LEARN ARTIFICIAL INTELLIGENCE WITH SHANKAR

CONTENTS OF ARTIFICIAL INTELLIGENCE

- INTRODUCTION
- DEFINITION
- EARLY HISTORY OF AI
- GOALS
- TYPES
- SUB-FIELDS OF AI
- HOW DOES AI WORKS?
- CURRENT STATUS OF AI
- RISKS OF AI
- FUTURE OF AI
- APPLICATIONS OF AI
- ADVANTAGES & DISADVANTAGES OF AI
- HOW SAFE IS AI?
- CONCLUSION

INTRODUCTION TO ARTIFICIAL INTELLIGENCE (AI)

- Artificial intelligence (AI) is currently one of the hottest buzzwords in tech and with good reason. The last few years have seen several innovations and advancements that have previously been solely in the realm of science fiction slowly transform into reality.
- AI is used in almost all industries, giving a technological edge to all companies integrating AI at scale.
- AI lets you focus on the most critical tasks and make better decisions based on acquired data related to a use case. It can be used for complex tasks, such as predicting maintenance requirements, detecting credit card fraud, and finding the best route for a delivery truck.

DEFINTION OF ARTIFICIAL INTELLIGENCE (AI)

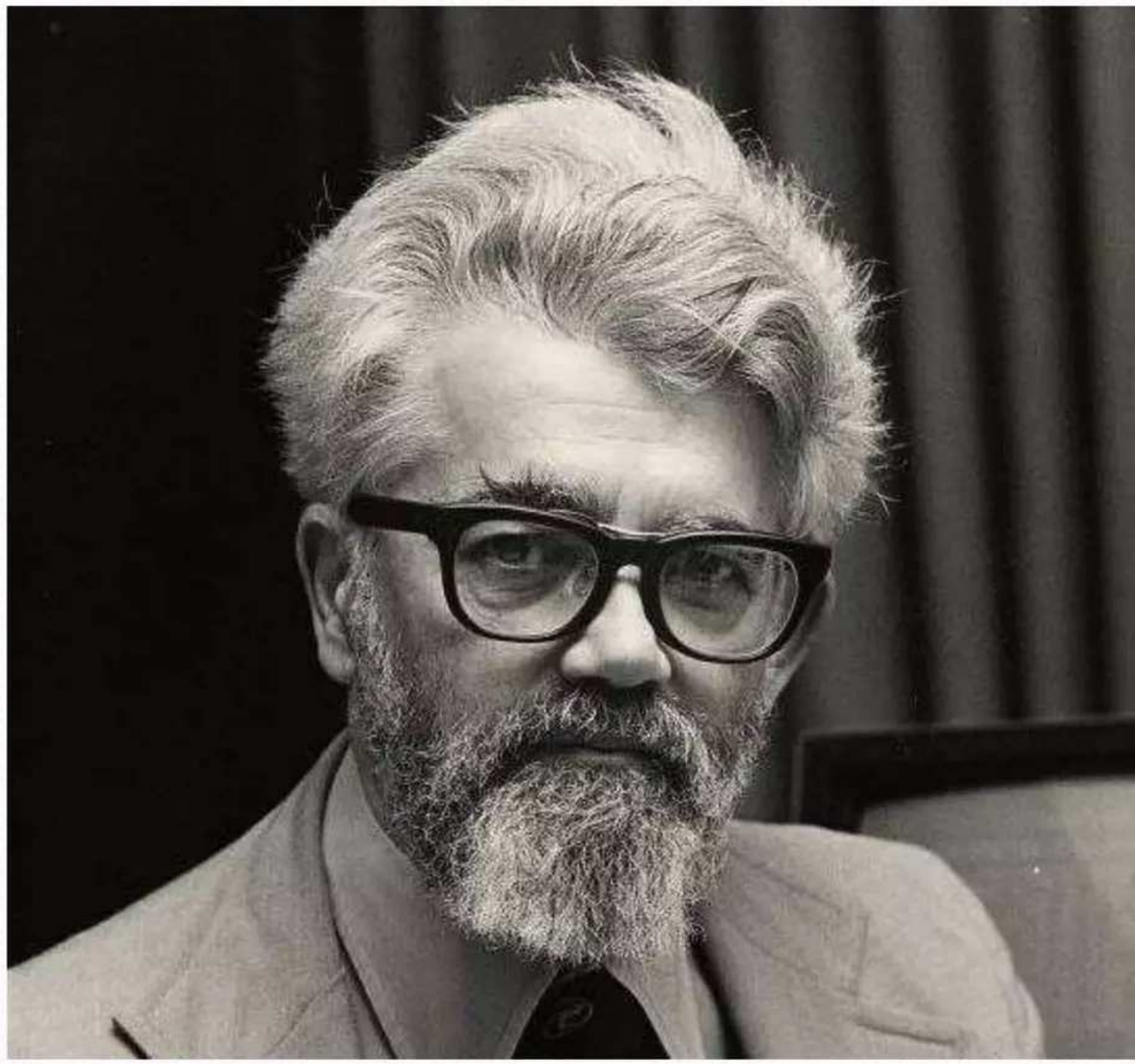
❖ WHAT IS INTELLIGENCE?

The ability to learn and perform suitable techniques to solve problems and achieve goals, appropriate to the context in an uncertain, ever-varying world.

❖ DEFINITION OF AI

➢ Artificial Intelligence (AI), a term coined by emeritus Stanford Professor John McCarthy in 1955, was defined by him as " the science and engineering of making intelligent machines ".

➢ Much research has humans program machines to behave in a clever way, like playing chess, but, today, we emphasize machines that can learn, at least somewhat like human beings do.



EARLY HISTORY OF ARTIFICIAL INTELLIGENCE

- **1950:** Alan Turing publishes *Computing Machinery and Intelligence*. In the paper, Turing—famous for breaking the Nazi's ENIGMA code during WWII—proposes to answer the question 'can machines think?'
- **1956:** John McCarthy coins the term 'artificial intelligence' at the first-ever AI conference at Dartmouth College.
- **1967:** Frank Rosenblatt builds the Mark 1 Perceptron, the first computer based on a neural network that 'learned' though trial and error.
- **1980s:** Neural networks which use a backpropagation algorithm to train itself become widely used in AI applications.
- **1997:** IBM's Deep Blue beats then world chess champion Garry Kasparov, in a chess match (and rematch).
- **2011:** IBM Watson beats champions Ken Jennings and Brad Rutter at *Jeopardy!*
- **2015:** Baidu's Minwa supercomputer uses a special kind of deep neural network called a convolutional neural network to identify and categorize images with a higher rate of accuracy than the average human.
- **2016:** DeepMind's AlphaGo program, powered by a deep neural network, beats Lee Sodol, the world champion Go player, in a five-game match.

GOALS OF ARTIFICIAL INTELLIGENCE

- It helps you reduce the amount of time needed to perform specific tasks.
- Making it easier for humans to interact with machines.
- Facilitating human-computer interaction in a way that is more natural and efficient.
- Improving the accuracy and speed of medical diagnoses.
- Helping people learn new information more quickly.
- Enhancing communication between humans and machines.
- Knowledge representation and knowledge engineering are central to AI research.
- Effective computing is the study and development of systems that can detect, interpret, process, and simulate human.

TYPES OF ARTIFICIAL INTELLIGENCE

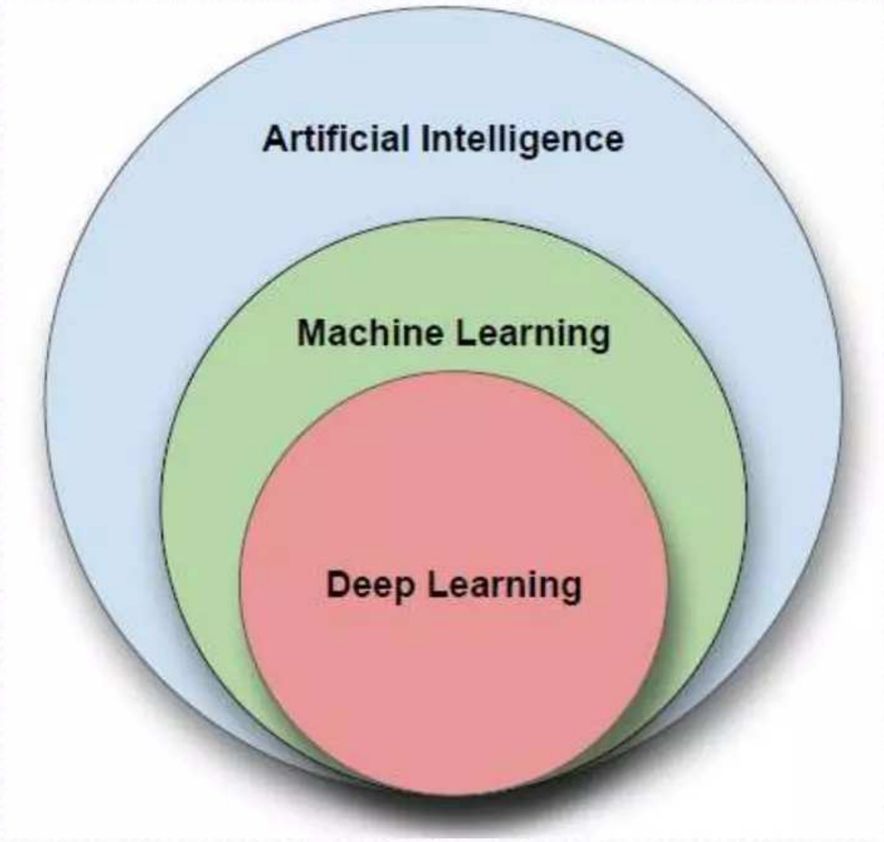
- Narrow AI is a type of AI that helps you perform a dedicated task with intelligence.
- General AI is a type of AI intelligence that can perform any intellectual task efficiently like a human.
- Rule-based AI is based on a set of pre-determined rules that are applied to an input data set. The system then produces a corresponding output.
- Decision tree AI is similar to rule-based AI in that it uses sets of pre-determined rules to make decisions.
- Super AI is a type of AI that allows computers to understand human language and respond in a natural way.
- Robot intelligence is a type of AI that allows robots to have complex cognitive abilities, including reasoning, planning, and learning.

TYPES OF ARTIFICIAL INTELLIGENCE

TYPES OF LEARNING IN ARTFICIAL INTELLIGENCE

- Artificial Narrow Intelligence
- Artificial General Intelligence
- Artificial Super Intelligence

SUB-FIELDS OF ARTIFICIAL INTELLIGENCE



- Artificial Intelligence (AI) is the general term for being able to make computers do things that require intelligence if done by humans.
- Machine Learning (ML) makes computers learn from data and experience to improve their performance on some tasks or decision-making processes.
- Deep learning is a subset of machine learning that uses multi-layered artificial neural networks to deliver state-of-the-art accuracy in object detection, speech recognition and language translation.

HOW DOES ARTIFICIAL INTELLIGENCE WORKS?

- AI requires a foundation of specialized hardware and software for writing and training machine learning algorithms.
- In general, AI systems work by ingesting large amounts of labeled training data, analyzing the data for correlations and patterns, and using these patterns to make predictions about future states.
- AI programming focuses on three cognitive skills: learning, reasoning and self-correction.
- Learning: This aspect of AI programming focuses on acquiring data and creating rules for how to turn the data into actionable information.
- Reasoning: This aspect of AI programming focuses on choosing the right algorithm to reach a desired outcome.
- Self-Correction: This aspect of AI programming is designed to continually fine-tune algorithms and ensure they provide the most accurate results possible.

CURRENT STATUS OF ARTIFICIAL INTELLIGENCE

- While AI has been around for more than just a few years, nowadays, it has an exponentially growing influence on the development of our society, economy, and military. It's so rapidly evolving and being deployed that we can see it change the way we live and interact.
- In 2021, AI investments by corporations and businesses, large and small, have reached new heights, exceeding all previous expectations and predictions.
- AI-based software systems are comprised of many layers such as foundational models, advanced algorithms, and automated reasoning tools.
- Language processing and conversation interfaces are already able to deliver translation services, text understanding and categorization, speech recognition, and even power chatbots.
- DALL.E and GPT3 are large-scale models that have achieved remarkable results in computer vision and natural language processing (NLP).

RISKS OF ARTIFICIAL INTELLIGENCE

- JOB LOSSES DUE TO AI AUTOMATION
- SOCIAL MANIPULATION THROUGH AI ALGORITHMS
- SOCIAL SURVEILLANCE WITH AI TECHNOLOGY
- BIASES DUE TO ARTIFICIAL INTELLIGENCE
- WIDENING SOCIOECONOMIC INEQUALITY AS A RESULT OF AI
- WEAKENING ETHICS AND GOODWILL BECAUSE OF AI
- AUTONOMOUS WEAPONS POWERED BY ARTIFICIAL INTELLIGENCE
- FINANCIAL CRISES BROUGHT ABOUT BY AI ALGORITHMS

FUTURE OF ARTIFICIAL INTELLIGENCE

- The reason why is simple: if you can replace one person with an AGI system, you don't need one computer to do the work – you can spread it out across thousands or millions of computers.
- AI is helping to achieve this reality by making objects look more realistic and enabling computer vision so users can interact with simulated objects using their body movements.
- Artificial general intelligence (AGI), the kind of AI capable of doing any intellectual task that a human being can do but we're already starting to see plenty of progress in other areas of AI.
- It is already the primary driver of developing technologies such as big data, robots and the Internet of Things and it will continue to be a technical pioneer in the foreseeable future.

APPLICATIONS OF ARTIFICIAL INTELLIEGENCE (AI)

- Artificial Intelligence in E-Commerce
- Artificial Intelligence in Education
- Artificial Intelligence in Life-Cycle
- Artificial Intelligence in Healthcare
- Artificial Intelligence in Social Media
- Artificial Intelligence in Marketing
- Artificial Intelligence in Astronomy
- Artificial Intelligence in Cyber Security
- Artificial Intelligence in Travel and Transport
- Artificial Intelligence in Automotive Industry
- many more.....

ADVANTAGES OF ARTIFICIAL INTELLIGENCE

- Reduction in Human Error
- Zero Risks
- 24x7 Availability
- Digital Assistance
- Unbiased Decisions
- Perform Repetitive Jobs
- Daily Applications
- AI in Risky Situations

DISADVANTAGES OF ARTIFICIAL INTELLIGENCE

- High Costs of Creation
- Making Humans Crazy
- Unemployment
- Make Humans Lazy
- Lacking Out of Box Thinking
- Emotionless
- No Improvement

HOW SAFE IS ARTIFICIAL INTELLIGENCE?

- AI could soon impact every sector of our life. It will improve our safety, but we have to remember: we cannot rely on an algorithm to protect us in every instance.
- In some cases, we will need to leave the final decision to a human.
- Fully self-driving cars are now a reality. Tesla is the first company to make a car with all of the sensors, cameras, and software needed for a computer to drive itself from start to finish.
- Predictive analytics (or forecasting) applies artificial intelligence using machine learning and statistical techniques to make predictions about future events based on previous data.

CONCLUSION

- Artificial intelligence (AI) is the intelligence of machines and the branch of computer science that aims to create it.
- AI is today's dominant technology and will continue to be a significant factor in various industries for years to come.
- This is not the end of AI, there is more to come from it, what the AI can do for us in the future.