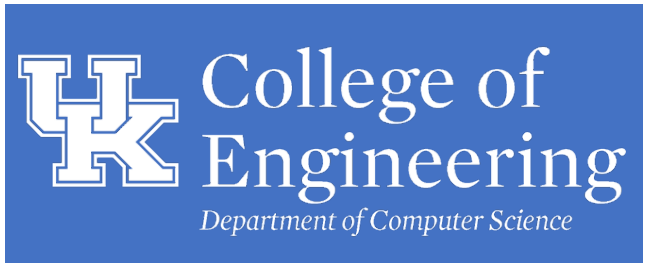
Announcing the proposed Undergraduate AI Certificate

Judy Goldsmith

Professor and Associate Chair

Computer Science



Why an AI Certificate? For whom?

- Because AI is ubiquitous
- Because all citizens should know something about how AI works, what it *can* do, what it *can't* do, and what it *shouldn't* do
- In particular, this certificate will be open to all undergraduates
- There may be tracks for those who want to *create* AI, and those who want to be knowledgeable and *use* AI

Certificate Requirements (12 credits)

- Intro to AI: CS 463G or (proposed) AI in the World
- Machine Learning: CS 460G or (proposed) Generative AI
- Computing Ethics: CS 509 (proposal under review) or ICT205: Issues in Information and Communication Technology Policy
- Elective from a list that includes courses from: Business, Data Science, EE/ME, Math, Statistics, WRD (so far – additions welcome!)

CS 263: AI in the World Proposed Syllabus (1)

- Week 1: Goals of AI (use Norvig & Russell's grid of think/act like humans, solve tasks humans solve) and history; what is intelligence?
- Week 2-3: "Classical" AI: introduce notions of deduction, logic programming, expert systems, planning, multi-agent systems, etc.
- Week 4: Basics of machine learning, to focus on how training data drives learned behaviors
- Week 5-8: Introduction to current AI tools

CS 263: AI in the World Proposed Syllabus (2)

- Week 9: Data is not value neutral – exploring data, information, knowledge
- Week 10: Fairness, bias, transparency, trust, explainability
- Week 11: Ethical frameworks and their application to AI technology and its uses
- Week 12: Legal policies
- Week 13: Intro to socio-technical systems
- Week 14: Current AI tools as socio-technical systems: how do big systems encode social and moral assumptions, how do they enforce social and moral systems?
- Week 15-16: Current Applications of AI and Review

CS 465: Generative AI draft proposal (1)

- Week 1: Course overview; what is generative AI?
- Week 2: Training genAI systems
- Week 3-4: Evaluating genAI systems
- Week 5: Rule-based generation
- Weeks 6-7: Markov chains and Naïve Bayes

CS 465: Generative AI draft proposal (2)

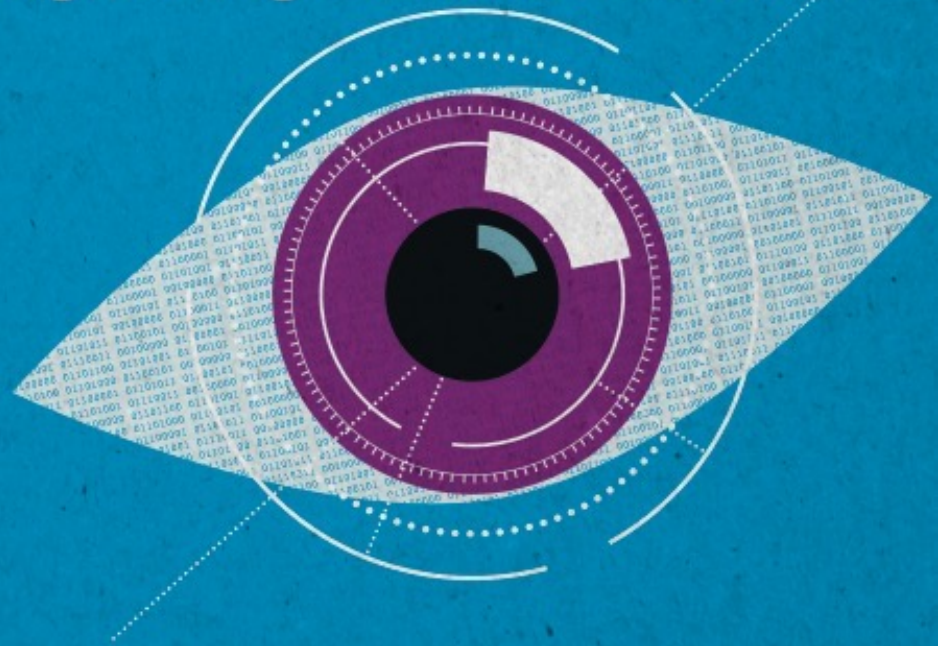
- Weeks 8-9: RNNs, LNNs, and GRUs
- Week 10-12: Complex Generative Methods
- Weeks 14-15: Applications of Generative Systems
- Week 16: Assorted topics

CS 509: Computer Ethics (proposed)

- Week 1: Intro and overview
- Weeks 2-9: Introduction to ethical theories (virtue ethics, deontology, utilitarianism, communitarianism, feminist ethics, capabilities)
- Week 10: Managing Knowledge
- Weeks 11-12: Personhood and Privacy
- Weeks 13-14: Technology and Society
- Weeks 15-16: Assorted topics

Computing and Technology Ethics

Engaging through Science Fiction



Emanuelle Burton, Judy Goldsmith,
Nicholas Mattei, Cory Siler, and Sara-Jo Swiatek