




User-Centered Machine Learning

CS568 SPRING 2023 UIUC WEDNESDAY AND FRIDAY 2-3.15PM CT HYBRID SYNCHRONOUS

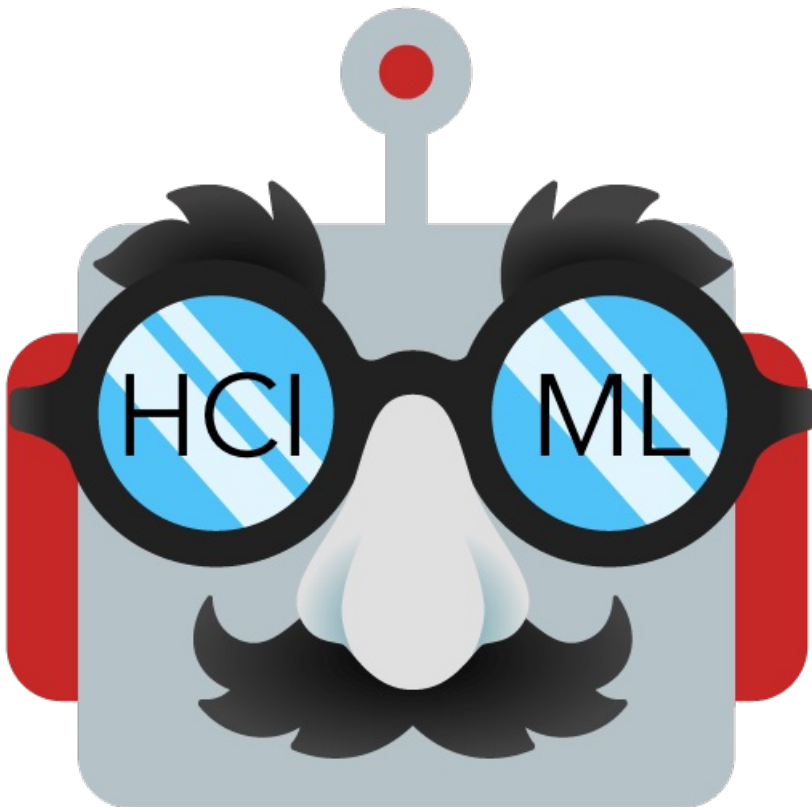
OVERVIEW

Introduces guidelines, processes, and systems for designing effective user experiences powered by machine learning models. Topics include design tradeoffs unique to data-driven products and services such as automation versus control, precision versus recall, and personalization versus privacy. Readings from human computer-interaction, product design, cognitive science, machine learning, computer vision, and natural language processing frame in-class design exercises. Students work in teams on a multi-week research project creating or auditing data-driven experiences.

This semester, we will be using the following technologies to facilitate the hybrid format:

-  Zoom for online instruction
-  Slack for all written class communications
-  Mural for collaborative design exercises

Follow the links in this doc to sign up for the course's workspaces.



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Email or Slack us to make an appointment


SYLLABUS

January 18

HCI for ML

January 20

AI vs IA


 Augmenting Human Intellect: A Conceptual Framework

January 25

NO CLASS

January 27

Guidelines: Google


 People + AI Guidebook (6 Chapters)

Commentaries due starting today

WEEK 1


February 1

Guidelines: Microsoft

 Guidelines for Human-AI Interaction

February 3

Guidelines: Apple

 Human Interface Guidelines > Machine Learning

WEEK 2

February 8

Needfinding

 The Needfinding Machine

February 10


Needfinding

 Designing the Future of Personal Fashion

WEEK 3

February 15

Data Collection

 VizWiz Grand Challenge: Answering Visual Questions from Blind People

📄 Rico: A Mobile App Dataset for Building Data-Driven Design Applications (optional)

February 17

Data Collection

📄 Labeling images with a computer game

WEEK 4

February 22

Co-learning

📄 Power to the People: The Role of Humans in Interactive Machine Learning

📄 Machine learning as meta-instrument: Human-machine partnerships... (optional)

February 24

Co-learning

📄 Crowd-AI Camera Sensing in the Real World

📄 Evorus: A Crowd-powered Conversational Assistant Built to Automate Itself Over Time (optional)

WEEK 5

March 1

Interpretability and Explanations

📄 The challenge of crafting intelligible intelligence

March 3

Interpretability and Explanations

📄 The Building Blocks of Interpretability

WEEK 6

March 8

Interpretability and Explanations

📄 ``Why Should I Trust You?'' Explaining the Predictions of Any Classifier

March 10

Interpretability and Explanations

📄 Interpretability Beyond Feature Attribution Quantitative Testing with Concept Activation Vectors (TCAV)

Final Project Groups & Abstracts Due

WEEK 7

March 15

SPRING BREAK

March 17

SPRING BREAK

WEEK 8

March 22

Algorithmic Ethics

📄 Critical Questions for Big Data

March 24

Algorithmic Ethics

📄 Datasheets for Datasets

WEEK 9

March 29

Algorithmic Ethics

- When the Algorithm Itself Is a Racist: Diagnosing Ethical Harm in the Basic Components of Software

March 31

Algorithmic Ethics

- The Moral Machine experiment

WEEK 10

April 5

Error Handling and Trust Management

- Will You Accept an Imperfect AI?: Exploring Designs for Adjusting End-user Expectations of AI Systems
- Understanding the Effect of Accuracy on Trust in Machine Learning Models (optional)

April 7

Error Handling and Trust Management

- Ambiguity-aware AI Assistants for Medical Data Analysis

WEEK 11

April 12

Decision-Making Support

- Human Decisions and Machine Predictions

April 14

Decision-Making Support

- Human-Centered Tools for Coping with Imperfect Algorithms During Medical Decision-Making

WEEK 12

April 19

Creativity Support

- Can Computers Create Art?
- A big data approach to computational creativity: The curious case of Chef Watson

April 21

Creativity Support

- CoAuthor: Designing a Human-AI Collaborative Writing Dataset for Exploring Language Model Capabilities
- AI as Social Glue: Uncovering the Roles of Deep Generative AI during Social Music Composition (optional)

WEEK 13

April 26

Final Project Presentations

April 28

Final Project Presentations

WEEK 14

May 3

Final Project Presentations

WEEK 15

WEEK 16