



*Towards robotically-supported collaborative construction, ReAC team, 2022.
Image credit: Yuning Wu and Meghdeep Jana*

48-749: Special Topics in Computational Design – Rethinking Automation in Architecture

Units: 6-18

Instructor: Daniel Cardoso Llach

This project-based course explores the confluence of robotics and artificial intelligence methods and its potential applications to design, architecture, and construction. In combination with a group of computational design and robotics faculty and students — and in close collaboration with industry partners — participants work to envision a future of construction involving humane, hybrid human-machine workflows. Topics and methods include computer vision, LiDAR, pedestrian detection and tracking, site ethnography and sociotechnical mapping, and digital twins. Course participants actively envision, research, develop, and evaluate functional prototypes for “robotically-supported collaborative construction” and take advantage of the project’s new laboratory space and state-of-the-art equipment at CMU’s new Mill 19 facility.

Pre-requisites: instructor approval

Co-listed for PhD students as 48792-C

Course collaborators: Prof. Jean Oh (Robotics) and Yuning Wu (PhD-CD)