ZACHARY HALL • VISUALIZATION PORTFOLIO 2024

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This portfolio contains the design work of Zachary Hall.

Bachelor of Architecture
Minor in Graphic Design
Rensselaer Polytechnic Institute School of Architecture
Magna cum laude, 2024

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GEOLITHIC MUSEUM

CRITIC: STEFANO PASSERI
FALL 2020

This monolithic form is a proposed extension to the Tang Museum at Skidmore College in Saratoga Springs, New York. The project began with a precedent study of the geometric sculptures of Tony Smith, and the eventual creation of a new sculpture based on the methods used in the precedent. To contrast the smooth, man-made sculpture, a geological fragment of galena was chosen. Also known as lead glance, this crystal fragment has a cubic formation. The two conflicting precedents were then merged together, via both erosion and aggregation, in order to develop the final form of the building.

Just like its sister museum, this extension relies on the German concept of the Schaulager, a unification of display and storage wherein even the art that is not actively part of an ongoing exhibition is visible to occupants, rather than being tucked away in an unseen warehouse. The main galleries are located in a central core of intersecting rectangular forms, pushed inward from the outer shell of the structure. The basement level consists of ancillary facilities such as classrooms and studios for artists and members of the Skidmore campus.

SOFTWARE:
Rhino
VRay
Adobe Photoshop

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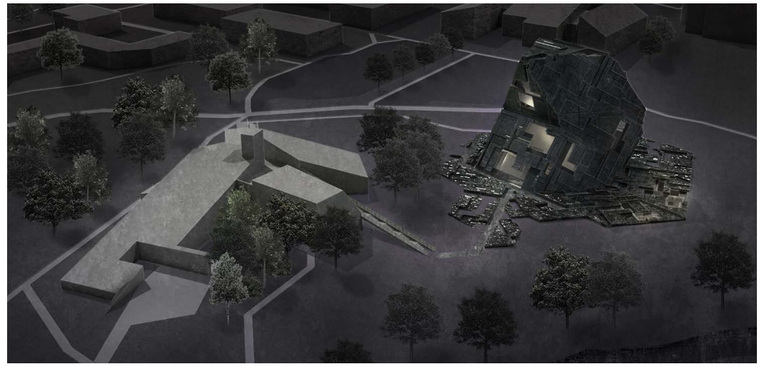

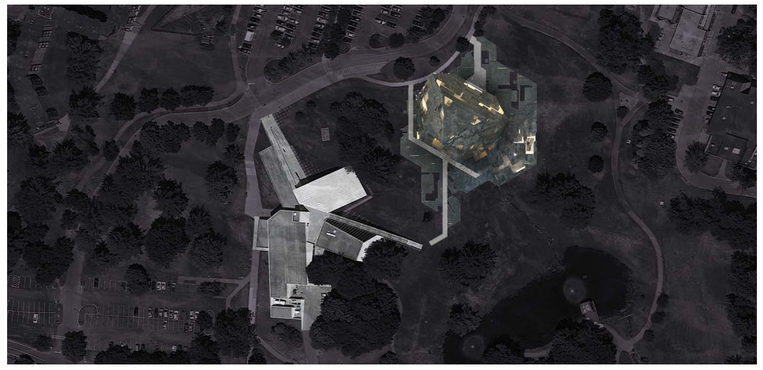

THE RIFT BETWEEN

CRITICS: GUSTAVO CREMBIL, MATTHEW STRADLEY
SPRING 2022-2023

Located on the corner of 10th Ave and 20th Street in New York's Chelsea neighborhood, this proposal for a new library along the High Line explores the relationship and juxtaposition between two opposing forms. A light, flowing structure hovers elegantly above a heavy, monolithic form. In between, a rift opens up as the two forms decide between fusion and repulsion. The formal difference on the exterior is elaborated on the interior, as can be seen here. The lower floors are made up of darker concrete flooring and heavy, rectilinear furniture and motifs. The upper floors are lighter, with white floors and light, curvilinear furniture. In between, the rift takes a blend of the two languages.

A sculptural floor plate defines the ceiling of the rift, while the shape is mirrored below as a contour through a system of ramps and sloping bookshelves. The same curved floor plate that creates the ceiling of the rift also provides a dynamic ground for the level above, introducing artificial peaks and valleys which give inhabitants freedom to explore. The program also responds to the dual language of the structure, with the public library program beginning in the rift and traveling upward, inhabiting the lighter open floors of the building. In the darker segment below the High Line level, a rare book library holds books and artifacts regarding the history of Chelsea and the surrounding city.

SOFTWARE:
Rhino
VRay
Lumion
Adobe Photoshop

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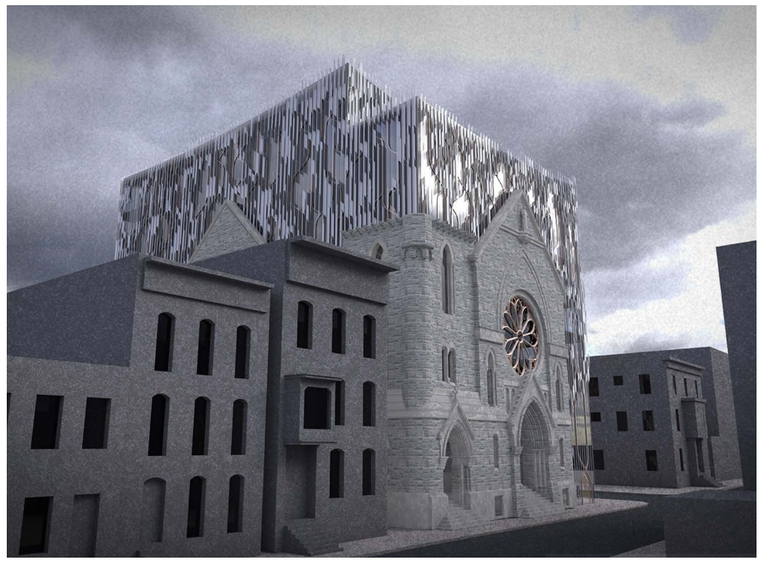
SHIMMER

CRITIC: MATTHEW LOPEZ
SPRING 2021



This proposed addition to the existing St. Mary's Church in Troy, New York, is an elegant glass form sheathed in a dynamic mesh facade. The layered facade brings depth and life to the simple underlying form of the building. The inner layer features a network of curved elements rising upward from moments in the original church's detailing, creating unique and varied forms derived from the original pointed arch windows of the church. The same curve defines the outer layer of the facade, made up of thousands of lightweight operable mesh panels which open and close to create dynamic and variable lighting conditions.

The existing basement and sanctuary floors are home to a new indoor marketplace and dining area, set beneath the towering atrium and large gothic windows. This marketplace contains a series of 'micro-shops,' small fully-equipped retail and dining booths that are rented or leased at low rates to members of the local community who may not be able to afford a full-time storefront or restaurant. These shops will bring together members of the local community and showcase their creativity and artisanship, which would otherwise be left undiscovered. *With Richard Gennaro*

SOFTWARE:
Rhino
VRay
Adobe Photoshop

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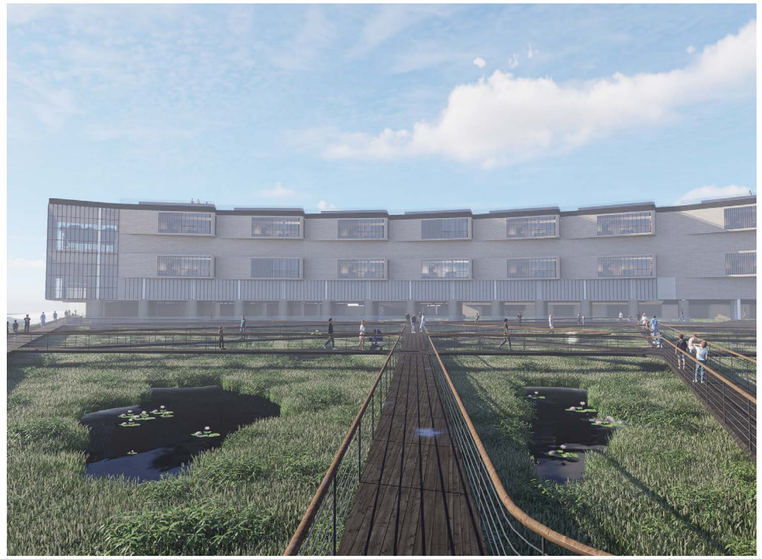
MULTISPECIES HOUSING

CRITIC: TED KREUGER
FALL 2023



Developed with the goal of designing for the future of a multi species ecosystem, rather than the strictly anthropocentric language that controls architectural design today, this housing proposal is not only a multi-family dwelling, but also a multi-species one. Located on the Hudson River in Troy, New York, this proposal implements a human-made wetland ecosystem in two segments. The first is a fully-protected wetland, designed as a large courtyard condition with the building itself providing protection on all sides, apart from an opening into the Hudson River. The second is a wetland park located just outside the walls of the main building, which would allow fauna from the protected wetland to venture out at will, while also providing human visitors and inhabitants with and outdoor space to view the wetlands without interfering in the main protected zone.

Every detail of the building's design is developed with the flora and fauna of the wetland ecosystem in mind, from lighting and shading devices to acoustic protection. The wetland also doubles as an effective and environmentally friendly storm water management system.

SOFTWARE:
Rhino
Vray
D5 Render
Adobe Photoshop

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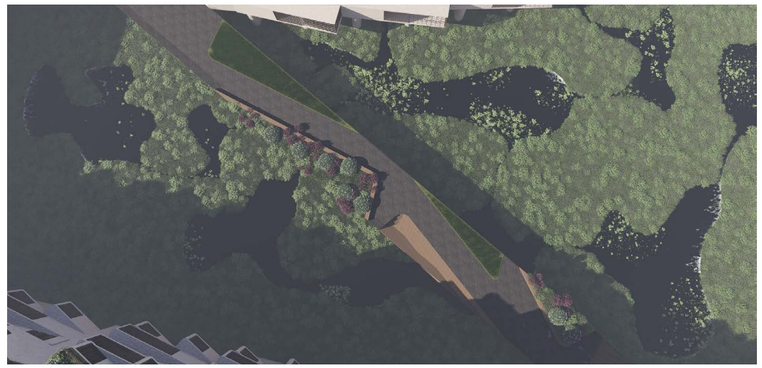
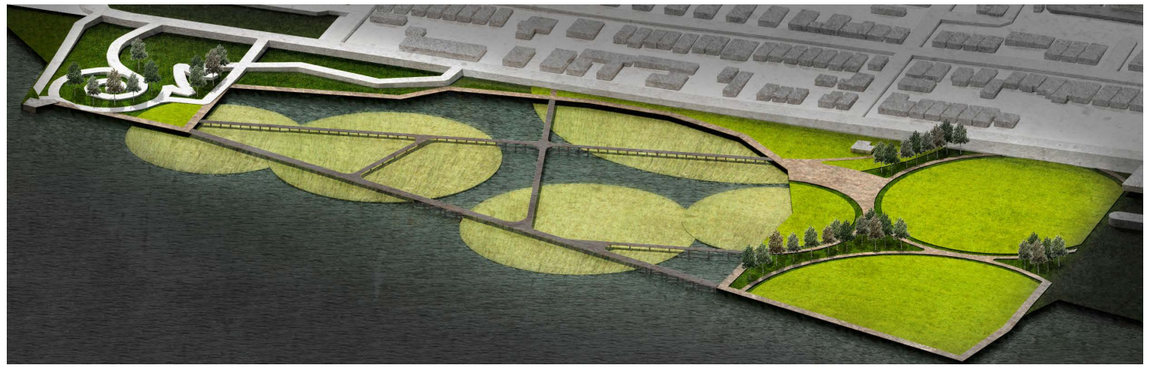
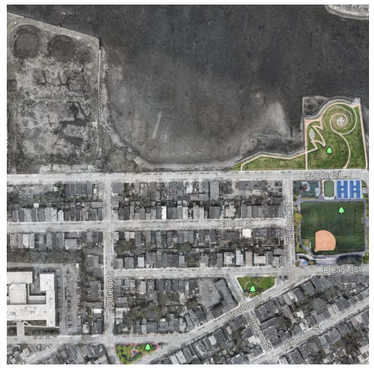


OTHER PROJECTS

EAST BOSTON WATERFRONT PARK





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SWIMMING KINDERGARTEN

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AI THESIS

CRITIC: CARLA LEITAO
FALL 2023-SPRING 2024

Nominated for the Peck Prize for best thesis

This thesis proposes and explores the possibilities of a near future wherein a Multi-Modal Large Language Model (or MLLM) known as Publicus is implemented at an urban scale, and trained on data from existing physical sensors, cameras, LiDAR sensors and more within the city, in addition to the standard general knowledge bases used by current Large Language Models. By compositing these pre-existing technologies, in tandem with a network of specialized AI agents, Publicus is able to assist in the creation and upkeep of a digital twin on the scale of an entire city or larger urban condition. It then constantly cross-checks input data from the physical environment with the digital mode to discover any inconsistencies, acting as an immune system to the urban body.

"AI" as we know it today (ChatGPT, MidJourney, Dall-E, Sora) is still in a state of relative infancy, but is rapidly growing. It won't be long before "AI" disappears from plain sight and popular discourse, and into the underlying structure of our lives. The implications of these technologies upon the world are so vast and interconnected that they can be treated as a hyperobject, and this project aims to isolate and capture moments where this hyperobject intersects or collides at known and recognizable moments within the fabric of urban life, allowing it to be visualized and documented.

SOFTWARE:

Stable Diffusion
MidJourney
Skybox AI
Runway AI
ChatGPT
Gemini

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The following images were created with the help of Stable Diffusion, a highly customizable AI image model. Skybox AI was utilized initially to generate a 360° panoramic city template, which was then refined in Photoshop. The edited image served as a foundation in Stable Diffusion to create variations representing different layers of information that could be shown by Publicus, generated with a combination of many text and image prompts as well as numerous customized settings to achieve balance between template, prompts, and result. Since all images aligned to the same initial template, they were able to be overlaid in Adobe After Effects, resulting in a final video that visually communicates the complex data interactions within the cityscape **[SEE QR CODE]**. This project was designed for RPI's CRAIVE Lab, an immersive 360° review space.