



Top: "UNDO"- HRI for remote instruction & Re:Config, Marirena Kladeftira 2024 - Bottom: *Interactive Robotic Plastering*, GKR, ETH Zurich 2021

DESIGN 6197/4197: Special Topics

Anthropocentric Models of Making With Cooperative Robots

Spring 2025 | Fridays, 11:15am-1:45pm

Instructor: Marirena Kladeftira (Design Tech)

This course is founded on the critical premise that acts of design and making are intrinsically connected to socio-environmental parameters and mandates. In response to growing skepticism around automation in design-related disciplines it speculates on new models of sustainable making in the Anthropocene with a humanistic approach: crafting responsible and inclusive collaboration between human and robotic agencies. Students are invited to challenge current perspectives in digital fabrication by investigating individual and collective agency in hybrid teams of making that prioritize flexibility, adaptability, and vocational fulfillment. Instead of automating all parts of the making process, we will examine how robotic systems can complement human action and restore agency to craftspeople and makers. Collaborative non-linear fabrication processes allow the human to intervene and respond on-the-fly to errors and uncertainties during the making process in consideration to geometric, material, and environmental challenges respecting the nuances of traditional craftsmanship.

This seminar will take a deep dive into technical and conceptual aspects, building a knowledge base on human-robot collaboration and the role of technology in democratizing acts of making. Through a combination of tutorials and hands-on experimentation students will be introduced to the fundamentals of robotics, assembly routines, how to work with multi-robotic cooperative systems, and the computational framework *compas*. Complemented by a series of invited talks, workshops, and readings students will have the opportunity to reflect upon current perspectives of human-robot collaboration in design and making practices. Participants will be tasked to conceptualize and implement a collaborative human-robot fabrication process, as well as write a short essay on a forward-looking vision -"manifesto" on how they envision human cooperation with machines in the digital era challenging the current status quo.