

4.550/4.570, MIT Architecture Spring 2023

*Learning from Design Heritage: Research Incubation Workshop of Data-driven Methods*

Instructors: Takehiko Nagakura, Daniel Tsai and Guests

TA: Han Tu

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Weekly Schedule

Subject to changes (last update: 2023.04.02)

<b>Week 01</b>	<b>Mon, Feb. 06</b> <b>+ Tue, Feb. 07</b>	Introduction Using image data: Scraping SNS, online crowd-sourcing Mechanical Turk, LAMP pipeline <b>Ex0 out:</b> Q/A (Student selection) Guest: Rohit Sanatani <b>Ex1 out:</b> Learning through image data – image segmentation
<b>Week 02</b>	<b>Mon, Feb. 13</b> <b>+ Tue, Feb. 14</b>	Using videos: motion tracking/segmentation, panoramic projection Ethnography of heritage places, pedestrian simulation <b>Ex1 in:</b> Review and discussion Guest: Chales Wu <b>Ex2 out:</b> Analysis from video recordings – gesture recognition
<b>Week 03</b>	<b>Mon, Feb. 20</b> <b>+ Tue, Feb. 21</b>	<b>Presidents Day Holiday</b> (All Monday classes shift to Tuesday) Representations and UI, data collection from visualization device Instructor: TN <b>Ex3:</b> [in-class exercise] Photogrammetric modeling and AR
<b>Week 04</b>	<b>Mon, Feb. 27</b> <b>+ Tue, Feb. 28</b>	Finding patterns through Machine Learning Spatial layout, sketches, photos <b>Ex2 in:</b> Review and discussion Guest: Xiaoyun Zhang <b>Ex4 out:</b> Finding and generating patterns by machine learning
<b>Week 05</b>	<b>Mon, Mar. 06</b> <b>+ Tue, Mar. 07</b>	Measuring human response to spatial designs Physiological sensor (EEG/SGR), eye-tracking <b>Ex4 in:</b> Review and discussion Instructor: HT <b>Ex5 out:</b> VR and physiological measurement – Affective Computing
<b>Week 06</b>	<b>Mon, Mar. 13</b> <b>+ Tue, Mar. 14</b>	Examining literature on spatial designs Natural language processing, sentiment study of heritage places <b>Ex5 in:</b> Review and discussion Instructor : DT <b>Ex6 out:</b> Design Analysis through text
<b>Week 07</b>	<b>Mon, Mar. 20</b>  <b>+ Tue, Mar. 21</b>	<b>Ex6 in:</b> Review and discussion <b>Final project guideline</b> (Title, idea, method, deliverable, resource) [in-class session] <b>Brainstorming: Final project topic and method</b> Workshop/desk critique

<b>Week 08</b> <b>Mar. 27 – Mar. 31</b> <b>MIT Spring Break</b>
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<b>Week 09</b>	<b>Mon, Apr. 03</b> <b>+ Tue, Apr. 04</b>	<b>Presentation: Final project proposal + initial progress</b> Workshop/desk critique
<b>Week 10</b>	<b>Mon, Apr. 10</b> <b>+ Tue, Apr. 11</b>	Human-subject study in cognitive psychology, COUHES, gamification Guest: Nikolaus Vlavianos Workshop/desk critique
<b>Week 11</b>	<b>Mon, Apr. 17</b> <b>+ Tue, Apr. 18</b>	<b><i>Patriots Day Holiday</i></b> No class
<b>Week 12</b>	<b>Mon, Apr. 24</b> <b>+ Tue, Apr. 25</b>	<b>Interim review: Final project</b> Workshop/desk critique
<b>Week 13</b>	<b>Mon, May 01</b> <b>+ Tue, May 02</b>	(Data-driven) AI tools for design generation Guest: TBA Workshop/desk critique
<b>Week 14</b>	<b>Mon, May 08</b> <b>+ Tue, May 09</b>	Cultural heritage practice for preservation and online/museum exhibition TN+DT Workshop/desk critique
<b>Week 15</b>	<b>Mon, May 15</b> <b>Tue, May 16</b>	<b>Final presentation</b> Reserved for backup ( <i>Last day of class at MIT</i> )
	<i>May 19-24</i>	<i>Exam week</i>
	<i>June 01-02</i>	<i>Commencement</i>