COSC367: Artificial Intelligence

This course introduces major concepts and algorithms in Artificial Intelligence. Topics include problem solving, reasoning, games, and machine learning.

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Contents

Artificial Intelligence

Course Information

The course covers core topics in AI including:

- uninformed and informed graph search algorithms,
- propositional logic and forward and backward chaining algorithms,
- declarative programming with Prolog,
- the min-max and alpha-beta pruning algorithms,
- Bayesian networks and probabilistic inference algorithms,
- classification learning algorithms,
- consistency algorithms,
- local search and heuristic algorithms such as simulated annealing, and population-based algorithms such as genetic search and swarm optimisation.

Grades

Standard Computer science policy applies

- Average 50% over all assessment items
- Average at least 45% on all invigilated assessment items

Grading structure for course

- Assignments (5%)
    - Two Super Quiz's
- Quizzes (16.5%)
    - Weekly Quiz Assessments
- Lab Test (20%)
- Final Exam (58.5%)

Textbooks / Resources

- Poole, David L.1958, Mackworth, Alan K; Artificial intelligence : foundations of computational agents; Cambridge University Press, 2010.
- Russell, Stuart J, Norvig, Peter; Artificial intelligence : a modern approach; 3rd ed; Prentice Hall, 2010.

Reading's

Lecture's

Foundations of computational agents

Artificial Intelligence is the field that studies the *synthesis and analysis of computational agents that act intelligently.*

Definitions

- Agent

  - An agent is something that acts in an environment; it does something. Agents includes, worms, dogs, thermostats, airplanes, robots, humans, companies and countries.
  - is considered intelligent when:
    * what it does is appropriate for its circumstances and its goals, taking into account the short-term and long-term consequences of its actions
    * it is flexible to changing environments and changing goals
    * it learns from experience
    * it makes appropriate choices given its perceptual and computational limitations