Philosophy 340: Minds and Machines
Winter 2019

Professor Eric Swanson
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Office hours: Tuesdays and Thursdays 1:00–2:00, and by appointment.

This course will discuss minds, machines, the relationships between them, and the relationships they encourage and discourage. Throughout we will compare and contrast human minds and brains with machine 'minds' and 'brains,' considering questions like: Could a machine have a mind? Could a machine be conscious, or think in the ways that people do? What can human brains teach us about how a thinking machine might work, and vice versa? What might information processing, information integration, and information availability have to do with consciousness? Could the internet be conscious? How could we tell? How do machines and our interactions with them influence how humans think, learn, reason, and know? What are the promises and perils of artificial intelligence, big data, and gargantuan networks, especially when the underlying mechanics of machine and network reasoning are not transparent to us? How should machines be treated—including machines that exhibit some but not all features of human minds? Why? How should machines treat us?

Texts

Mind Design II: Philosophy, Psychology, Artificial Intelligence, edited by John Haugeland.

AI: Its Nature and Future, by Margaret A. Boden.

The Internet of Us: Knowing More and Understanding Less in the Age of Big Data, by Michael Patrick Lynch.

Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy, by Cathy O'Neil.

Frankenstein, or the Modern Prometheus: Annotated for Scientists, Engineers, and Creators of All Kinds, by Mary Shelley, edited by David H. Guston, Ed Finn, and Jason Scott Robert.

The Matrix, directed by Lilly and Lana Wachowski, available through Amazon Prime, Google Play, iTunes, and Youtube.

Lo and Behold: Reveries of the Connected World, directed by Werner Herzog, available through Amazon Prime, Google Play, iTunes, Netflix, and YouTube.

Her, directed by Spike Jonze, available through Amazon Prime, Google Play, iTunes, Netflix, and YouTube.

"Hang the DJ" (*Black Mirror,* season 4), directed by Tim van Patten, available through Netflix.

Other texts and media are available on Canvas: https://umich.instructure.com/courses/274116

Course web site

Canvas: https://umich.instructure.com/courses/274116

Please use Piazza, which is available through Canvas, to ask questions that aren't specific to you!

Lecture

Tuesdays and Thursdays 2:30–3:48, in UMMA Aud. *No water or other drinks; no food.*

Sections

002, Tuesdays at 4, 3427 Mason Hall, with Ari Goldstein <arigold@umich.edu>

003, Wednesdays at 3, 2325 Mason Hall, with Ari Goldstein <arigold@umich.edu>

004, Wednesdays at 4, 2062 Palmer Commons, with Valyn Dall <vdall@umich.edu>

005, Wednesdays at 5, 3242 LSA Building, with Valyn Dall <vdall@umich.edu>

Grading

15% each: three short (two to three page) papers, due 1/27, 2/24, and 3/31
35%: final exam, 4:00–6:00 on 4/30
10%: responses to the *upcoming* reading (or viewing), graded pass / fail, submitted through your *section's* Canvas site. (E.g., your 1/13 reading response will respond to Marr, "Understanding Complex Information-Processing Systems" and/or Haugeland, "What Is Mind Design?"; your 1/22 reading response will respond to Haugeland, "Computer Architecture.") These don't have to be long—one paragraph which clearly articulates one question or comment is fine. For a pass your response has to make it *clear* that you did the reading and thought about it. Reading responses are not required for the Sundays on which papers are due, so you have more time for your paper. Late responses will not be accepted, since the GSIs and I use these responses to help us prepare for lecture and sections.
10%: your section grade, including participation in section, surprise quizzes if necessary, etc. Truly excellent reading responses and answers on Piazza, regularly submitted, will boost your section grade.

Expectations

Keep up with the readings. They demand close attention and careful thought. If you fall behind you'll miss much of what's going on for the rest of the semester.

We'll be discussing controversial issues in this course, and challenging our beliefs throughout. Be polite, respectful, and generous in discussion with your classmates and teachers.

All students are expected to be aware of the College of LSA's standards of academic integrity:

https://lsa.umich.edu/lsa/academics/academic-integrity.html
https://www.lib.umich.edu/academic-integrity

Read them carefully and email me if you don't understand them fully! We encourage you to discuss the material with your classmates, but all work you turn in must be your own. Cheating or plagiarism will result in a grade of 0 for that assignment and disciplinary action by the University.

If you think you might need an accommodation for a disability, please let me know at your earliest convenience. Some aspects of this course, the assignments, the in-class activities, and the way the course is taught may be modified to facilitate your participation and progress. As soon as you make me aware of your needs, we can work with the Office of Services for Students with Disabilities (SSD) to help us determine appropriate academic accommodations. SSD (734-763-3000; ssd.umich.edu) typically recommends accommodation through a Verified Individualized Services and Accommodations (VISA) form. Any information you provide is private and confidential and will be treated as such.

Use of laptops in class can distract the user, other students, and teachers. Lots of research has shown that many students learn better if they take notes by hand. See, for example:

http://www.scientificamerican.com/article/a-learning-secret-don-t-take-notes-with-a-laptop/

However, some students absolutely have to use laptops, and do benefit from them. If you need to use a laptop in lecture, please sit to the left (as you face the front of the room). If laptops distract you, please sit in the center or on the right. No phones, texting, etc. in class.

Missed exams can be made up only with ample appropriate documentation—for medical reasons, a signed and dated doctor's note; for the death of a loved one, a signed and dated letter from a funeral home; etc. We will be more flexible with late papers, but you must contact your GSI in advance to ask for an extension, and you must stand by your agreement with your GSI.

So you can all pay attention to all of lecture, I will finish by 3:48, leaving at least two extra minutes for you to pack up your things. But I ask you to be fully present for our discussion until 3:48.

University of Michigan is committed to advancing the mental health and wellbeing of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. For help, contact Counseling and Psychological Services (CAPS) at (734) 764-8312 and

https://caps.umich.edu/

during and after hours, on weekends and holidays, or through its counselors physically located in schools on both North and Central Campus. You may also consult University Health Service (UHS) at (734) 764-8320 and

https://www.uhs.umich.edu/mentalhealthsvcs

or for alcohol or drug concerns, see

www.uhs.umich.edu/aodresources

For a listing of other mental health resources available on and off campus, visit:

http://umich.edu/~mhealth/

Schedule

Thursday 1/10	Organizational meeting
Tuesday 1/15	Marr, "Understanding Complex Information-Processing Systems" (available on Canvas); Haugeland, "What Is Mind Design?" (in *Mind Design*)
Thursday 1/17	Turing, "Computing Machinery and Intelligence" (in *Mind Design*)
Tuesday 1/22	Haugeland, "Computer Architecture" (available on Canvas)
Thursday 1/24	Newell and Simon, "Computer Science as Empirical Inquiry: Symbols and Search" (in *Mind Design*)
Sunday 1/27	First paper due, 2–3 pages
Tuesday 1/29	Minsky, "A Framework for Representing Knowledge" (in *Mind Design*)
Thursday 1/31	Dreyfus, "From Micro-Worlds to Knowledge Representation: AI at an Impasse" (in *Mind Design*)
Tuesday 2/5	*Her* (directed by Spike Jonze)
Thursday 2/7	Boden, Chapters 1–2
Tuesday 2/12	Boden, Chapter 3
Thursday 2/14	Smolensky, "Connectionist Modeling: Neural Computation / Mental Connections" (in *Mind Design*)
Tuesday 2/19	Boden, Chapters 4–5
Thursday 2/21	Brooks, "Intelligence without Representation" (in *Mind Design*)
Sunday 2/24	Second paper due, 2–3 pages
Tuesday 2/26	van Gelder, "Dynamics and Cognition" (in *Mind Design*)
Thursday 2/28	Boden, Chapter 6
Tuesday 3/12	*Lo and Behold: Reveries of the Connected World,* directed by Werner Herzog
Thursday 3/14	Lynch, pp. 3–40
Tuesday 3/19	Lynch, pp. 41–88
Thursday 3/21	Lynch, pp. 89–154
Tuesday 3/26	Lynch, pp. 155–188
Thursday 3/28	O'Neil, Weapons of Math Destruction, pp. 15–31, 50–83
Sunday 3/31	Third paper due, 2–3 pages
Tuesday 4/2	O'Neil, Weapons of Math Destruction, pp. 84–140
Thursday 4/4	O'Neil, Weapons of Math Destruction, pp. 179–232
Tuesday 4/9	Boden, Chapter 7; *The Matrix,* directed by Lilly and Lana Wachowski
Thursday 4/11	*Frankenstein* Volume I
Tuesday 4/16	*Frankenstein* Volume II
Thursday 4/18	*Frankenstein* Volume III
Tuesday 4/23	Johnston, "Traumatic Responsibility: Victor Frankenstein as Creator and Casualty"; "Hang the DJ" (*Black Mirror* Season 4)
Tuesday 4/30	Final exam, 4–6 pm