

Instructors: Prof. Takehiko Nagakura (takehiko@mit.edu) with guest speakers

TA: Xiaoyun Zhang (xiaoyunz@mit.edu)

Learning from Design Heritage

- Research Incubation Workshop on Data-driven Methods -



First class meeting: 11am, Monday, February 2, Room 8-119

Homepage: <http://cat2.mit.edu/4.570>

This class investigates recent information and visualization technologies that helps studying “design heritage”, spatial designs that surround our lives. Design heritage broadly includes architecture, city and landscape; the built, demolished, and planned; and culturally important as well as the banal ones. We will look at various data-driven methods relevant for learning them, such as image/video feature detection, machine learning, physiological sensors, natural language processing, photogrammetric/gaussian splatting scan, augmented/virtual reality, and gamification. By examining how to collect data, how to process the raw data into forms useful for analysis, and how to interpret and apply the findings, the students build a foundation for research projects bettering our understanding of the spatial designs around us.

Each week during the first half of the class, the class will invite a guest speaker, conduct a short hands-on exercise on a data processing tool, and read relevant literature from previous research projects. The second half is run in a workshop format with desk critiques, where students are expected to design and develop a small research project individually or in a group. There is no requirement for computational skills for this class, although familiarity with some scripting language is an advantage.

* 2026 class does not include any field trip component.

* Course numbers: [4.550 for Undergrad](#), [4.570 for Grad students](#).

* Grading: 25% class participation, 35% weekly assignments, 40% mid-term + final review,

* Regular meetings: Monday 11am-2pm (Rm 8-119), Tuesday 7-8:30pm (Rm 5-216)