

Introduction To AI:

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Definition of AI: What is A.I.

- AI is the ability of Machines to seemingly think for themselves.

Quest for AI: The quest for A.I began with dreams as all quests do.

- People have long imagined machine endowed with human abilities automata that move and devices that reason.
- The greatest of the thoughts was described in The Politics by Aristotle.
- Leonardo Da Vinci sketched designs for a humanoid robot in the form of a medieval knight around the year 1495.
- life is but a motion of limbs,
- why may we not say that all automata have an artificial life.
- Several people constructed actual automata that moved in startlingly life like ways.
- Frank Baum in 1900 invented one of the literary world's most beloved robots in The Wonderful Wizard of Oz.

- Karel Capek introduced the term robot in the play R.U.R. (Rossum's Universal Robots).
- In 1948, Dr. W. Grey Walter was interested if robots could model brain function.
- He built two small robots; called tortoises and named them Elmer and Elsie;
 - < The most revolutionary thing is that they did not have any brains or pre programming.
- They had basic analog circuits, vacuum tubes, a touch and light sensor and recharge their own batteries.

What is AI:-

A.I is demonstrated when a task performed by a human and thought of as requiring the ability to learn, reason and solve problems can be done by a machine.

- AI is the field devoted to building artifacts capable of displaying behaviors that we consider to be intelligent behaviors. at the heart of what it is to have a mind.
- ~~Things are very important in definition~~
~~AI is~~ This gives rise to further questions:-
 - 1- What exactly constitutes intelligent behavior?
 - 2- What it is to have a mind?
 - 3- How humans actually manage to behave intelligently?

Dimensions of A.I.:

		Thinking	
Humanly	Thinking Humanly	Thinking Rationally	Rationally
	Acting Humanly	Acting Rationally	
		Acting	

1. Think like Human
 - model human cognition
2. Think Rationally
 - formalize the inference process
3. Act Rationally
 - doing the right things.
4. Act like Human
 - exhibit human behavior.

1. Thinking like Human:-

- The General Problem Solver, developed in 1957 by Alan Newell and Herbert Simon, embodied a grandiose vision: a single computer program that could solve any problem.

- It caused quite a stir when it was introduced and AI felt it would sweep in a grand new era of intelligent machines.

2:- Thinking Rationally :-

- Greek schools developed various forms of logic notation and rules of derivation for the thoughts.
- Aristotle considered rationality to be an essential characteristic of the human mind.
- Aristotle was one of the firsts to attempt to codify "thinking".
Ex:- All computers use energy.
 using energy always generates ^{heat} ~~and~~.

All computers generates heat.

- Main Obstacles to the logistic approach in building programs to create intelligence.
 1. Not all intelligent behavior is mediated by logical deliberation.
 2. If everything is logical deduction, what is the purpose of thinking? What thoughts should I have
 3. Informal knowledge is not precise; Difficult to model uncertainty.
 4. Theory and practice, hard to put together.

3:- Act Rationally :- Doing the right thing

- Does not necessarily involve thinking
- e.g. bionic reflex.

- It is more general than the logical approach.
- Amenable to scientific development than approaches based on human behavior or human thought.
- Achieving perfect rationality in complex environment is not possible.

4. Act like human:-

- exhibit human behaviour
- Creating machines that perform functions that require intelligence when the same tasks are performed by people.
- Acting Humanly:-
A number of capabilities need to be incorporated.
 - Natural language processing • Machine learning
 - Knowledge Representation • Computer Vision
 - Automated Reasoning • Robotics.
- In 1950 Alan Turing published a landmark paper he speculated about the possibility of creating machines which true intelligence. And devised his famous Turing Test. was the first serious proposal in the philosophy of A.I.
- Alan Turing starts with the words, I propose to consider the question, 'Can machines think?'

Early Days of AI:-

- In late 1955, Allen Newell and Herbert Simon developed The Logic theorist, considered by many to be the first AI program.
- The program, representing each problem as a tree model, that would most likely result in the correct conclusion.
- In 1956 John McCarthy organized the Dartmouth Summer Research Project on AI. The Dartmouth conference served to lay the groundwork for future of AI research.

Term 'Artificial Intelligence'

- The term AI was first used in their document.