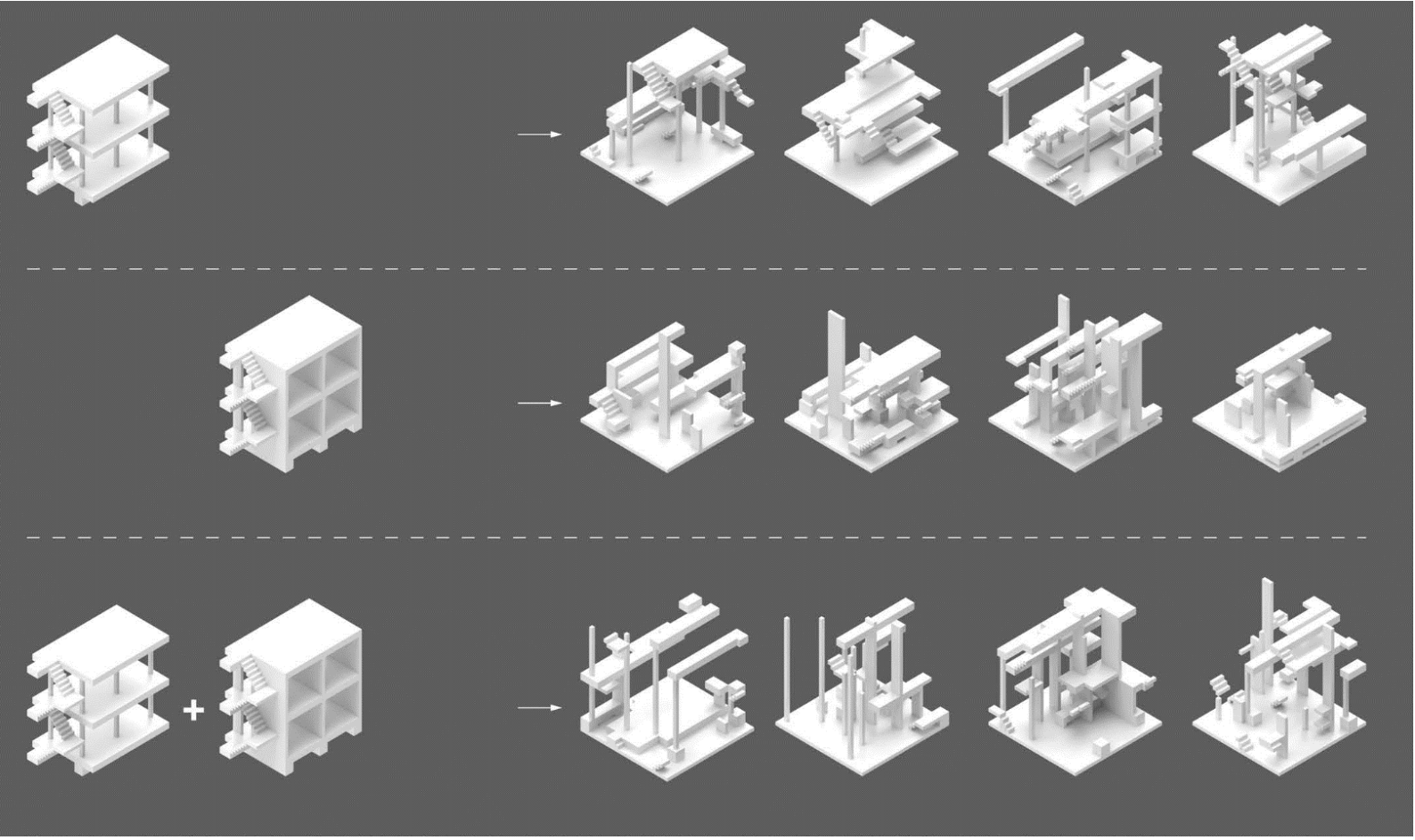

Image credits: Immanuel Koh - Phd Thesis

MBL 549E Special Topics in Architectural Design Computing (3+0)
Machine Learning in Architecture

Dr. Özgün Balaban- ozgunbalaban@gmail.com
Tuesdays 13.30-16.30

Content: The course is an introduction to Machine Learning methods with examples from architectural design and creative coding. The course follows a hands on approach with many examples that will be developed during the course. The course includes topics from machine learning such as linear regression, unsupervised learning, supervised learning, reinforcement learning and finally neural networks.

Aims: To have students acquire practical knowledge on the tools of machine learning and different methodologies. To have students knowledge of applying these techniques to creative design process.

Conduct: The first half of the term includes introduction to the various machine learning topics. In this phase there will be practical coding sessions and some assignments which will be graded. In the second half of the term we will focus on a group project which will be developed using neural networks. The grading for the course is as follows: hands-on practices, 50%; final group project 50%.

Weekly Schedule:

WEEK	DATE	TOPIC
1	**11 Feb 2020**	**Introduction to Machine Learning**
2	**18 Feb 2020**	**Refresher on probability and Python**
3	**25 Feb. 2020**	**Data scraping & Linear Regression**
4	**3 March 2020**	**Unsupervised Learning**
5	**10 March 2020**	**Supervised Learning**
6	**17 March 2020**	**Reinforcement Learning**
7	**24 March 2020**	**Introduction to Neural Networks**
8	**31 March 2020**	**BREAK**
9	**7 April 2020**	**Neural Network examples - Project discussion**
10	**14 April 2020**	**Neural Network examples cont.**
11	**21 April 2020**	**Neural Network examples cont.**
12	**28 April 2020**	Discussion of the project - crits
13	**5 May 2020**	Discussion of the project - crits
14	12 May 2020	Discussion of the project - crits
15	19 May 2020	Discussion of the project - crits
16	**FINALS**	