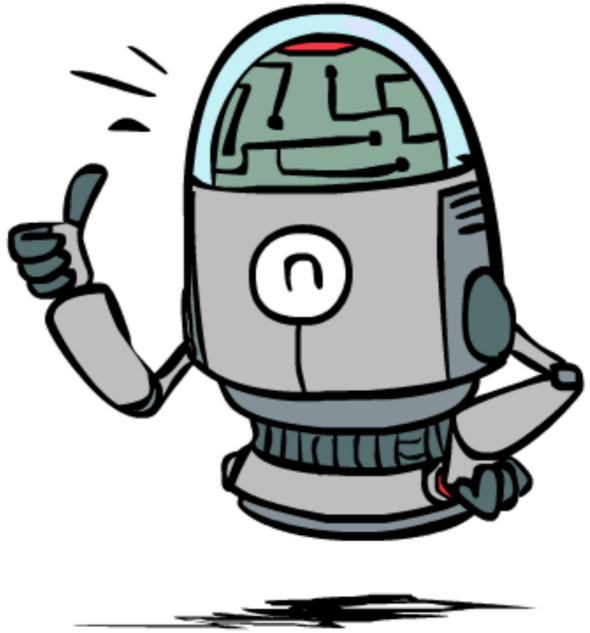
CS 5522: Artificial Intelligence II

Midterm Review



Instructor: Wei Xu

Ohio State University

[These slides were adapted from CS188 Intro to AI at UC Berkeley.]

Midterm

- The midterm will be closed notes, books, laptops, and people.
- 80 minutes in class.
- Preparation:
  - Lecture Slides
  - Hand-out Exercises
  - Practice Midterm
  - Project 1: Search in PacMan
  - Project 2: Mutli-Agent PacMan

Midterm (20%)

- Make sure you **understand** the fundamentals in addition to being able to procedurally execute algorithms.

- The exam will not test your knowledge of Python, however questions may assume **familiarity with the projects** and test ability of **writing pseudocode**.

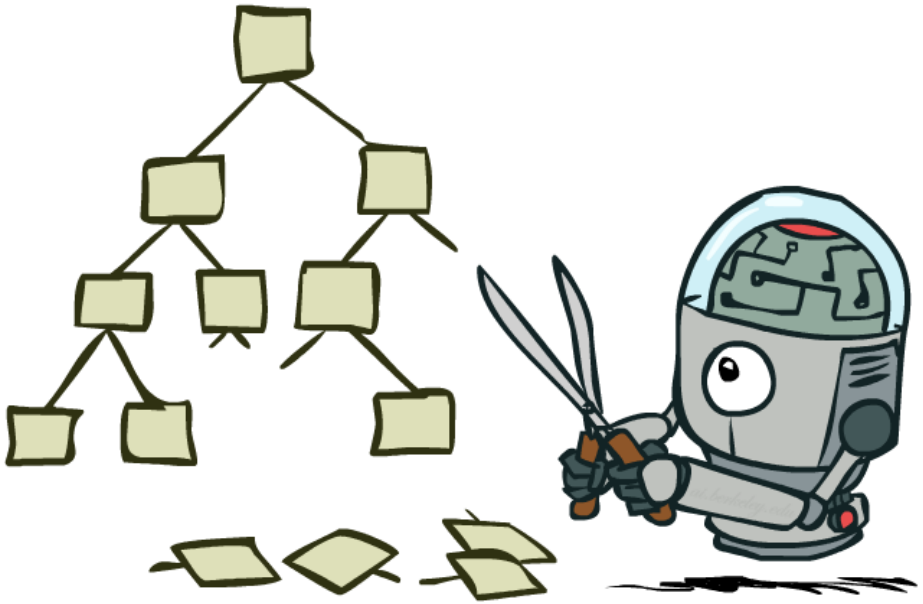
- See **hand-out exercises** and **practice midterm** for examples

2% extra credit for submitting your solutions in lecture on Friday 3/2 by 11:10am

Possible Midterm Topics

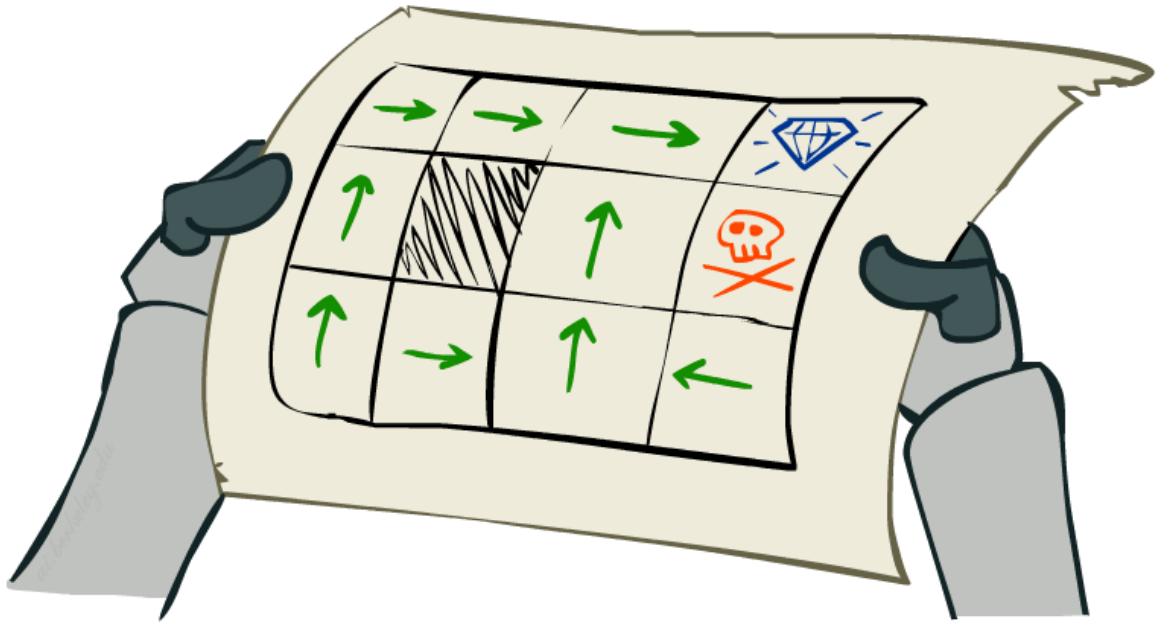
- Search:
  - BFS, DFS, USC, A*, Greedy Search
  - Tree search vs. Graph Search
  - properties: completeness and optimality
  - Heuristics: admissibility and consistency

- Games:
  - Minimax search
  - Alpha-beta pruning
  - Expectimax search
  - Evaluation functions



Possible Midterm Topics

- Markov Decision Processes:
  - The maximum expected utility (MEU) principle
  - Reflex agents and policies
  - Markov decision process definition
  - Reward functions, values and q-values
  - Bellman equations
  - Value iteration
  - Policy iteration
  - Be able to formulate a problem as an MDP (e.g. Gridworld; mini-blackjack)
- Probabilities
  - Joint, marginal, and conditional distributions
  - Product rule, chain rule, Bayes' rule
  - Inference
  - Independence, conditional independence



Possible Midterm Topics

- Will **not** cover the follows:
  - Utility theory
  - Reinforcement learning
  - Markov model

Office Hour this/next week

- Midterm - Wednesday, Feb 28th 4-5pm (DL 495)
- Midterm - Monday, March 5th 1-2pm (DL 495)
- no office hour - Wednesday March 7th

- Project #2 - TA hour Thursday 10:30-11:30am (DL 580)