U3A Port Philip
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Philosophical Challenges of the 21st Century

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AI (artificial intelligence):

The attempt to build computers which can do the things that make humans seem intelligent….

(Patrick Winston)

Artificial Intelligence (AI)

- 'Thinking' machines

- Autonomous agents

- Deep Learning systems

➢ 'Grounded'/embodied AI (robotics)

➢ Virtual reality (VR)

"artificial intelligence"

- **Weak AI:** computers can aid us in our thinking

- **Strong AI:** computers *really can think* (know, understand, etc.)

    = GOFAI
    = "Narrow" AI (ANI)

"GOFAI"

= "good old fashioned AI" used by AI pioneer John Haugeland to describe progammed computers of the 50s and 60s before the advent of the sophisticated technology such as autonomous agents and robotics that we have today.

Alan Turing 1912 - 1954

The Turing test ("Imitation Game"), 1950 …

…a test of a machine's ability to exhibit intelligent behaviour indistinguishable from that of a human.

The Turing Test

If an AI machine can fool us into thinking it is human in conversation, then the machine must be regarded as 'intelligent' – i.e., as having the capacity to "think".

- The 'Chinese Room' experiment

The 'Chinese Room' Experiment

https://www.youtube.com/watch?v=D0M D4sRHj1M

"artificial intelligence"

- **Weak AI:** computers can aid us in our thinking

- **Strong AI:** computers *really can think* (know, understand, etc.):
  Mind *is* (nothing but) software

"artificial intelligence"

- **Weak AI:** computers can aid us in our thinking

- **Strong AI:** computers *really can think* (know, understand, etc.)

- ***What do we mean by*** *'thinking', 'understanding,' 'reasoning', etc.?*

Two main lines of criticism

- There's more to "thinking" (or "intelligence") than mere information processing (calculative ability);

- No thinking without consciousness

"Thinking is what smart machines do".

- Is it?

"Thinking is what smart machines do". Is it?

• NO

- John Searle (1981): "consciousness is necessary for thinking." cf. *Descartes*
- Machines lack consciousness;
- Therefore, machines are incapable of thought

René Descartes 1596-1650

- I think, therefore I exist

- Thinking = an attribute of *mind* not body (Mind-body dualism: "the ghost in the machine")

- Mind = *consciousness* = capacity to think, reason, calculate

"Thinking is what smart machines do". Is it?

• YES

(AI Advocate):
- Thinking" is nothing more than a set of operations or functions;

- e.g. memory?

- Insisting on consciousness as a pre-requisite is just adherence to outmoded Cartesianism

"Thinking is what smart machines do". Is it?

- (Critics, e.g. Searle): No thinking (reasoning, understanding, knowing, etc.) without consciousness. …
  "consciousness is necessary for thinking"

- AI advocates: "no it's not"

Two main lines of criticism

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GOFAI: Good at…

- abstract thinking;
- reasoning:
- calculating;
- conceptual knowledge
- "intellectual" skills e.g., chess-playing.

- Rule-governed symbol manipulation: 100% accuracy. BUT...... no common sense

GOFAI: Bad at…

- "common sense" tasks - e.g., inferences from incomplete or confusing information;

- pattern-recognition; making discriminations

- biologically-relevant tasks - e.g., visual and voice-recognition

- Learning from experience (inductively)

Metaphysics: the nature of reality: e.g., space, time, identity… What is real?

Epistemology: the nature of knowledge, belief: how can I know?; what does it mean to know, understand, etc…

Ethics: the nature of morality: what ought I to do? How should we live?