

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?

COURSE WEB SITE

<https://um-wn23-phil340001.slack.com>

Course announcements, lectures, and readings are in the Slack #course-wide channel.

KEEPING IN TOUCH

Use the Slack #discussion channel to ask questions that aren’t specific to you! This helps everyone, especially because in this course everyone has different strengths and areas of expertise.

Please use a DM on Slack, addressed to both me and your GSI, for any question that is specific to you. If you would especially like a response from me, please mention me (@ericsw) in your DM!

My office hours are 12–2 on Mondays, over Zoom (<https://zoom.us/my/e.swanson>). You don’t need to make an appointment. I’m also more than happy to meet at other times by appointment, on Zoom or outdoors.

BOOKS YOU SHOULD BUY OR BORROW

A Brief History of AI, by Michael Wooldridge

Rebooting AI: Building Artificial Intelligence We Can Trust, by Gary Marcus and Ernest Davis

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

The above are all available as Kindle editions. Other texts and media are available in the #course-wide channel on Slack, tagged with a :book: emoji: <https://um-wn23-phil340001.slack.com> .

LECTURE

Mondays and Wednesdays 10-11:20, **Aud B Angell Hall**. Please attend lecture in person if you're healthy and able! You can also attend lecture on Zoom—<https://umich.zoom.us/j/98943553559>—and ask questions in real time in the #discussion Slack channel. Finally, you can use Lecture Capture, but be sure to keep up!

DISCUSSION SECTIONS (starting the week of 9 Jan.)

- 002, Thursdays at 4 with Josh Song in 2060 SKB
- 003, Wednesdays at 3 with Sean Shih in G115 Angell Hall
- 004, Fridays at 9 with Alex Kornfeld in 1401 Mason Hall
- 005, Fridays at 1 with Sean Shih in 2060 SKB
- 006, Fridays at 2 with Josh Song in 2271 Angell Hall
- 007, Thursdays at 4 with Jason Byas in 2200 SKB
- 008, Thursdays at 10 with Brian Geiringer in 1512 NUB
- 009, Fridays at 10 with Alex Kornfeld in 1449 Mason Hall
- 010, Wednesdays at 4 with Jason Byas in G115 Angell Hall
- 011, Thursdays at 4 with Brian Geiringer in 2150 SKB

GRADING

Submit assignments using a single Slack DM addressed to both me and your GSI with a :memo: emoji.

4%: introducing yourself to your GSI and me using a Slack DM, due by 11:59 pm on 15 Jan. (or a week after you add the course), graded pass / fail.

2% each: responses to eight reading/viewing assignments, graded pass / fail, due by 11:59 pm on the day *before* that reading/viewing is scheduled to be discussed in lecture. These responses should clearly articulate a question or comment, with enough background supplied so that we understand why you have that question or what's behind your comment. Submit these using a single Slack DM addressed to both me and your GSI with a :memo: emoji. When two readings are assigned for a day, you can respond to either or both. Either way, your response for that day counts once. Late responses will not be accepted, since we use these responses to help us prepare for lecture and sections. If you would especially like a response from me, please mention me (@ericsw) in your DM!

20% each: two four to five page papers, due by 11:59 pm on 12 Feb. and 19 Mar.

25%: take-home final exam.

15%: your section grade—participation in section and (optionally) lecture, comprehension quizzes if needed, etc. Excellent Slack participation and reading responses will boost your section grade.

EXPECTATIONS

Things may change, so pay close attention to announcements about policies in lecture, in section, and on Slack.

Keep up with the readings, and do them *before* lecture. They demand careful, patient thought and attention. 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.

I expect all students to understand 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 contact me on Slack 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 might need an accommodation for a disability, please let me know at your earliest convenience. Some aspects of this course 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.

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

<http://www.uhs.umich.edu/aodresources>

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

<http://umich.edu/~mhealth/>

Wed, 4 Jan	Organizational meeting
Mon, 9 Jan	Pre-history; computability; representation Michael Wooldridge, <i>A Brief History of Artificial Intelligence</i> , Introduction and Chapter 1 David Marr, “Understanding Complex Information-Processing Systems”
Wed, 11 Jan	Good old fashioned artificial intelligence (GOFAI) Michael Wooldridge, <i>A Brief History of Artificial Intelligence</i> , Chapter 2 Jill Lepore, “All the King’s Data” aka “How the Simulmatics Corporation Invented the Future”
Sun, 15 Jan	Slack DM introducing yourself to your GSI and me due by 11:59 pm—use a :memo: emoji!
Wed, 18 Jan	Knowledge, expertise, and intelligence Michael Wooldridge, <i>A Brief History of Artificial Intelligence</i> , Chapter 3 Hubert Dreyfus and Stuart Dreyfus, “Peripheral Vision: Expertise in Real World Contexts” Rich Sutton, “The Bitter Lesson”
Mon, 23 Jan	Robotics, embodiment, enaction, embeddedness, emotion Michael Wooldridge, <i>A Brief History of Artificial Intelligence</i> , Chapter 4 Francisco Varela interview Antonio R. Damasio, “Descartes’ Error and the Future of Human Life”
Wed, 25 Jan	What do we want from AI? Gary Marcus and Ernest Davis, <i>Rebooting AI</i> , Chapters 1 and 2
Mon, 30 Jan	Using a possible future to help us reflect on the present <i>Her</i> , directed and written by Spike Jonze
Wed, 1 Feb	Deep learning, part 1 Michael Wooldridge, <i>A Brief History of Artificial Intelligence</i> , Chapter 5 Rodney Brooks, “Machine Learning Explained”
Mon, 6 Feb	Deep learning, part 2 Gary Marcus and Ernest Davis, <i>Rebooting AI</i> , Chapter 3 Sara Hooker, “The Hardware Lottery”
Wed, 8 Feb	Language, understanding, and language understanding Gary Marcus and Ernest Davis, <i>Rebooting AI</i> , Chapter 4 Laura Ruis et al, “Large language models are not zero-shot communicators”
Sun, 12 Feb	First paper due by 11:59 pm, 4–5 pages—use a :memo: emoji!
Mon, 13 Feb	Applications and ambitions Michael Wooldridge, <i>A Brief History of Artificial Intelligence</i> , Chapter 6 Gary Marcus and Ernest Davis, <i>Rebooting AI</i> , Chapter 5
Wed, 15 Feb	Learning from human intelligence, part 1 Gary Marcus and Ernest Davis, <i>Rebooting AI</i> , Chapter 6 Rodney Brooks, “Steps Toward Super Intelligence I, How We Got Here”

Mon, 20 Feb	Human intelligence (such as it is) <i>Lo and Behold: Reveries of the Connected World</i> (directed by Werner Herzog)
Wed, 22 Feb	Learning from human intelligence, part 2 Gary Marcus and Ernest Davis, <i>Rebooting AI</i> , Chapter 7 Susan Gelman interview
Mon, 6 Mar	Forms of life, knowledge, and learning Michael Lynch, <i>The Internet of Us</i> , Preface and Chapters 1 and 2 Chirag Shah and Emily Bender, “Situating Search”
Wed, 8 Mar	Truth and reasonableness Michael Lynch, <i>The Internet of Us</i> , Chapters 3 and 4
Mon, 13 Mar	Knowledge and ethics Michael Lynch, <i>The Internet of Us</i> , Chapters 5–7
Wed, 15 Mar	Knowledge and understanding Michael Lynch, <i>The Internet of Us</i> , Chapters 8 and 9
Sun, 19 Mar	Second paper due by 11:59 pm, 4–5 pages—use a :memo: emoji!
Mon, 20 Mar	Sci-fi futures Michael Wooldridge, <i>A Brief History of Artificial Intelligence</i> , Chapter 7 Rodney Brooks, “The Seven Deadly Sins of Predicting the Future of AI”
Wed, 22 Mar	AI, college admissions, and online advertising Cathy O’Neil, <i>Weapons of Math Destruction</i> , Chapters 1, 3, and 4
Mon, 27 Mar	AI, justice, and employment Cathy O’Neil, <i>Weapons of Math Destruction</i> , 5–7
Wed, 29 Mar	AI, politics, and law Cathy O’Neil, <i>Weapons of Math Destruction</i> , Chapter 10 and Conclusion
Mon, 3 Apr	AI, alienation, bias, fakes, and glitches Michael Wooldridge, <i>A Brief History of Artificial Intelligence</i> , Chapter 8 Ruha Benjamin, “Default Discrimination”
Wed, 5 Apr	Trust and AI Gary Marcus and Ernest Davis, <i>Rebooting AI</i> , Chapter 8 and Epilogue
Mon, 10 Apr	Ideology, human intelligence, and artificial intelligence <i>The Matrix</i> , directed and written by Lilly and Lana Wachowski
Wed, 12 Apr	Consciousness, emotion, and what it’s like Michael Wooldridge, <i>A Brief History of Artificial Intelligence</i> , Chapter 9 Rodney Brooks, “What Is It Like to Be a Robot?”
Mon, 17 Apr	Prediction, directions of fit, and what we value “Hang the DJ” (<i>Black Mirror</i> Season 4) Abeba Birhane, “The Impossibility of Automating Ambiguity”
Wed, 26 Apr	Final exam due by 12:30 pm—use a :memo: emoji!