

♦ A brief history

What is AI?

 \Diamond The state of the art

Systems that think like hun

Systems that act like huma

Acting human

 $T_{\text{train}} = (1000) \text{ "Comparations and ab"}$

 \diamondsuit Predicted that by 2000, a mag

Operational test for intelligent

Anticipated all major argumen

♦ Suggested major components







understanding, learning

Problem: Turing test is not repro

amenable to mathematical ana







Thinking human

1960s "cognitive revolution": info

prevailing orthodoxy of behavioris

Requires scientific theories of inte

- What level of abstraction? ""

1) Predicting and testing behavior

Both approaches (roughly, Cognit

are now distinct from Al

or 2) Direct identification from ne

Both share with AI the following

the available theories do not

anything resembling human-l

Hence, all three fields share one p

Thinking rationa

Normative (or prescriptive) rather

Aristotle: what are correct argum

Several Greek schools developed v

notation and rules of derivation may or may not have proceeded t

Problems:

1) Not all intelligent behavior is n

2) ? What thoughts **should** I ha

out of all the thoughts (logical or

Acting

Rational behavior: doing the right

The right thing: that which is exp

given the available information

Doesn't necessarily involve thinking should be in the service of

Every art and every inquiry, a

action and pursuit, is though

Ratio

An agent is an entity that perceiv

This course is about designing rat Abstractly, an agent is a function

For any given class of anyironmen

 $f: \mathcal{P}^* \to \mathcal{A}$

Caveat: computational limitat

perfect rationality unachiev

 \rightarrow design best for given machine

AI p

Philosophy logic, methods of mind as physical foundations of lea formal representa **Mathematics** algorithms, comp probability adaptation Psychology phenomena of pe experimental tech

Potted

Look, Ma, no hands! Early AI programs, including S Newell & Simon's Logic Theo Dartmouth meeting: "Artifici

McCulloch & Pitts: Boolean

Turing's "Computing Machine

Robinson's complete algorithm

Al discovers computational co

Neural network research almo

Which of the following can be do

 \Diamond Play a decent game of table to

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Drive safely along a curving m

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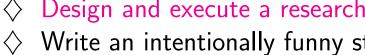
♦ Drive safely along Telegraph A

♦ Design and execute a research

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- - ♦ Perform a complex surgical op Unload any dishwasher and ρι

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Unload any dishwasher and ρι

Unintention

One day Joe Bear was hungry. He

honey was. Irving told him there threatened to hit Irving if he didn End.

Henry Squirrel was thirsty. He was

Once upon a time there was a discrew was sitting in his tree, holding

noticed that he was holding the p swallowed the cheese. The fox wa

Unintention

Joe Bear was hungry. He asked Ir refused to tell him, so Joe offered where some honey was. Irving agr

where some honey was. Irving agi worms were, so he asked Irving, w him a worm if he'd tell him where didn't know where any worms wei

So Joe offered to bring him a wor