

Artificial Intelligence

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What is AI?

- No Standard Definition of AI - How you can define it?

Characteristics/ behaviour as Intelligence

- Learning
- Understanding ambiguity
- Handling the complexity
- Responding quickly
- Reasoning
- Inferencing
- Having Vision
- Maintaining Knowledge regarding a particular task
- Drawing conclusions from Knowledge

The Questions? Coming to your Mind...

- *How does human mind function?*
- *What is the mechanism involved in process of thinking?*
- *How much knowledge is required for making a computer intelligent?*
- *How can knowledge be coded and represented?*
- *What type of language is required for interacting with intelligent computer?*
- *How can computers be made to learn and think?*
- *and.....Many more???*

Definition - wiki

- Artificial intelligence (AI) is the intelligence of machines or software, as opposed to the intelligence of humans or animals. It is a field of study in computer science that develops and studies intelligent machines. Such machines may be called AIs.
- AI technology is widely used throughout industry, government, and science.

Tell me some applications?

Various applications - AI

- advanced web search engines (e.g., Google Search)
- recommendation systems (used by YouTube, Amazon, and Netflix)
- understanding human speech (such as Google Assistant, Siri, and Alexa),
- self-driving cars (e.g., Waymo)
- generative and creative tools (ChatGPT and AI art)
- superhuman play and analysis in strategy games (such as chess and Go)

Subfield of AI:

The various subfields of AI research are centered around particular goals and the use of particular tools.

The traditional goals of AI research include

- reasoning, knowledge representation
- planning, learning, natural language processing
- perception, and support for robotics.

General intelligence (the ability to complete any task performed by a human) is among the field's long-term goals.

Solve AI?

To solve these problems, AI researchers have adapted and integrated a wide range of problem-solving techniques, including

- search and mathematical optimization
- formal logic
- Machine Learning and artificial neural networks
- methods based on statistics, operations research, and economics.

AI also draws upon **psychology, linguistics, philosophy, neuroscience** and other fields.

1642

First mechanical calculating machine built by French mathematician and inventor Blaise Pascal.



1837

First design for a programmable machine, by Charles Babbage and Ada Lovelace.



1943

Foundations of neural networks established by Warren McCulloch and Walter Pitts, drawing parallels between the brain and computing machines.

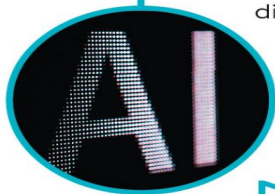
1950

Alan Turing introduces a test—the Turing test—as a way of testing a machine’s intelligence.



1955

‘Artificial intelligence’ is coined during a conference devoted to the topic.



1965

ELIZA, a natural language program, is created. ELIZA handles dialogue on any topic; similar in concept to today’s chatbots.

2009

Google builds the first self-driving car to handle urban conditions.



2011

IBM’s Watson defeats champions of US game show Jeopardy!

2002

iRobot launches Roomba, an autonomous vacuum cleaner that avoids obstacles.



2011-2014

Personal assistants like Siri, Google Now, Cortana use speech recognition to answer questions and perform simple tasks.

2014

Ian Goodfellow comes up with Generative Adversarial Networks (GAN).



1997

Computer program Deep Blue beats world chess champion Garry Kasparov.



2016

AlphaGo beats professional Go player Lee Sedol 4-1.



1980s

Edward Feigenbaum creates expert systems which emulate decisions of human experts.



2018

Most universities have courses in Artificial Intelligence.

Thank You!



“The development of full artificial intelligence could spell the end of the human race....It would take off on its own, and re-design itself at an ever increasing rate. Humans, who are limited by slow biological evolution, couldn't compete, and would be superseded.” — Stephen Hawking told the BBC