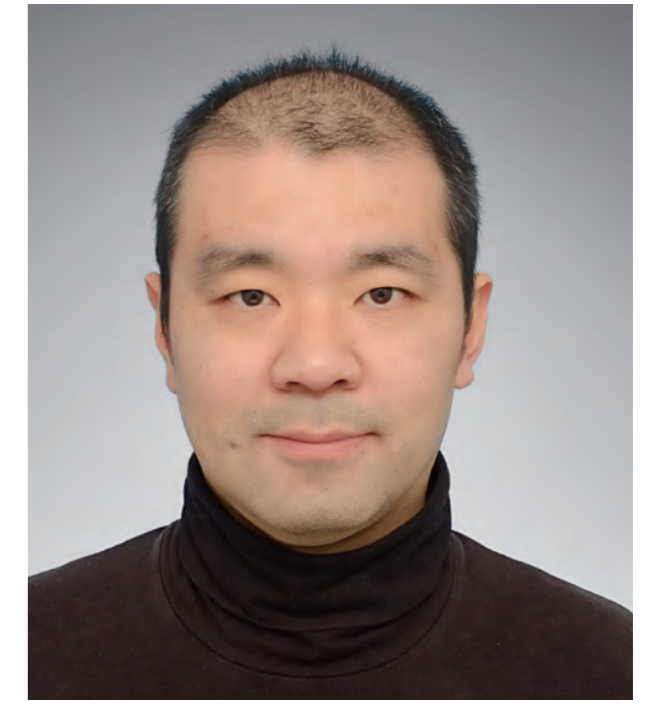# IMAI LAB.

Self-build Experimental Structure Using Digital Technology

Department of Human and Social Systems
Design-Led X Platform

Architectural Space System

Department of Architecture, Graduate School of Engineering

http://www.imai-lab.iis.u-tokyo.ac.jp/

Prototype Model Appearance (Model Created by: Miyu Watanabe)

Scaffolding Architecture

Once an architecture is constructed, it is destined to remain in existence for a long period of time. This requires an enormous investment of human and material resources. In contrast to this permanence of buildings are temporary structures. In previous projects, the Imai Lab has been researching self-built shelters and temporary structures by developing innovative joints using digital technology such as Additive Manufacturing technology. Scaffolding, a typical example of temporary structures, is typically erected before construction, removed after completion, and reused in the next project.
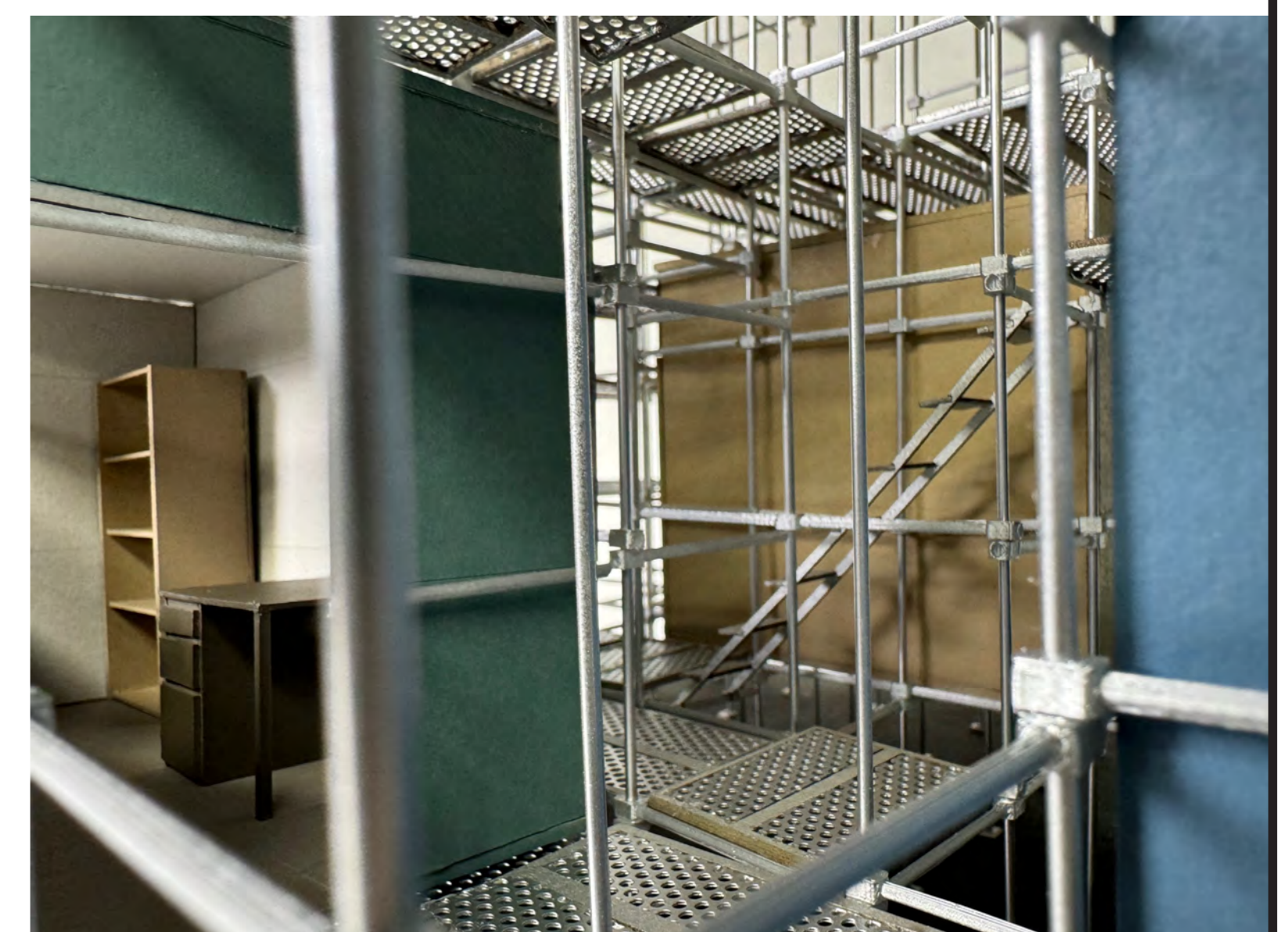
This project focuses on the ease of spatial construction and removal of scaffolds and develops customizable joints to make scaffolds function architecturally. This will enable the scaffold to be used to install external walls, roofs, and foundations, so that the scaffold itself can serve as an architectural structure. The spatial system will also provide a function for humans to shelter from the elements, while inside there can be living spaces such as tea rooms. Construction of a full-scale prototype is underway, and usability checks are being carried out to improve the spatial system with the aim of implementing it in society in the future.

Interior View Looking Up at the Roof

Joints for Fixing Exterior Wall Panels

Passageways Connecting Rooms Fixed to the Scaffolding

Institute of Industrial Science, The University of Tokyo