Lecture 1 (Introduction)

1 Reference Material

Artificial intelligence: A Modern Approach. Russell, Stuart J., and Peter Norvig

2 Course Content

1. Problem solving as search
2. Game playing (adverserial search)
3. Constraint satisfaction
4. Probabilistic reasoning
5. Learning and neural networks
6. Markov decision processes
7. Reinforcement learning

3 Course Objectives

1. Understand the fundamental concepts in AI
2. Develop insights about the models and techniques
3. Applications
4. Acquire a toolkit to model and solve problems
5. Preparation for advanced courses and research projects

4 What is AI?

(informal definition) Models and algorithms that lead to intelligent behavior or solve problems that require human-like intelligence

4.1 What is Intelligence?

- Ability to percieve and act in the world
- Reasoning: proving theorems, etc
- Planning

- Learning and adaptation
- Understanding

4.1.1 Perceptual Tasks

- Speech technologies
  - Automatic speech recognition (ASR)
  - TTS
  - Language generation
- Language processing technologies
  - Question answering
  - Machine translation
  - Web search
  - Text classification
  - Spam filtering

4.1.2 Visual Tasks

- Object and face recognition
- Scene segmentation
- Image classification