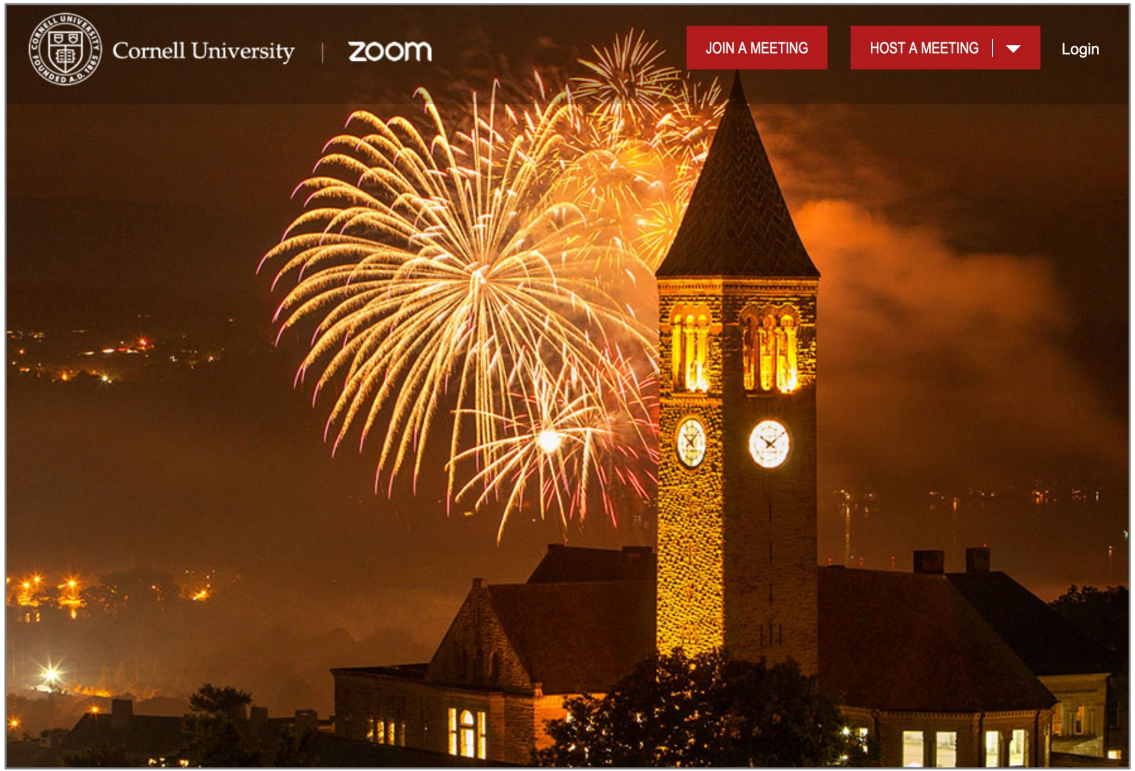
Choices and Consequences in Computing

INFO 1260 / CS 1340
Lecture 1 (Welcome)
January 22, 2024

Choices and Consequences in Computing



Course origins and principles

- Computing applications involve difficult choices with impact on real people
- Systems that combine technical and societal dimensions
  - Platforms that enable communication and expression
  - Systems that learn from people’s digital traces
  - Algorithms that make decisions about people: in the virtual world, in the physical world
- These innovations can produce both benefits and harms
- Design choices produce consequences

Combining multiple disciplines

- Computer Science, Information Science, Applied Math, Statistics
- Law and Public Policy
- Sociology, including group dynamics and structural inequality
- Behavioral science and human decision-making
- Ethical and normative reasoning

Course staff

Faculty
- Jon Kleinberg
- Karen Levy

Grad/Law TAs
- Dan Bateyko
- George Lee
- Hayley Lim
- Jonathan Moon
- Katie Miller
- Michela Meister
- Ruth Martinez-Yepes
- Shengqi Zhu
- Waki Kamino

Undergrad TAs
- Abby Langer
- Aidan O'Connor
- Aimee Eicher
- Alice Hryhorovych
- Amber Arquilevich
- Anya Gert
- Baihe Peng
- Caleb Chin
- Charlie Mollin
- Ciara Malamug
- Daniel Mikhail
- Eirian Huang

Undergrad TAs
- Elisabeth Pan
- Eliza Salamon
- Genie Enders
- Haley Qin
- Katherine Chang
- Linda Lee Zhang
- Lucy Barsanti
- Madeline Yeh
- Melanie Gao
- Obioha Chijioke
- Rachel Wang
- Rohan Shah

Undergrad TAs
- Ruth Rajcoomar
- Sahithi Jammulamadaka
- Shreya Ponugoti
- Sophie Liu
- Tairan Zhang
- Tasmin Sangha
- Teresa Tian
- Thiago Hammes
- Una Wu
- Zayana Khan

Practical orientation

- What day-to-day scenarios might you encounter soon after you graduate?
- This course isn't about finding a "right" answer!
- It is about…
  - Knowing how to make and evaluate well-reasoned arguments
  - Understanding the real trade-offs of complicated choices
  - Acquiring a "toolkit" of different ways to understand a problem

Course topics

Topics overview

(1) Computing systems as platforms for communication and expression

- Content creation and platform policies
- What challenges emerge when people connect with each other and share information on platforms? How do platforms set policies to regulate these behaviors, and how do these decisions relate to debates about the values of speech?

(2) Computing systems as repositories of sensitive information

- Data collection, data aggregation, and the problem of privacy
- As data collection and analysis become central to platforms' business models, what choices do platforms make about how to gather, store, combine, and analyze users' information—and what are the social impacts of these choices?

(3) Computing systems as makers of decisions

- Algorithmic decision-making, fairness, and bias
- Algorithms trained using machine learning are often deployed to evaluate people in a a range of contexts, including employment, education, credit, healthcare, and the legal system. How might these systems end up incorporating biases from the social world, and what mechanisms might address these biases?

Course mechanics

Background and prerequisites

- Wide variety of backgrounds: students from >50 majors, all 7 colleges!
- No formal course prerequisites
- Math/computing background: some past experience with probability
  - The course will explore mathematical models of some applications in computing, but it won't involve writing computer programs.
- Social science/policy background: none required (but perspectives welcomed!)
  - How to read these materials
- Relationship to INFO 1200
  - Some overlap but very different scopes/foci
  - You can get credit for both
  - This course can be substituted for INFO 1200 for IS major requirement

Lecture dynamics and discussions

- Lectures will be livestreamed on Zoom as they happen in Bailey Hall
  - See Canvas for Zoom link
- Use Ed Discussion thread for questions and to share additional resources
  - https://edstem.org/us/courses/54580/discussion/
- TAs will keep an eye on the Ed Discussion thread during/after class to help answer questions
- Lecture recordings and readings will be available on Canvas
  - Reading links are in the syllabus too; PDFs are on Canvas in case of paywalls

Difficult topics

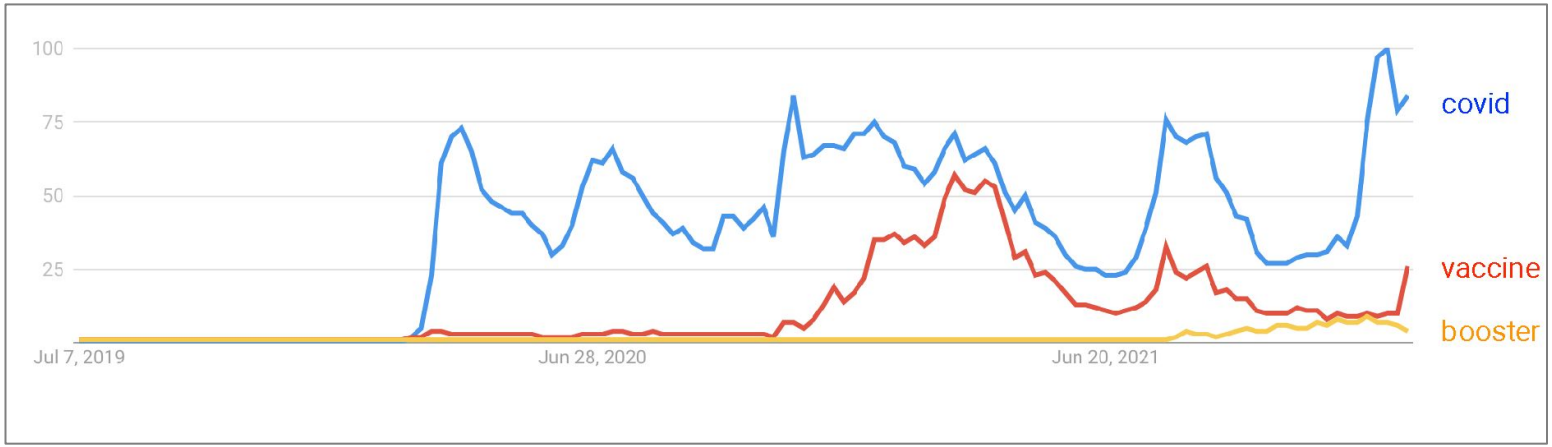
- Some of the topics and materials we'll consider will be disturbing and controversial—and may impact people in our class differently
- Tech policy isn't just about tech; it's about housing, credit, politics, health, education, jobs…
- We confront them here to understand the gravity of the problems we are engaging, and to equip you with tools to address them in your own work
- **Please voice your views in ways that are (1) respectful, (2) well-considered/supported by evidence or experience, and (3) open to the validity of other viewpoints.**

Office hours, homeworks, exam

- Office hours will start in week 2
  - Jon and Karen are available to meet about course-related questions in week 1 before the formal start of office hours.
- Homeworks: goal is to combine mathematical models with social science / policy implications.
  - Multiple styles of questions, with linkages between them
- Take-home final exam, over several days (more info later in semester)
- Academic integrity: discussed in detail on syllabus
  - Can collaborate on homework and final exam, but must write up independently
  - Generative AI use policy: can use for research, but homework/exam answers must be yours (not verbatim nor paraphrased from a generative AI tool)
  - Cite all work that is not your own (err in the direction of over-citing)

Course themes

Relationship of computational models to the world



Start with a phenomenon in the social world:

- E.g. interest in a topic

Can we find a proxy for it in the online world?

- E.g. search volume