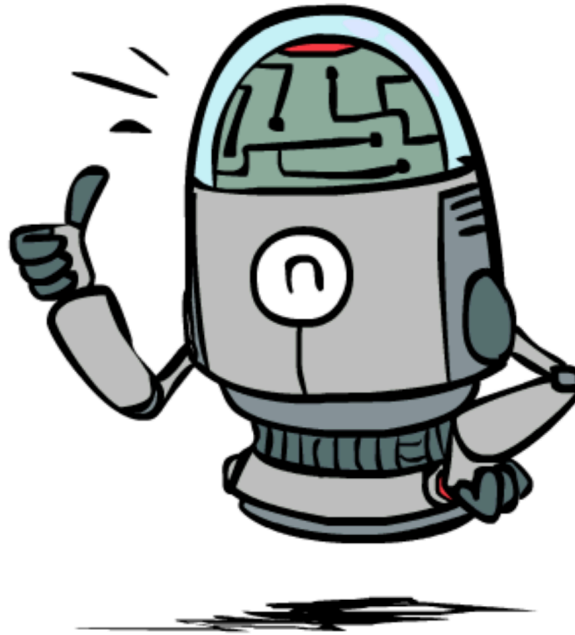


# CS 5522: Artificial Intelligence II

## Midterm Review



Instructor: Wei Xu

Ohio State University

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

# Midterm

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- The midterm will be closed notes, books, laptops, smartphones, and people.
- 80 minutes in class.
- Preparation:
  - Lecture Slides
  - Written Homework (including optional ones)
  - Project 3: Reinforcement Learning

# Midterm (20%)

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- 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 written homework, example exams for examples

# Possible Midterm Topics

## ■ Search:

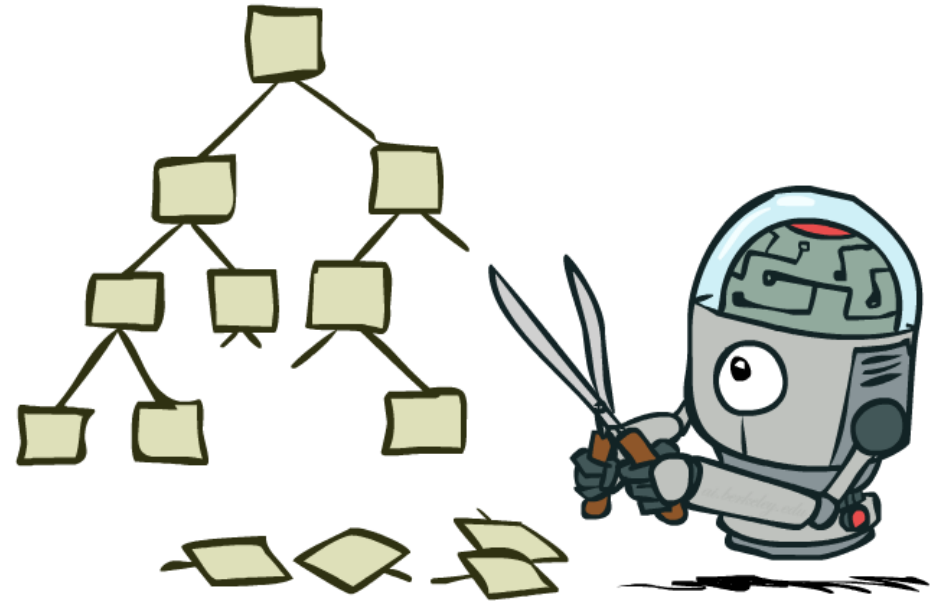
- BFS, DFS, USC, A\*, Greedy Search
- Tree search vs. Graph Search

## ■ Games:

- Minimax search
- Expectimax search
- Alpha-beta pruning

## ■ Utilities:

- Expected utilities
- Lottery, Equivalent momentary value
- Insurance



# Possible Midterm Topics

- Markov Decision Processes:
  - Markov decision process definition
  - Reward functions, values and q-values
  - Bellman equations
  - Value iteration
- Reinforcement Learning
  - Q-learning
  - Approximate Q-Learning

## Project 3: Reinforcement Learning



Pacman seeks reward.  
Should he eat or should he run?  
When in doubt, Q-learn.

# Possible Midterm Topics

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- Will not cover the follows:
  - Search (properties): completeness and optimality
  - Search (heuristics): admissibility and consistency
  - MDPs (policy iteration)
  - Probabilities
  - Project 1 and Project 2

# Office Hour this/next week

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- 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)