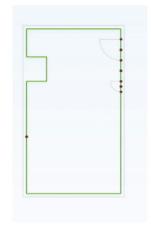
Possible optimization through Re-"Making Studio"

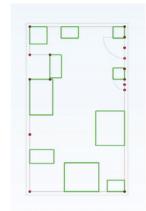
Grasshopper stream

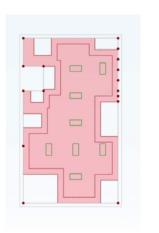


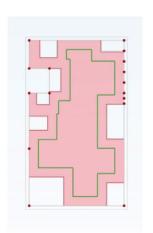


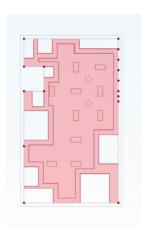


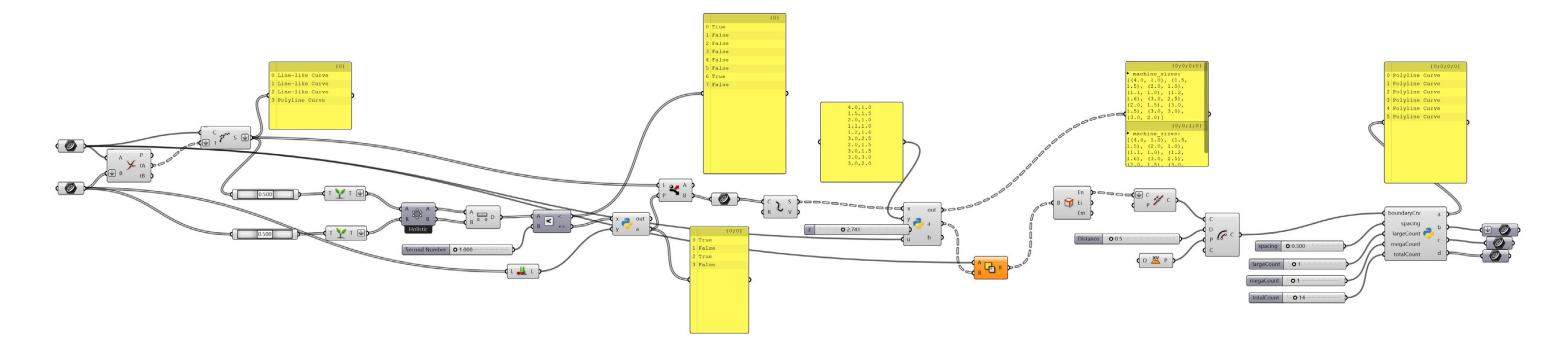






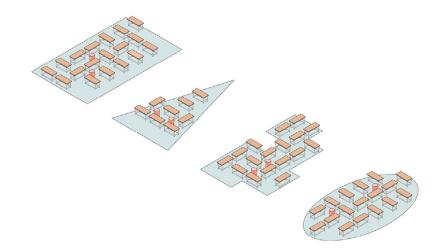


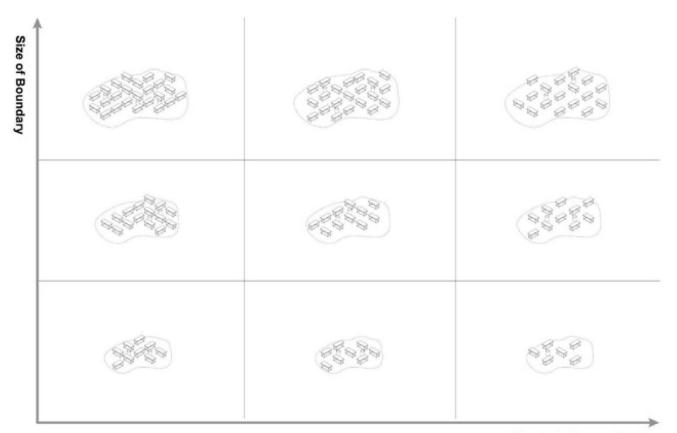




Cross-Institution Adaptability

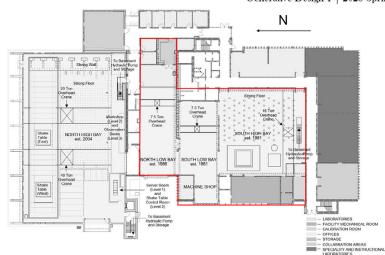
One of the most compelling aspects of this tool is its universal adaptability. The system functions with any user-defined room geometry and input parameters. The system's adaptability enables institutions with diverse spatial conditions to use the same parametric logic. The picture demonstrates how desks can be automatically positioned in any geometric space.



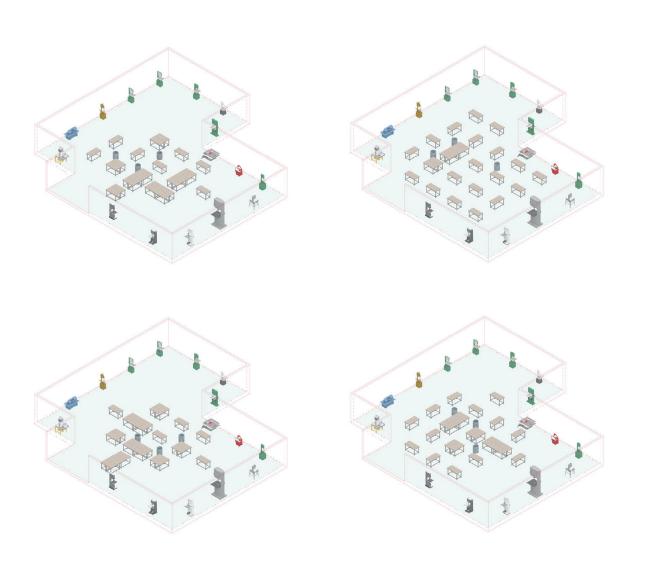


Spacing Between Desks

Generative Design 1 | 2025 Spring



Floor Plan of Fabrication Lab in the University



Adaptation for Fabrication Lab in the University at Buffalo

