Logistics: Project

- Project presentation (next week in lectures)
  - Everyone is expected to attend both lectures
  - 10 minutes for presentation + 1~2 minutes for QA and transition

Dec 6	Ming Gao, Boyan Tian, Jiayi Zhang
	Ruowen Xu, Yucen Zhong
	Jiajun Sun, Xianchun Zeng, Miao Qin
	David Sarpong, Alex Wollam
	Cenhao Li, Ruiwei Xiao, Yang Yi
	Aayush Dhakal, Subash Khanal
Dec 8	Tejas Mattur, Run Zhang, Jacob Dodd
	Yiding Tao, Xiangyu Chen
	Danielle Beaulieu, Kaushik Dutta
	Qihang Huang, Zheng Wang, Zhuomin Li
	Daisy Wang, Xinyi Ye

Logistics: Project

- Project reports
  - Due: Dec 9 (no late submissions)
  - Up to 6 pages (plus unlimited number of pages for only references/citations)
  - No strict format requirements
    - You are encouraged to use standard templates, such as AAAI format or NeurIPS format
  - For research projects
    - Your report should be structured in a way similar to the research papers we have read throughout the semester. (e.g., include introduction, related work, research problem or formulation, your proposed approach, results, conclusions).
  - For literature surveys
    - Do not summarize papers one by one.
      Find a theme, categorize papers, and put them in context.
    - Example: Making Better Use of the Crowd: How Crowdsourcing Can Advance Machine Learning Research. Vaughan. JMLR 2018.

Assignment 4

- Due tomorrow

- Check the list of talks on Piazza

Reminder on The Grades (Copied from Lecture 1)

- Condition on you complete all other requirements satisfactorily, your final grades are determined by your final project
  - A+: Your project is close to be published in top venues
  - A: I'm happy to use your project as model projects in the future
  - A-: Overall good but might be better (in reports/presentation/approaches/…)
  - B+ or lower: There are more significant flaws in the project (e.g., not well-motivated problems, major issues in result interpretation/explanation, etc)
- Your final grades will be decreased from the above for missing reviews / homework issues / non-participation using the grading break-up in the syllabus
  - Follow the standard mapping (>93%: A, 90-93%: A-, …)

Peer Review

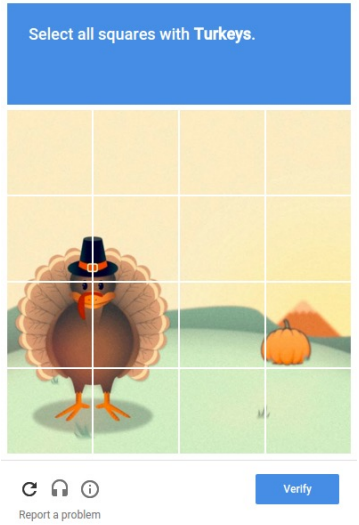
- Please submit the peer review by 6pm

Lecture 24
Course Wrap-up

Instructor: Chien-Ju (CJ) Ho

Human-in-the-Loop Computation

- Study the design and analysis of human-in-the-loop computation.



Human as data sources: Label aggregation
Probabilistic reasoning to aggregate noisy human data

Practical challenges: Complex tasks and teams
Studies on workflow and team designs from HCI perspective

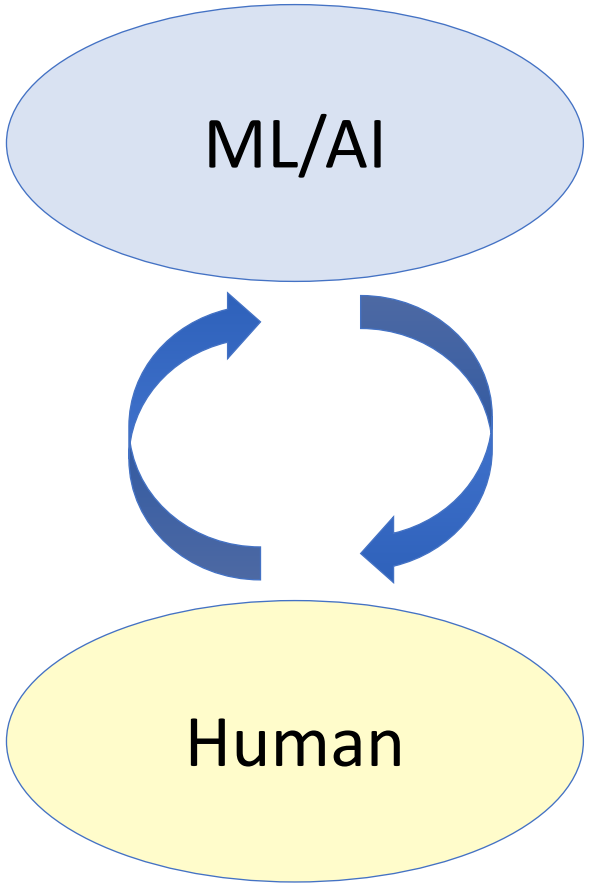
Humans are "Humans": Incentive design
Game theoretical modeling of humans and incentive design

Selected recent topics:
Ethical issues of AI/ML, learning with strategic behavior, Human-AI collaborations.

- ~~Will cover~~ Covered research papers from a wide spectrum of research fields, including machine learning, economics
- Explore more? Google scholar, conferences on where the papers you read are from

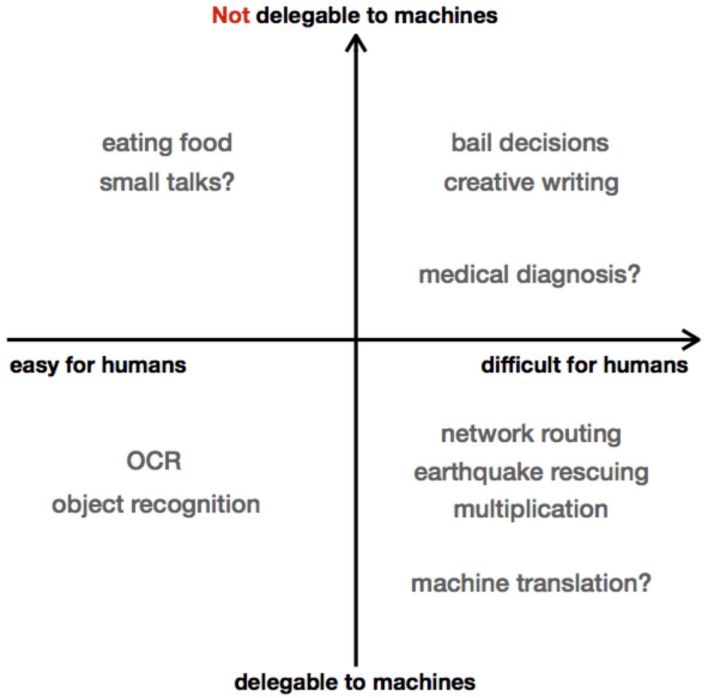
Interactions between Human and AI

- How AI learns from humans
  - Label aggregation
  - Incentive design
  - Biases input
- How AI impacts humans
  - Fairness
  - Transparency
  - Strategic manipulation

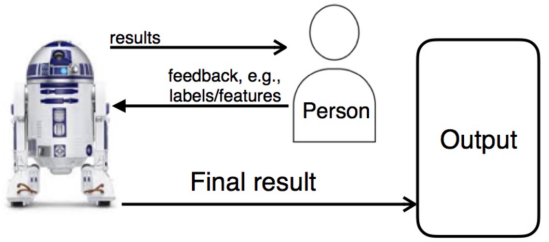


Human-AI Collaboration

- What can AI do => What should AI do

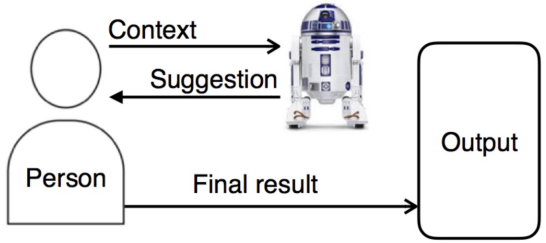


- Human-in-the-Loop



Model human behavior in computation
Design AI/ML that account for human behavior

- Machine-in-the-Loop



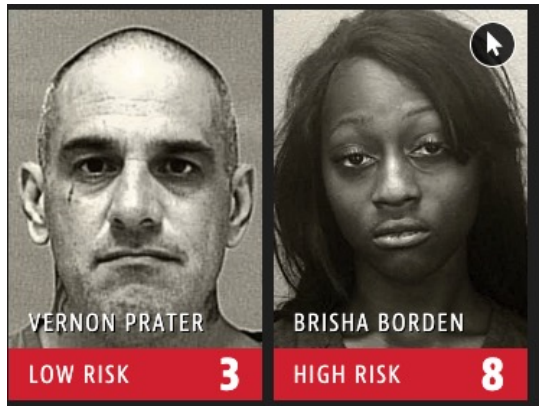
Model how humans model AI
Design AI/ML that account for humans' mental models

Opportunities and Challenges For AI/ML + Humans/Society

- AI amplifies/augments human abilities
- It also amplifies and create challenges

RESEARCH-ARTICLE

Towards fairer datasets: filtering and balancing the distribution of the people subtree in the ImageNet hierarchy



Human-Centered Machine Learning

- The idea is nice => AI is augmenting humans instead of replacing humans
- AI might also be able to manipulate humans to make decisions
  - Think about recommendation letter writing in Assignment 3
- Let's just ask AI to present all information
  - Exceed the human cognitive load
- Who to decide what AI should do?

Opportunities and Challenges For AI/ML + Humans/Society

- WashU Division of Computational and Data Sciences
  - A PhD program hosted by CSE, Political Science, Social Work, Psychology and Brain Science

- MIT Institute for Data, Systems, and Society
- CMU Societal Computing
- Stanford Institute for Human-Centered Artificial Intelligence
- USC Center for AI in Society
- Harvard Center for Research on Computation and Society

- ACM FAccT* (Fairness, Accountability, and Transparency)
- AAAI / ACM Conference on AI, Ethics, and Society