Tentative weekly topics

Week 1: Introduction to each other and to the ideas in the Seminar

Week 2: The Turing test and the early history of artificial intelligence

Week 3: Can computers think?

Week 4: Two examples of machine intelligence: Smartphones and IBM Watson on â€œJeopardyâ€

Week 5: Introduction to brains

Week 6: A specific example of human intelligence: face recognition

Week 7: Another aspect of intelligence: learning

Week 8: Break

Week 9: Brain-inspired computer programs: Deep Neural Networks

Week 10: Brain-inspired computer programs (continued)

Week 11: Differences between (current) computers and brains

Week 12: AI and ethical considerations

Week 13: Should we re-think what we mean by intelligence? General discussion with students â€“ Meet in a restaurant in Harvard Square!

Recommended Preparation

This seminar targets students that are interested in brains and computers in equal measure, and are comfortable with analytical thinking. Some basic programming skills in Python, Matlab or equivalent is required to complete assignments - you will receive help with remedial programming boot camp in the first two weeks.

Assignments

There will be weekly reading material that everyone is expected to look through before our class meeting. This material will be posted as pdf files on the class site. For each week, 1 student will be responsible for writing a 1-page summary of the material before the meeting â€“ each student will do it just once during the entire semester. Every student will have to be familiar with the reading material so they can contribute to the discussion in class (they may be randomly called upon). There will be additional small problem-solving assignments (typically a simple computer program) throughout the term half-way through the term. There will be a final term paper (~5 pages) on a specific topic relevant to the Seminar (topic chosen by the student, with guidance from the instructor). Rough draft of the paper can be handed in around Week 10 for feedback.