15-780: Advanced AI Concepts
16-731: Fundamentals of AI for Robotics
www.cs.cmu.edu/~cga/ai-course

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Lectures will be recorded

- I will record my lectures.
- I will try to make some form of the recording available on the web.
- This means questions will also be recorded. According to Penn. law, both parties of a communication must be notified if it is being recorded.

Goals

- Formulate problem
- Use available tools
- Do research
- Write it up
- Invent new tools

Exams, Assignments, Projects, etc.

- No exams
- 3-4 major assignments
- Some minor assignments
- A project, written up as a conference paper
- Group size limited to 3
- No textbook. I will recommend references as we go along.

What are we going to cover?

- AI as function approximation: classification, regression, …
- Recognizing/Estimating over time: Kalman filters, particle filters, HMMs, …
- Planning: search, path planning, MDP, RL, DP, POMDP, AI planning, …
- Planning with other agents: games, …
- Data mining
- Reasoning: combinatorial optimization, continuous optimization, Bayesian reasoning
- Symbols: the next big thing?

Assignment 1 (minor, due today)

- Send email to cga, neill, tingliu, sonyaa@cs.cmu.edu
- 1) Tell us about yourself. Why are you taking this course?
- 2) What do you know about AI? What course(s) have you taken? What did they cover?
- 3) What research are you doing now? How does it relate to AI?
- 4) What topics do you want to cover in this course? What topics should not be covered?
- 5) How can we help you?

Who am I?

- Humanoids, Intelligent environments
- Movies
- My biases: model-based, numerical, probabilistic, learning, experimental, …
- Valerie, Asimo, …