Project Description:

Alongside my research paper, I intend to delve into learning to utilize Google's open-source TensorFlow machine learning (ML) framework in the domain of architectural design. To fully grasp how learning algorithms will impact my thesis path, I need to start from the ground up. I will be exploring various methods. In order to apply ML to architectural design, I will be simultaneously researching and testing ML in tandem with shape grammar and site analysis techniques. Site data can theoretically be parsed and decisions made quicker through the use of machine learning, while shape grammars in theory are the best means to shape floor plan layouts moving forward with the knowledge gained from an automated site analysis.

Tools intended to be utilized: Python, TensorFlow; possibly: Rhino, Grasshopper

Schedule:

Each week: research and read info on ML from TensorFlow wiki, blogs, forums, textbooks (o'reilly's "hands-on machine learning"), additional articles

Week 3: get acquainted: setup TensorFlow, required libraries and utilities
Week 4: begin testing and comparing learning algorithms variants:
Week 5: supervised learning techniques and testing
Week 6: unsupervised learning techniques and testing
Week 7: optimization/genetic algorithms + ML
Week 8: investigate use of shape grammars w/ ML
Week 9: attempt to integrate shape grammar technique with ML; possibly with fabrication aspect
Week 10: wrap up, write-up; conclusions