

# Final Review

Lecturer: Ji Liu

# Overview

- Midterm: 10 questions (Basic questions 90% + tricky questions 10%)
- Time: 75 mins (use your time wisely)

# Problem Solving

- Given a practical problem, know how to use the state space and successor function to describe it into a state search problem

# Uninformed Search

- Bread First Search
- Depth First Search
- Uniformed Cost Search
- Iterative Deepening
- Bidirectional Search

# Requirement

- Understand the procedures of all algorithms
- Know their time and space complexities
- Given a simple problem, be able to trace all algorithms step by step

# Informed Search

- A\* algorithm (familiar with the algorithm flow)
- Admissible functions
- Understand the relationship between A\* algorithm and other uninformed search algorithms.

# Advanced Search

- Hill Climbing, Simulated Annealing, and Genetic Algorithm
- Know the motivation of these three algorithms
- Know their drawbacks

# Game Playing

- Definition of 2 player zero sum deterministic finite discrete game with perfect information
- How to construct a game tree
- Minimax Algorithm (know the algorithm procedure)
- Alpha beta pruning (know the relationship with minimax algorithm)
- Be able to trace the alpha beta values
- Theoretical score (know how to use Minimax or alpha beta pruning to find the theoretical score)
- How to extend minimax to non-deterministic games



# Game Theory

- Dominated strategy
- Matrix normal form
- Nash Equilibrium points (definition and how to find it in some special cases)
- If the pure optimal strategy does not exist, know how to find the mixed optimal strategy (definition and how to solve it)

# Tips for preparing CSC 242 final

- Review the course slides and follow every example in slides
- Review all questions in homework