Architecture is not an extension to life but life itself.

The story of Architectural Intervention within political challenges, environmental degradation, and social inequality.
Preface.

Architecture is a discipline that has always been intertwined with the environment in which it is placed. From the earliest human settlements to the towering skyscrapers of modern cities, architecture has shaped and been shaped by the natural world. However, in recent years, the impact of human activity on the environment has become increasingly apparent, with political challenges, climate change and the loss of biodiversity posing significant challenges for the future of our planet.

In response, architects have a critical role to play in mitigating and adapting to the effects of contemporary issues. They must consider not only the human users of their buildings but also the broader ecosystem in which they are situated. This includes a focus on the relationship between the built environment and nonhuman inhabitants, such as wildlife and plant life. It also involves the use of sustainable materials and construction techniques that minimize the carbon footprint of buildings and reduce waste.

This portfolio showcases the work of architects who are committed to creating architectural intervention and spaces that address the urgent challenges of human, environmental, and cultural resources while still meeting the needs of human users. Through innovative design solutions, these architects are demonstrating that it is possible to create sustainable and beautiful buildings that support biodiversity and improve the well-being of their occupants.

In these pages, you will find examples of projects that prioritize the use of technological design, renewable energy, non-human materials, and immaterial knowledge towards architectural design. You will also see designs that incorporate water treatment systems and other features that promote biodiversity and reduce the urban heat island effect.

By highlighting the intersection of architecture, environment, political issues, this portfolio aims to inspire and educate architects and designers to embrace a more sustainable and holistic approach to their work. The challenges we face in the coming years are significant, but by working together and prioritizing both the mental and physical health of our society we can create a better future for all.
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Detoxifying the Museum
To liberate the museum from nationalism - Being a place for distribution not collection

Our research into the Humboldt Forum centers around the intersection of chemical and cultural toxicity, used by the institution to control the objects in its collection and the cultures they belong to. In its current state, objects in the Humboldt Forum are frozen and decontextualized, stripped of their original meanings, and suspended from progress. We envision a different future for the Humboldt Forum, one where it becomes an active space for material restitution and community practices. The vast network of resources currently used to uphold the museum’s toxicity can be repurposed to support restitution and the surrounding processes instead. Our design studies have been guided by the history of the Luf Island boat that can become a lens for intervention. Through harmful chemical processes, the lost culture and knowledge of making artworks, and the confrontation of preservationist mentalities, we see these layers of toxicity as a gradient of material to immaterial intervention that can be translated into programmable spaces and transform the Humboldt Forum. Our approach involves blending machine and cultural spaces, with practices that focus on material restitution being supported primarily by nonhuman abilities and immaterial restitution being supported by spaces that facilitate human knowledge.
The decolonizing project started with the catalogue research consisting of artwork samples from the artists, an object within Humboldt Forum, and site issues analysis. We aim to find the connection between human immaterial and non-human materials to create a path to restitution. Through the concept of contemporary artwork, we have learnt the methods to reshape and re-imagine the future space for Humboldt Forum which is not only to serve the educational and cultural function, but also being a space to encourage art and knowledge restitution.

1. Humboldt Forum's internal space showing the contrast between modernity and built neutrality
2. Kiwanga's exhibition about "Toxicity"
3. The protestors against Humboldt Forum's construction
4. Image Synopsis for Non-Human's Contemporary artworks
5. Can’t Help Myself, Sun Yuan and Peng Yu
6. Image Synopsis for the term "Second Skin"
7. Image Synopsis for "Detoxication Process"
8. Soundsuits, Nick Cave
9. Sophiline Cheam-Shapiro was removed from the Met museum for dancing prayer to objects from her ancestral country of Cambodia
10. Luf Boat installation, Humboldt Forum 2023
11. Image Synopsis for site analysis
12. Luf’s people on the way to restitute their knowledge
Between Human and Non-human

From the sample research, we extract the main concept of “Second Skin” from Soundsuits, Nick Cave and “The boundary of Artspace” from Can’t Help Myself, Sun Yuan and Peng Yu.

Soundsuits

Nick Cave’s artwork blends maximalist joyful sculptures and performances with deeply meaningful commentaries on the American treatment of marginalized groups. Cave’s soundsuits are his most recognized works - originally conceived of as a kind of race-class-gender obscuring mechanism, the first one was crafted in direct response to the Rodney King murder in 1992. An articulation of his sense of vulnerability as a black man, the suits are both insulating and isolating, a protective shell that pushes the boundaries of visibility. The suits are almost always presented as context-less when photographed, as seen here – almost as if removed from reality. But when taken out to perform, the suits somehow become even more surreal, juxtaposed against intentionally ordinary settings.

Can’t Help Myself

The installation intends to evoke various interpretations. While the robot’s repetitive movement can be seen as a fruitless effort, or endless labor, or the violence resulting from surveilling and guarding border zones, it also calls my attention to the consequences and story behind the robot’s action. To sweep red liquid back into place, there are splashes, marks are left on the white floor/wall and cleaned glass wall. In this view, I see it as a sign of damage arising from the relationship between humans and robots under the terms of control, overcontrol, and out of control. Robot’s arm is fixed to the ground, causing the radius of red liquid to be controlled. However, the endless attempts to keep the boundary rendered uncontrollable damage by splashing beyond the perimeter directionless. Moreover, the smudges also define the border of artspace which relates to the audiences perception. They create the ambiguity of space, questioning what is the true boundary of art space. The boundary might be the radius of the robot’s arm, or the glass wall that creates a distance between robot and human, or the boundary is limitless.

Interweaving materials and immaterials

Although the detoxification of objects is still a new process, only beginning development in the last decade, its evolution will be imperative to safely reuniting these objects to the cultures they belong to. In order to emphasize the importance of material restitution, we need to challenge our assumptions about who are the key players in an art environment. This means destabilizing the traditional focus on artists and audiences, allowing us to recognize the potential of technology, such as detoxifying machinery, to support and enhance the artistic program of the space. And as some spaces center the machine, we may ask - what can the inhuman do that the human cannot? The objects in need of restitution can not be returned to people in their current toxic state, but technical processes may be the key in undoing this damage.

The objects in need of restitution must first be de-toxicified at the Humboldt Forum in order to be restituted, and thus re-animated. Machines are better suited for this interface than humans, and by drawing from Can’t help myself, we can de-center the human actors and re-frame the rules of the art space. The walls of the Humboldt become a permeable boundary, always awaiting objects to pass through them on the route to restitution. By this conceptualization of the art space, of what art can be and what the main actor in an art space is, perhaps research and restitution become the main actors in the Humboldt Forum.
Decomposition Field

Spaces of pedagogical experimentation, spaces of awareness and cultural reckoning. Spaces that center conversations and aim toward progress, creating plans of action led by the cultures with agency and claim to these objects. Some objects are not wanted back by their cultures of origin - perhaps once cleared of the pesticides that imposed a preservationist mentality upon them, these objects can be allowed to decompose. They may return to the earth, no longer someone’s possession to be contested. Perhaps they may even become life once again as plants born from new soil begin to overtake the Humboldt’s footprint. Other objects are in dire need of study, as the knowledge of creating them was stolen with the objects. The Luf people, for example, are no longer stewards of their own knowledge, and can no longer build the boats that once supported their lifestyle. This forces a collaborative effort to fill this cultural gap, requiring a space for the Luf people to probe into Humboldt’s resources.
Detoxification Lab

In order to emphasize the importance of material restitution, we need to challenge our assumptions about who are the key players in an art environment. This means destabilizing the traditional focus on artists and audiences, allowing us to recognize the potential of technology, such as detoxifying machinery, to support and enhance the artistic program of the space. And as some spaces center the machine, we may ask - what can the inhuman do that the human cannot? The objects in need of restitution cannot be returned to people in their current toxic state, but technical processes may be the key in undoing this damage. The Humboldt’s cavernous interior will be put to use as a machine space for the detoxifying and re-animating of objects. The walls of the museum will become a permeable boundary, always awaiting objects to pass through them on their journey to restitution.
And though these machine processes will likely be a necessary first step, they cannot address the variety of immaterial toxicities haunting these objects. We've done a series of experiments to help inform the way different materials cooperate, and through that pushed our understanding of the overlap of different detoxifying programs. The Humboldt Forum must be more than a machine for restituting objects in order to also detoxify and confront cultural conditions. As the path of restitution begins to tackle more immaterial aspects of restitution, we need to provide diverse spaces to serve and encourage various forms of activities that nurture creativity and spirituality – ones that can evolve as future needs appear. We have coined the term “second skin” of the art object to represent the physical and metaphorical compilation of knowledge, history, and heritage that surrounds an object. Second skin spaces can provide a comfortable and human-scale environment for the celebration of cultural practices and the rekindling of spirituality that has been neglected for so long.
From Material to Immaterial

The second skin spaces allow for practices such as this to not only have a space, but to be celebrated as a fundamental and necessary interaction with these objects. Chemical detoxification does not necessarily reanimate an object - for this we need spaces that can facilitate the rekindling of spirituality. These spaces are crucial for the reclamation and restoration of cultural heritage. They take on a human scale and comfortable materiality - encrusting the museum’s monumental scale and emptiness to cater to a more meaningful experience. The encrusted layers of second skin and machine space can create a holistic and transformative environment, where the past can be acknowledged and the future can be shaped. We recognize that many of these objects have histories fraught with conflict and violence. Therefore, we propose spaces for discussion and progress, where contested objects can be studied and their futures debated.
To be Less Monumental

The purposeful exclusion of the facade in these spaces is both a disintegration of the monumentality of the Humboldt Forum, and a countermeasure to preservationism – reckoning with the fallacy that these objects cannot go back to an environment where they might not survive. Instead, this environment, open to the exterior and thus natural resources, can become a place of material experimentation. Zooming back out we see a blending of these detoxifying programs. The spectrum of reparations, whether material or immaterial, is a complex web to which no set resolution can be assigned.

Our approach to restitution must be flexible, with the ability to adapt over time and reach outside the boundaries of the institution when necessary. Our material studies address a variety of hybrid conditions, no space left unchanged by another. The transformed Humboldt Forum aims to create an active space for material restitution and community practices, offering resources to impacted cultures as a place for reparations. But its edge conditions must not be confined to its original footprint, or even Museum Island. The process of detoxification will spill out of its former bounds, necessary work engaging those who must partake. We must act urgently to transform the Humboldt Forum into a space for distribution rather than collection, where the cultures and communities that have been robbed of their heritage can work to reclaim it.
In this studio, we focus on the atmospheres to matter, the no form of natural matter – Dust. Dust is made of fine particles of solid matter. It is such a general part of everyday life that people need to concentrate to notice it. Dust is always pervasive, it can easily accumulate at a fast speed and eventually become a dust storm as a natural sublime. It emerges with sudden disasters or massive ecological changes. From 1930 to 39’, the so-called Dust Bowl swept the American Plains, concurring with the Great Depression, the Dust Bowl forced 60% of the people in the western US to emigrate. In 1950, the great leap forward in China led to severe dust storms and the second greatest famine in the world. Dust not only transformed into an environmental disaster, it became associated with the failures to coordinate the modern development of architecture, land and settlement. It appears as a vengeful force of mismanagement of humans.

Dust as a Resource
Building the Dust Community to sustain the future of climate change
Global Dust Migration

Global dust migration refers to the movement of dust particles, including mineral dust, volcanic ash, and other small particles, across long distances due to various atmospheric and meteorological processes. Dust can be transported over vast distances, sometimes even across continents and oceans, by wind currents and atmospheric turbulence. Large dust storms can occur in arid regions such as deserts, where strong winds can pick up and transport large amounts of dust and sand.

As dust storms become one of the most addressing issues of our built environment, we started to map out four of the most significant dust storms globally. The drawing looks into the dust storm spreading speed and range in a one month from June to July in 2017, showing the dust loading changes in the time-scale. In Yuma, there are several possibilities area that the dust storm could be happened. Consequently, our community design proposal need to be scattering around and also being ready built upon the contraction and materials.
Dust Storm Effects

Human activities such as overgrazing, bush burning, and deforesting are the main causes of drought and arid land, leading to dust storms when it has annual global dust movement. The effects of dust storms engage in many terms: for topography, there are soil erosion and dune formation which rendered uncultivated land and damaged livestock area – also animal farm dies form suffocating by dust.

As well as the marine animal, since the dust particles have traveled across the ocean, they brought phosphate to the ocean plant – when it has too much p04, it caused algae bloom that is an excessive CO2 situation which will damage the respiratory system. For example, fish gill – the animal will die because they can’t breathe and no O2. For human, they need to migrate to other places.

As you can see in the dust bowl event in 1930s, pp from five states move to California, hoping that they can get a job and settle there but they turn out ending up with improper habitat, no food, and no money.

The dust effect behind this story also leads to more experiments and innovations such as the adaptation of plants like wheat, chickpea, and corn that can grow by absorbing the p04 nutrient through their foliages within dust situation. Moreover, there are many industrial developments trying to extract chemicals and matters in terms of microscale to benefit the manufacturing such as ink, perfume, recycling products.
Within the next 50 years, researchers find that drought and expanded cropland are driving more frequent dust storms near the site. As much as we try to control it, dust pervades and invades us stronger and stronger. The water tower as a village-well offers a public space and nourishes humans, flora and fauna. The net captures the fog through condensation, transport and store it in the container which also combines with the water-well for animals to drink in the desert.

To capture the dust, we use the net system to accumulate the dust during storms. In the second layer, we can grow plants like chickpeas or wheat, which can capture dust and trap the nutrients in it to grow themselves. People can extract the dust on the net through the electrostatic machine tower, filter and extracting the different dust particles in different layers, stores them in the container for people to collect and transform as a raw material used in the workshop.
Kiln Housing
When the dust as a force of nature, the result of landscape transformed by the disaster. Under the context of modernity, we take the dust as a social form to create a more active, more alive collective space. We aim to provide a social ground of living, working and dining together but also have a certain level of privacy. The central kiln will take the corn stalks as fuel to produce ceramic. Along the workstation, people take the raw material from the dust particles to craft artifacts. Besides, the communal kitchen will go through the drying food process, preservation for food storage and offers a cooking-eating social space. The main material of the building is made from desert sand, which can be transformed into sand bricks for future construction.

Sublime Tower
The Dust Tower combines with the weather balloon device to detect the incoming storm in 60 km, which offers a space for people to share the extreme pleasure of natural sublime.

Workshop and Leisure Program
To grow as a self-sufficient community. There are the combination with dust ceramic workshops and communal kitchens, which share the kiln platform as a common space while the energy will be generated by the solar panels and portable wind turbines. In the fabric studio, we combine the workshops with leisure activities. The central fabric roof with different shapes serves different activities like a theater screen for movie night.
Sustainability

Considering the rising temperature, water shortage and severe global toxic air are threatening the future living conditions for plants and animals. The Nature Reserve, which the exterior is covered with the glass fiber membrane that can filter the toxic in the dust storm, will house endangered plants and provide shelters for the animals. Not only provides a safehouse for endangered plants and animal species, but also has educational spaces for plants nursery, seed preservation and experiments like biofuel or material tests like clear gel film, which can pull water from the air, absorb and keep moisture for plants.

During the big dust storm coming, it is so dense and the human visibility is lower to zero and may not get back easily. The observatory tower provides a unique experience for people to safely view the storm coming, offering a different sensory experience inside the unusual weather condition of the dust storm. Under this condition, a dusty environment has a more troubling connotation to the future. The project proposes a new lifestyle that coordinates to the future response, not only being a safe place but also embracing the dust ritually to create living, working, a relationship with nature and active frameworks to reside.
Rebuild the infrastructure by applying green technology for wastewater treatment

Hydro-Flow

Rebuild the infrastructure by applying green technology for wastewater treatment

Study the New York sewage system from the building scale to the urban scale, we have analyzed the problems and proposed a site for each experimental wastewater treatment plant. Hydro-Flow is located in the upper east side, which is the most congested multi-family area and uses the most water. This area has had toxic contaminant problems released to the east river for many years due to inadequate treatment. Accordingly, hydroponics treatment has been introduced to apply green technology for wastewater treatment and benefit the community by integrating space with organic supermarkets and a common playground. The design concept has been developed from a system structure of water pipes and hydroponics rail, which are linked into one system. Through the form of construction, we can use the architecture itself to communicate and learn the process of water treatment. As an architecture, which not only aims to bring clean water to the community but also to create a new common space, it can interact with the community through the space, program, and educational way, giving the opportunities for the community to be a part of the wastewater treatment plant.
Traditional Waste Water Treatment

A traditional wastewater treatment system typically involves four stages: screening to remove large solids, primary treatment to remove smaller particles and organic matter, secondary treatment to remove dissolved organic matter and nutrients through a biological process, and disinfection to kill remaining bacteria and pathogens. This is typically done using chlorine or ultraviolet light. Once the wastewater has gone through these stages, it is considered treated and safe for discharge into the environment.

Hydroponics Treatment

Hydroponics waste water treatment involves the use of a variety of methods to treat and recycle the water used in hydroponic systems. In hydroponics, plants are grown in nutrient-rich water without soil, and the wastewater produced by the plants is collected and treated to prevent contamination and to ensure that the water can be reused in the system. One common method of treating hydroponic wastewater is through the use of a biofilter, which uses microorganisms to break down and remove organic matter from the water.

Site Analysis

The site is chosen from the most overcrowded area of multi-family in New York - Upper Eastside. Not only they are the area that use water the most, but also the water from east river will flow to the Long Island sound which is important ecosystems but there are only one water treatment plant around here, Ward Island, which causes a problem of nitrogen and sulfate contamination from the site, the optimal localization is an old playground where next to the east river.
Re-Build the Infrastructure

The design for combining a waste water treatment system with a hydroponic system involves simplifying the system through the use of key elements such as a water tank and hydroponics railing, which can be arranged in multiple directions on each level according to their function. Public spaces are inserted in between these functions, creating a clear diagram that displays the function of each level and the process of waste water treatment through the architecture.

The design includes three water flow systems, one for waste water treatment for the city, and two others that allow the water inside to cycle through the program inside. This design ensures that the water used in the hydroponic system is clean and free of contaminants, promoting sustainable and environmentally friendly practices.
The hydroponics treatment system can be designed to connect with the community by serving as a supermarket, providing fresh and locally grown produce to the residents. To enhance the educational aspect of the facility, the spiral walkway could be designed to include informational displays and interactive exhibits that teach visitors about the process of hydroponic farming and wastewater treatment. Visitors could learn about the different stages of plant growth and how the water treatment system works to clean and recycle the water used in the hydroponic system.

The entire system is controlled by the water treatment office, which is inserted between the public program, creating a common playground for children and families, as well as space for exhibitions, weekend events, and community gatherings. This space is also connected to outdoor areas for various activities, providing opportunities for the community to be a part of the wastewater treatment plant.

Overall, this design encourages community involvement and education about sustainable practices in agriculture and wastewater treatment. It provides a unique and interactive way for people to learn about the process of hydroponic farming and its connection to the environment. Additionally, by serving as a supermarket, the hydroponic system can provide fresh produce to the community while promoting a more sustainable and locally sourced food system.
Eileen Gray is one of the most multi-talented designers; she is considered a key figure in 20th-century design for her influence on the Modernist movement. She started with a love for painting and has seamlessly transitioned, moving on to furniture, interior design, and even became an architect through the practice of craft. Geometry is a form that frequently appears in Eileen’s work, whether it is patterned on carpets, furniture forms, or geometric motifs on lacquer screens. She integrated stark forms and geometric decorations with luxurious materials and traditional techniques, constructing sensual objects and interiors that communicated a distinctly unique modernity. Throughout her works, I am quite interested in her lacquer screen—not only it enlightens her talent but also builds her initial reputation in the design world which introduced her to furniture and interior design. Particularly, the method of Japanese lacquer work allowed her to express herself clearly by stressing on fine craftsmanship and simple functional forms. The first lacquer screen is the one she created in 1922—a simple carving of geometrical straight lines, obliques, and curves. The Folding panels create not only a line movement but also new images of the line connection. Then I initially tried playing with the paper model that emphasized the bolded line by cutting some lines out of paper. As a result, the continuity of the lines becomes more apparent and also creates different stories of line from every angle.
Folding to Floating

The folding techniques used in lacquer screens allowed for the creation of three-dimensional forms within a two-dimensional space. By folding and manipulating the material, volumetric planes could be created that added depth and dimension to the artwork. Moreover, the use of folding techniques and material inlays in lacquer screens represents an important development in the history of traditional art. It demonstrates how artists can continue to innovate and push the boundaries of their medium, creating new forms of expression that are both beautiful and meaningful.
Translating the concept of brown color to the beauty of decay involves using the natural process of decay as inspiration for creating a visual identity. When flowers and leaves begin to wither and decompose, they take on a unique beauty in their brown and muted tones. By drawing from the circular shapes and geometry of the flower, a unique visual identity can be created that represents the beauty of decay.

In the context of a book, the circular shapes can be used to represent the zooming in and exploration of the details of the decay flower. Each artist and designer can contribute their own unique concept and story to the book, highlighting the different ways that decay can be beautiful and meaningful.

To complement the visual identity, the text layout can also be designed to reflect the theme of decay and the beauty that can be found within it. The layout can incorporate a sense of invasion and insertion, with different text elements such as body text, quotes, and captions differentiated from each other. The overall layout should be diverse and cohesive at the same time, reflecting the unique beauty and complexity of the decay process.