Overview: The emergence of large visual data, machine learning algorithms, and advancement in hardware has enabled significant breakthrough in vision and related applications. This class will discuss recent progress and findings in learning based approaches to vision, one of the most fast growing and exciting fields in artificial intelligence. Topics include a review of popular machine learning methods and cutting edge knowledge on high-level visual tasks for various application domains. Analogue with the biological visual system will also be introduced and discussed.

Course details: This seminar course will be in the form of combined lectures, paper presentations, and discussions. Topics include but are not limited to the following: visual attention, object recognition, scene understanding, image captioning, VQA: visual question answering, learning to understanding human vision, deep neural network models and visualization, and large-scale visual datasets and crowdsourcing.

Textbook: There is no required textbook. The course materials would be based on recent publications in top venues in related fields.

Prerequisites: background in computer vision and machine learning (equivalent of CSCI 5561, 5521). Instructor’s permission is needed to enroll in the course.

Amount of credits: 3
Grading options: A-F to CS degrees, and either option for non-CS students