CS 486: Intro to AI

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Notes written from Peter Van Beek's lectures.

Contents

1 Introduction

1.1 Intelligence

Intelligence : general mental capability that includes *reasoning*, *planning*, *thinking abstractly*.

Church-Turing Thesis : Any effective computable function can be carried out on a Turing machine

Thinking : reasoning symbolically, which can according

Newell-Simon Hypothesis : A physical symbol system has the necessary and sufficient means for general intelligence

1.2 Models of AI

Cognitive Modelling : determine how humans think, computational theories of the mind

Turing Test : acting humanly

Laws of thought : thinking rationally

Rational agent : acting rationally based on perceptions, decision theory

The unifying theme is **intelligent agents** which percieves through sensors and outputs through actuators.

1.3 Design Space of AI

- modularity
- repsentation scheme
- planning horizon
- uncertainty
  - sensing: fully/partially observable
  - effect: deterministic, stochastic
- preference
- number of agents
- learning
- computational limits