# ETHICS OF EMERGING TECHNOLOGIES

TBD

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**Course description:** Today, computer algorithms are used to determine the ads you see when you visit a website and the length of prison sentences. Robotic vacuum cleaners are relatively common household appliances in rich countries. Cryptocurrencies are in the news every other day. And many of us are now constantly connected to each other via social media.

Tomorrow, technologies might be an even bigger part of our lives. Driverless cars—and other automated systems like "killer robots"—are getting closer to reality. The algorithms that pick your ads are finding more and more uses in domains such as cancer prevention and screening. Maybe Facebook's "Metaverse" pans out (though I doubt it). What's almost certainly true is that there are more technological changes coming, many of which we won't appreciate until they're upon us.

All these technologies raise important ethical and political questions. Your driverless car is speeding down the road when something unexpected happens—a pedestrian steps into the sidewalk. Should the car prioritize saving your life or that of the pedestrian? And who gets to decide? The car company? The government? Should we put it to a vote?

In this class, we'll survey a number of recent (and not so recent) technological developments and discuss the ethical questions and problems that they present. No previous familiarity with ethics or philosophy—nor any particularly special understanding of technology—will be expected of students prior to the start of the course.

# Course Aims:

- To develop the ability to critically engage with ethical claims relating to emerging technologies.
- To develop familiarity with the type of questions asked by ethicists and the methods used to answer these questions.
- To develop an appreciation for the prospects and difficulties of applying philosophical tools to realworld problems.
- To develop an appreciation for the place of science within a broader ethical context.

Texts: All readings will be posted on the class website.

**Grades:** The grading scale will be as follows: A (94+), A- (90-93), B+ (87-89), B (84-86), B- (80-83), C+ (77-79), C (74-76), C- (70-73), D (60-69), F (59-)

# Assignments:

Final grades in the class will be divided into the following categories (detailed rubrics for the assignments will be given as we approach the due dates):

25% In-class participation. Students will be expected to regularly attend class and contribute to the discussion in ways that respectfully engage with their fellow classmates. Participation will be evaluated according to the following scale:

- 3 Attended class and took a major role in class discussion.
- 2 Attended class and participated.
- 1 Attended class.
- 0 Did not attend class.
- 45% Op-eds. Short papers in which students present an argument for a particular ethical or social position relating to climate change. This paper should be tailored to a more general audience—though students should feel free to identify smaller "general" audiences (e.g., local politicians, business leaders, etc.) that they are particularly interested in convincing. A more detailed rubric can be found on the website.
- 30% Final Paper. A mid-length paper (8-10 pages) on a topic of the student's choice. Approximately 2/3 of the way through the semester, students will be asked to turn in a short (2 paragraph) proposal outlining the planned topic. The proposal will be worth 5% of the final grade; the paper itself 25%. A more detailed rubric can be found on the website.

**Course policies:** In addition to the honor code (http://firstyear.nd.edu/current-students/honor-code/), which students are expected to learn and follow, I will expect students to (a) be respectful of their fellow students, (b) turn their assignments in on time, and (c) behave ethically both in class and in fulfilling their assignments.

# Schedule:

## Unit 1: Introducing the Ethics of Emerging Technologies ([TBD]-[TBD])

# **Reading:**

Day 1 Quinn, Ethics for the Information Age (ch. 1)

Day 2 Rachels and Rachels, *Elements of Moral Philosophy* (ch. 1)

Day 3 Vallor, Technology and the Virtues (ch. 1)

# Key discussion questions:

Do modern technologies like the internet raise important ethical questions? What is ethics, anyway? How should we answer ethical questions? Is there an important difference between being ethical and being virtuous?

### Some suggested further readings:

Franssen et al, "Philosophy of Technology"; Quinn, *Ethics for the Information Age* (ch. 2); Sullins, "Information Technology and Moral Values"; Wallach, *A Dangerous Master* (ch. 2); Vallor, *Technology and the Virtues* (ch. 2-6)

# Unit 2: Automation ([TBD]-[TBD])

#### Reading:

Day 4 Activity: https://www.moralmachine.net/
Day 5 Taylor, "Who Is Responsible for Killer Robots?"
Day 6 Quinn, *Ethics for the Information Age* (ch. 10)
Day 7 Turkle, *Alone Together* (ch. 3)

# Key discussion questions:

What's ethically important about automation? Who should decide how a driverless car behaves? Who's responsible for the behavior of automated devices? Are there limits to the functions that we can outsource to machines?

## Some suggested further readings:

Hübner and White, "Crash Algorithms for Autonomous Cars"; Lin, "Why Ethics Matters for Autonomous Cars"; Sharkey, "Autonomous weapons systems, killer robots and human dignity"; Thomson, "Killing, Letting Die, and the Trolley Problem"; Turkle, Life on the Screen (ch. 3); Vallor, Technology and the Virtues (ch. 9)

# Unit 3: Algorithms ([TBD]-[TBD])

### **Reading:**

Day 8 Angwin et al., "Machine Bias"

Day 9 Hedden, "On Statistical Criteria of Algorithmic Fairness"

Day 10 Biddle, "On Predicting Recidivism"

Day 11 Kossow et al., "Algorithmic Transparency and Accountability"

\*\*Op-ed 1 Due\*\*

Day 12 Sullivan, "Understanding from Machine Learning Models"

Day 13 Binns, "Algorithmic Accountability and Public Reason"

### Key discussion questions:

What does it mean for an algorithm to make fair decisions? Does it matter if we can't understand how the algorithm works?

# Some suggested further readings:

Angwin and Larson, "Bias in Criminal Risk Scores"; Borsboom et al, "Measurement Invariance Versus Selection Invariance"; Burrell, "How the Machine 'Thinks"; Elliott, "A Taxonomy of Transparency in Science"; Kleinberg et al, "Inherent Trade-Offs in the Fair Determination of Risk Scores"; Rubel et al, Algorithms and Autonomy (ch. 3)

# Unit 4: Social Media ([TBD]-[TBD])

# **Reading:**

Day 14 Turkle, Alone Together (ch. 8)

Day 15 Nguyen, "Twitter, the Intimacy Machine"

Day 16 Morozov, The Net Delusion (ch. 1)

Day 17 O'Connor and Weatherall, "Socrates Untenured"

Day 18 Rubel et al, Algorithms and Autonomy (ch. 6)

#### Key discussion questions:

Is the way that social media shapes our interactions with others ethical issue? How can we make social a force for good? Who should be making those decisions, and on what grounds?

# Some suggested further readings:

\*\*Op-ed 2 Due\*\*

Anspach, "The New Personal Influence"; Morozov, *The Net Delusion* (ch 2-6); Quinn, *Ethics for the Information Age* (ch. 3); O'Connor and Weatherall, *The Misinformation Age*; Nguyen "What Zoom Removes"; Smith, "What Social Media Facilitates, Social Media should Regulate"; Vallor, *Technology and the Virtues* (ch. 7)

# Unit 5: Privacy ([TBD]-[TBD])

# Reading:

Day 19 Schneier, Data and Goliath (ch. 1); Zuboff, The Age of Surveillance Capitalism (ch. 8)

Day 20 Véliz, Privacy is Power (ch. 3)

Day 21 Perez, Invisible Women (Intro, ch. 10)

\*\*Proposal Due\*\*

Day 22 Rini and Cohen, "Deepfakes, Deep Harms"

#### Key discussion questions:

Why is privacy important? Why is it under threat? What can we do to protect it?

#### Some suggested further readings:

Lever, On Privacy; Quinn, Ethics for the Information Age (ch. 5-6); Thomson, "The Right to Privacy"; Vallor, Technology and the Virtues (ch. 8)

### Unit 6: Human "Enhancement" ([TBD]-[TBD])

# **Reading:**

Day 23 Baylis and Robert, "The Inevitability of Genetic Enhancement"

- Day 24 Savulescu and Kahane, "The Moral Obligation to Create Children with the Best Chance of the Best Life"
- Day 25 de Melo-Martín, Rethinking Reprogenetics (ch. 3)

## Key discussion questions:

Is human "enhancement" ethical? Is it obligatory? Are there limits? Isn't this just eugenics by another name?

#### Some suggested further readings:

Barnes - The Minority Body; Bostrom and Savelscu, Human Enhancement; de Melo-Martín, Rethinking Reprogenetics; Glover, Choosing Children; Juengst and Moseley, "Human Enhancement"; Powell, "In Genes We Trust"; Rosoff, "I'll be a Monkey's Uncle"; Vallor, Technology and the Virtues (ch. 10)

# Unit 7: Crypto ([TBD]-[TBD])

#### **Reading:**

Day 26 Levine, "Web3 Takes Trust Too" Day 27 Murphy and Stacey, "Facebook Libra" Day 28 *no reading* 

#### Key discussion questions:

\*\*Op-ed 3 Due\*\*

\*\*Final Essay Due\*\*

Should we want privatized currency? Would it be (ethically? politically? practically?) good to have currency that isn't regulated by the government?

# Some suggested further readings:

Molly White maintains a repository of (fairly skeptical) resources regarding Web3, Crypto, and related technologies at https://web3isgoinggreat.com/what