Image Deep: /Contested Matter

Variations on Shelter and Biocement in the era of Climate Crisis
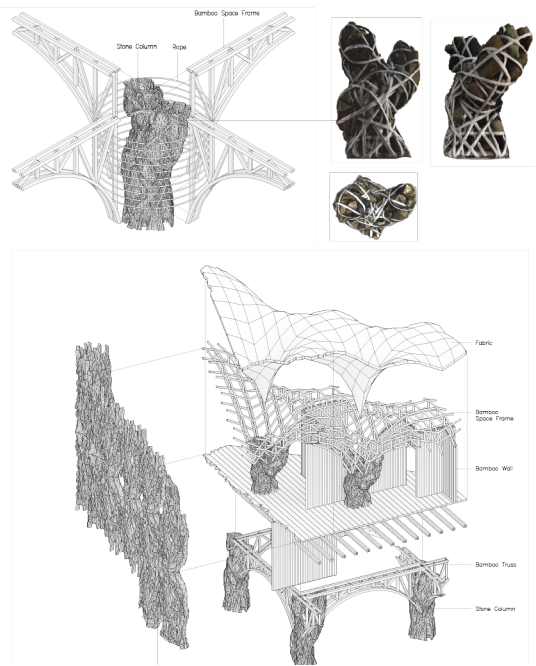
Dana Cupkova

QUESTIONS

Advances in Artificial Intelligence (AI) and Deep Learning (DL) offer new frameworks for the future of the design discipline, while simultaneously challenging traditional notions of authorship and the utilization of architectural precedent. These tools enable the almost instantaneous generation of complete architectural proposals, where architectural images and sketches can be created without following a conventional design process, prompted solely through natural language in reference to extensive digital archives. This studio will explore how we can expand the design process using AI beyond just mere visual inspiration. Bridging material research with natural materials and biocement, we will build analog material models to inform AI workflows to explore alternative pathways distinct from the predetermined aesthetics that text-to-image models often provide.

PROMPT

Language of architecture traditionally revolves around the spatial development of architectural forms, rooted in architectural types, elements, programs, and ideologies, while drawing from the historical knowledge of architectural precedents. However, in the context of AI, the use of architectural precedent, especially concerning its ethical implications and bias, might be obscured.
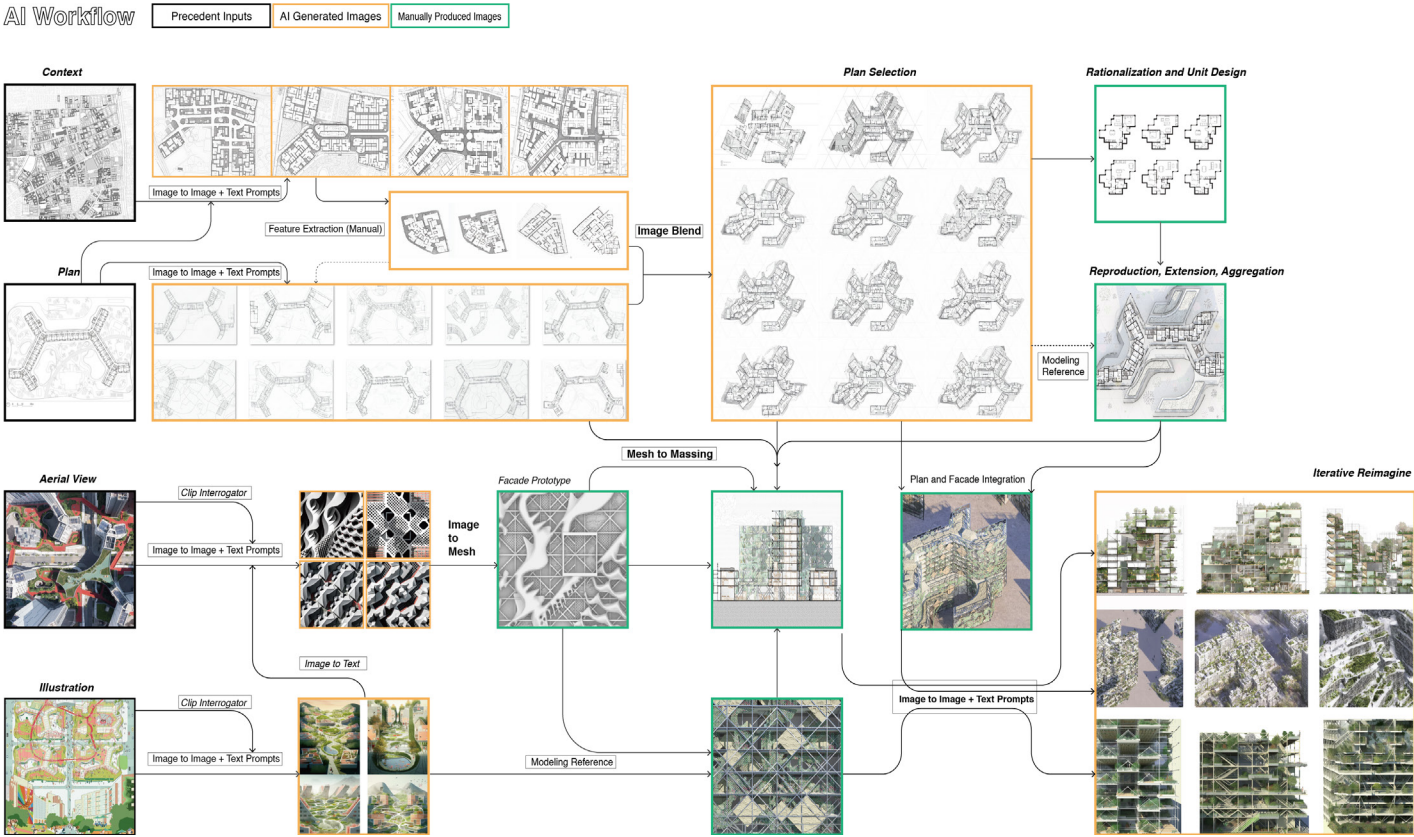
From 2023 ASO studio Image Deep (Student: Jiaxi Gu)

From 2023 ASO studio Image Deep (Students: above and right Kui Yang Yang, below: Jimmy Li)

This studio is conducted in collaboration with the Department of Material Science for experiments with biocement.

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CONTEXT

We will seek to merge the two lines of investigation using image-based spatial models. Our focus will be on unlocking the embedded information within the images, allowing for direct translation into a 3D model via depth map modeling. In addition, we will leverage material research and develop custom physical material prototypes to inform the AI workflow. We will explore how shelters and housing models can be constructed using locally sourced material systems. This approach encourages us to reconsider the ecological imperatives of housing models within specific social, ecological, and geopolitical contexts, and with an emphasis on material circularity and more equitable labor systems.

PROGRAM

The ambition of this studio will be to examine architecture of shelter and social housing that inquire into embodied energy and labor framework as a primary inspiration for formation of matter. The goal is to re-situate design within a hyper-local framework of material resources and life-cycle that positions architecture as a vehicle for ecological and communal restoration. Promoting a shift away from purely data driven rationales, the desire is to engage in the design framed by environmental ethics and sensory subjectivities as part of our collective aesthetic and ecological experience.
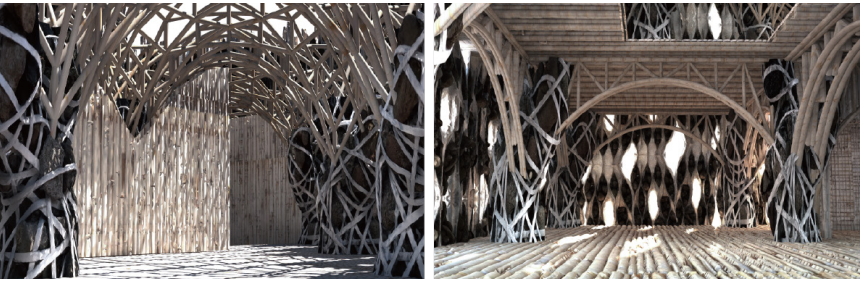
LEARNING OUTCOMES

On successful completion of this studio you should be able to:

- Better understand ethical frameworks, data ownership, and data bias relative to current AI models.
- Formulate AI-based instructions for design.
- Conduct material research experiments, build physical prototypes, and translate them into digital models using 3D scanning.
- Develop ecological imperatives based on aesthetic associations within ideological and ethical contexts.
- Learn how computers see and design sketches with words.
- Transform images into spatial models.
- Use advanced modeling workflows and texture modeling to develop architectural models.
- Think independently and work collaboratively