

What is AI?

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Many Definitions for AI Systems

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**Think like
Humans**

How humans think!

Many Definitions for AI Systems

**Think like
Humans**

How humans think!

**Act like
Humans**

How humans behave!

Many Definitions for AI Systems

**Think like
Humans**

How humans think!

**Think
Rationally**

How to make rational
decisions

**Act like
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How humans behave!

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**Act
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How to act rationally to
achieve a certain goal

Many Definitions for AI Systems

**Think like
Humans**

How humans think!

*Need to understand how humans
think: Cognitive Science*

Many Definitions for AI Systems

**Act like
Humans**

How humans behave!

*Need to understand how humans
behave: Pass the Turning Test*

Many Definitions for AI Systems

**Act like
Humans**

How humans behave!

***Need to understand how humans
behave: Pass the Turning Test***

- ***Natural Language Processing***
- ***Knowledge Representation***
- ***Reasoning***
- ***Machine Learning***

Many Definitions for AI Systems

Need to define “What is rational thinking”?

**Think
Rationally**

How to make rational
decisions

Many Definitions for AI Systems

Need to define “What is rational (right) thinking”?

- ***A philosophical question!***
- ***Aristotle was the first to address it***
- ***Development of Logic and inference rules that give correct results when given correct premises.***

**Think
Rationally**

How to make rational
decisions

Many Definitions for AI Systems

Need to define “What is rational (right) thinking”?

- *A philosophical question!*
- *Aristotle was the first to address it*
- *Development of Logic and inference rules that give correct results when given correct premises.*

Think
Rationally

How to make rational decisions

Premises:

- 1. Socrates is a man***
- 2. All men are mortal***



Conclusion:

- ***Socrates is mortal***

Many Definitions for AI Systems

Need to define “What is rational behavior”?

**Act
Rationally**

How to act rationally to
achieve a certain goal

Many Definitions for AI Systems

Need to define “What is rational behavior”?

- ***Defined in terms of a given goal.***
- ***Rational acting leads to achieving the best possible outcome.***

**Act
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How to act rationally to
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Many Definitions for AI Systems

Neuroscience

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How to make rational
decisions

Logic

Psychology

**Act like
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How humans behave!

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Rationally**

How to act rationally to
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Economics

Many Definitions for AI Systems

Neuroscience

**Think like
Humans**

How humans think!

**Think
Rationally**

How to make rational
decisions

Logic

Math

Computer Engineering

Linguistics

Control Theory

Psychology

**Act like
Humans**

How humans behave!

**Act
Rationally**

How to act rationally to
achieve a certain goal

Economics

There are **many**
definitions of AI, all
rely on theories from
other disciplines.

The most common approach to AI leans on definitions relating it to **Rational Action**.

AI Requires

- Natural Language Processing
- Knowledge Representation
- Reasoning under certainty and uncertainty
- Machine Learning
- Perception & Acting that utilizes Computer Vision & Robotics

Thank you!