Pavilion Seminar: How will Artificial Intelligence change Humanity?

Seminar Description

Artificial intelligence has made remarkable advances in the past decade, leading to machines that can outperform humans on many of the tasks that once defined what it means to be human: understanding language, recognizing images, playing games, and even creating art. According to many prognosticators, within just a few decades we may reach a world where the traditional purposes of human existence, and the work the preponderance of humans do today, will no longer exist. This seminar will explore the validity of such predictions, and consider what the future of humanity is in a world that may not need us. We will explore these issues from a variety of perspectives, spanning economics, politics, philosophy, computer science, and anthropology. We will include both historical and fictional readings to understand how humanity has adapted to past dramatic shifts, technical readings to understand the present and future of artificial intelligence, philosophical and political readings to understand how society might adapt to increasingly intelligence machines, and various other media including computer simulations, music, and movies.

Assignments

Reactions to Readings: Short weekly essays reacting to readings and questions posted about the readings. These essays will be posted in a class discussion website, and available to all students in the class for further discussion.

Course blog: Small groups of students will be responsible for producing a public web page summarizing each reading and discussion, with the goal of producing a visible and useful externally-facing site by the end of the seminar. (This will follow a model the instructor has used successfully in past seminars, e.g., https://tlseminar.github.io/)

Papers: Two major papers one due mid-way through the semester, and the other due near the end. For both of the papers, students would submit a preliminary draft to the instructor for feedback, and would be expected to revise the final paper in response to comments and discussion. For the first paper, students will focus on one aspect of how artificial intelligence has already impacted society, describing the impact of technological advances on a social, political, economic, or psychological aspect of human existence. For the second paper, students will speculate on the future, grounding their arguments in technical understanding of the expected capabilities of artificial intelligence, and considering how humanity may adapt to a future with intelligent machines.

Readings

Historical Perspective:

• Edgar Allan Poe, *Maelzel’s Chess-Player*, 1836.

Technical perspective:


Societal perspective:

Humanist perspective:

Justification for Pavilion Seminar

Focuses on big topics with enduring relevance: The emergence of artificial intelligence presents humanity with the largest transformation we have faced since the agricultural revolution. As machines become better than humans at tasks we once considered uniquely human, humanity will need to rethink what is important about being human and remake our societies in fundamental ways.

Engages multiple modes of inquiry: The seminar will explore the potential and impact for artificial intelligence from many perspectives, including both humanistic and scientific ones.

Interdisciplinary and pedagogically innovative: The seminar will include readings from philosophers, computer scientists, economists, novelists, and anthropologists. For both of the major writing assignments, students will be expected to integrate technical understanding with depth in at least one other domain.

Fulfills second writing requirement: The course will include two major writing assignments. Although the instructor is not in the College of Arts & Sciences, he was the Founding Director of the Interdisciplinary Major in Computer Science (and current director of the Computer Science Distinguished Major Program). Since its founding in 2006, the major has grown to the ninth largest major in the College with 133 students graduating with BA degrees in 2017.

Novelty: This is a new course, and no similar course has been offered at UVA (or any other institution so far as I am aware). The most similar UVA course is probably PHIL 2340: The Computational Age (taught by Paul Humphreys), which has some overlap in topics in considering how computing changes how humans think of ourselves and our role in the world, but does not focus on artificial intelligence or societal change.
Appointments
University of Virginia, Professor of Computer Science (since 2013).
Associate Professor of Computer Science, 2006–2013.
Assistant Professor of Computer Science, 1999–2006.

Founding Director of the Interdisciplinary Major in Computer Science; Director of Distinguished Major in Computer Science. Program approved in 2006, has grown to the College of Arts & Sciences ninth most popular major. It is the only undergraduate degree program that spans the University’s two largest undergraduate schools.

First Udacity Professor, 2012 (on leave from UVA). Developed an open, on-line introductory Computer Science course that has enrolled over 500,000 students, as well as an Applied Cryptography course (over 70,000 students), and assisted other instructors in developing courses that have been taken by over a million students from 190 countries.

Selected Awards and Honors
University Teaching Fellow, 2001.
National Science Foundation CAREER Award, 2001. National Science Foundation’s “most prestigious awards in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research...”
ACM Jefferson Undergraduate Teaching Award, 2002.
All-University Teaching Award, 2008.
State Council of Higher Education for Virginia Outstanding Faculty Award, 2009. This is the Commonwealth of Virginia’s highest honor for faculty, awarded by the Governor for “superior accomplishments in teaching, research, and public service.”
Distinguished Research Award, 2014. Awarded by the University’s Vice President of Research to two recipients each year to recognize “our most promising and creative new full professors”.

Selected Publications
See http://www.cs.virginia.edu/evans/pubs for links to all publications. My publications have been cited over 9300 times (h-index = 38) (citation counts are from http://scholar.google.com, 23 October 2017). Student co-authors for whom I am the primary supervisor are indicated with *.


**Selected Invited Talks**


Saarland University, CISPA Distinguished Lecture. Adversarial Machine Learning: Are We Playing the Wrong Game? Saarbrücken, Germany. 7 July 2017.

**Grants**

Principal or Co-Principal Investigator on over $30M ($14M to UVa) of research funding from the National Science Foundation, NASA, and Department of Defense. Principal Investigator on ten National Science Foundation grants (including an NSF CAREER award, $1M award on RFID security, and a $3M award on secure computation) and two Google Research Awards.

**Selected Media Coverage**


Prospect Magazine. Professors without Borders. 28 June 2012.
