# Assignment 1
# Philosophy of artificial intelligence

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**Branch:** Biomedical Engineering 20 July, 2021

## Abstract

The philosophy of artificial intelligence is a branch of the philosophy of technology that explores artificial intelligence and its implications for knowledge and understanding of intelligence, ethics, consciousness, epistemology, and free will.The philosophy of artificial intelligence attempts to answer such questions as follows:

# 1 Can a machine display general intelligence?

Is it possible to create a machine that can solve all the problems humans solve using their intelligence? The basic position of most AI researchers is summed up in this statement by Dartmouth that *"Every aspect of learning or any other feature of intelligence can be so precisely described that a machine can be made to simulate it."*.
The first step to answering the question is to clearly define ïntelligence".

**Turing test for intelligence** Alan Turing reduced the problem of defining intelligence to a simple question about conversation. He suggests that: if a machine can answer any question put to it, using the same words that an ordinary person would, then we may call that machine intelligent.But one drawbacks of the Turing test is that it only measures the "humannessöf the machine's behavior, rather than the ïntelligenceöf the behavior. Since human behavior and intelligent behavior are not exactly the same thing, the test fails to measure intelligence.

**Intelligent agent definition** An ägentïs something which perceives and acts in an environment. A performance measures defines what counts as success for the agent. "If an agent acts so as to maximize the expected value of a performance measure based on past experience and knowledge then it is intelligent

## 1.1 Arguments that a machine can display general intelligence

**The brain can be simulated** Hubert Dreyfus describes this argument as claiming that ïf the nervous system obeys the laws of physics and chemistry, which we have every reason to suppose it does, then .... we ... ought to be able to reproduce the behavior of the nervous system with some physical device".But some agrees and some not.

**Human thinking is symbol processing** First approach to AI is the symbol processing. It implies that human thinking is a kind of symbol manipulation and that machines can be intelligent because a symbol system is sufficient for intelligence. However **arguments against symbol processing** show that symbol manipulation is just not sufficient for artificial intelligence.

**Gödelian anti-mechanist arguments** Kurt Gödel proved with an incompleteness theorem that it is always possible to construct a "Gödel statement"that a given consistent formal system of logic could not prove. Gödel conjectured that the human mind can correctly eventually determine the truth or falsity of any well-grounded mathematical statement and that therefore the human mind's power is not reducible to a mechanism and is too powerful to be captured in a machine.
However the modern consensus in the scientific and mathematical community is that actual human reasoning is inconsistent; that Gödel's theorems do not lead to any valid argument that humans have mathematical reasoning capabilities beyond what a machine could ever duplicate.

# 2 Can a machine have a mind, consciousness, and mental states?

This is a philosophical question, related to the problem of other minds and the hard problem of consciousness.There are a few researchers who believe that consciousness is an essential element in intelligence ,, such as Igor Aleksander, Stan Franklin, Ron Sun, and Pentti Haikonen, although their definition of "consciousness"strays very close to ïntelligence."

**Consciousness, minds, mental states, meaning** The words "mindänd "consciousnessäre used by different communities in different ways. Philosophers call this the hard problem of consciousness while Neuro-biologists believe all these problems will be solved as we begin to identify the neural correlates of consciousness.

## 2.1 Arguments that a computer cannot have a mind and mental states

**Searle's Chinese room** Through the experiment Searle concludes that the Chinese room, or any other physical symbol system, cannot have a mind, mental states and consciousness require actual physical-chemical properties of actual human brains..

# 3 Is thinking a kind of computation?

The computational theory of mind or "computationalism"claims that the relationship between mind and brain is similar (if not identical) to the relationship between a running program and a computer.Some versions of computationalism make the claim that :
Reasoning is nothing but reckoning.
Mental states are just implementations of (the right) computer programs.

# 4 Other related questions

## 4.1 Can a machine have emotions?

## 4.2 Can a machine be self-aware?

## 4.3 Can a machine be original or creative?

## 4.4 Can a machine be benevolent or hostile?

## 4.5 Can a machine imitate all human characteristics?

## 4.6 Can a machine have a soul?