CS4881 AI – Midterm Study Guide

AI Concepts
       Rationality
       Turing test

Intelligent Agents
- Given a class of environments and tasks seek agent with best performance
- PEAS –
  - performance measurement
  - task environment
    - Fully/partially observable, deterministic/stochastic, episodic/sequential, static/dynamic, discrete/continuous, single/multi agent.
  - actuators
  - sensors
- Agent functions, types, architecture
  - Reflex, model based, goal oriented, utility based
  - Learning agents

Uninformed Search
- Problem solving agents, states, actions to consider given a goal
- Tree search algorithms
- completeness, time complexity, space complexity, optimality
- breadth-first, uniform-cost, depth-first, iterative deepening search

Informed Search
- Greedy, best-first, A*, local search, hill climbing, simulated annealing, local bean, genetic algorithms

Constraint Satisfaction
- CSP Problems
- Backtracking search
- Local search for CSPs

Game Playing
- Adversarial search
- Initial State, successor function, terminal test, utility function
- Minimax
- Alpha-beta pruning
- Expectimax
- Resource limitations, cutting off search, singular exclusions

Markov Decision Processes
- Bellman equations
- Value iteration
- Policy evaluation

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