

Intro



Introduction to Artificial Intelligence (AI)



What is AI?

- **Artificial Intelligence (AI)** is a field of computer science.
- It focuses on building **smart machines** — systems that can **think, learn, and make decisions**, just like a human.
- These machines are designed to do tasks that usually need human **intelligence or intuition**, like:
 - Understanding language
 - Recognizing images
 - Playing games
 - Making recommendations (like Netflix or YouTube) etc...



History of AI – A Timeline of Key Milestones



1950 – Alan Turing and the Beginning

- **Alan Turing** (called the **Father of Computer Science**) wrote a paper titled "**Computing Machinery and Intelligence**".
- He asked a simple but powerful question:
👉 "**Can machines think?**"
- He introduced the **Turing Test**:
 - A human talks to a computer and a real person.
 - If the human can't tell which is which, the computer is said to be "thinking".
 - This test is still famous today, though people have debated its limitations.



1956 – Birth of the Term 'AI'

- **John McCarthy**, a computer scientist, created the term **Artificial Intelligence**.
- This happened at the **first-ever AI conference**, held at **Dartmouth College**.
- Later, in 2004, McCarthy explained AI as:
"The science and engineering of making intelligent machines, especially intelligent computer programs."
- He said AI is about making machines smart, but they don't have to work exactly like the human brain.



1958 – First AI that Learned: The Mark 1 Perceptron

- **Frank Rosenblatt** built the **Mark 1 Perceptron**.
- It was the **first AI model** that used a **neural network** (we'll explain that soon).
- It could **learn from its mistakes** — just like how humans learn through trial and error.



1959 – Rise of Neural Networks

- **Marvin Minsky** and **Seymour Papert** wrote a book called "**Perceptrons**".
- This book explained how **neural networks** work.
- By the **1980s**, neural networks became popular in real-world AI applications.



1997 – AI Defeats Chess World Champion

- **IBM's Deep Blue** (a supercomputer) **defeated Garry Kasparov**, the world champion in chess.
- This was a **huge milestone** showing how AI could beat even the smartest humans in games.



2011 – IBM Watson Wins Jeopardy!

- **IBM Watson**, another AI, beat **two Jeopardy! champions** (Ken Jennings and Brad Rutter).
- Jeopardy! is a quiz game that needs language understanding, logic, and fast thinking.
- This showed that AI could handle **natural language** and real-world knowledge.



2015 – Baidu's Supercomputer Gets Better Than Humans at Image Recognition

- **Baidu's Minwa supercomputer** used a special deep learning method:
 - A **Convolutional Neural Network (CNN)**.
 - CNNs are great at understanding **images and patterns**.
- It could recognize and classify images **better than most humans!**



2016 – DeepMind's AlphaGo Beats Go Champion

- **AlphaGo**, created by Google DeepMind, beat **Lee Sedol**, the world champion in the game of Go.
- Why is this important?
 - Go is **much more complex** than chess.
 - After just 4 moves, there are over **14.5 trillion possible moves!**
 - AI was able to learn and plan deeply to win — something once thought impossible.



2022 – ChatGPT Launches: A New Era of AI

- **OpenAI** released **ChatGPT**, a public demo of **Generative AI**.
- Based on a family of models called **GPT – Generative Pretrained Transformers**.
- ChatGPT can:
 - Understand text
 - Generate replies like a human
 - Translate, reword, summarize
 - Write in different styles or even other languages



How was ChatGPT trained?

- ChatGPT is based on a **Large Language Model (LLM)**.
- It was trained on **huge amounts of data**, including:
 - Wikipedia
 - High-rated Reddit posts
 - Public websites
 - Books, articles, and more
- The first version was GPT-3.5, then improved to GPT-4.



What is Generative AI (Gen AI)?

- **Gen AI** refers to AI that can **generate** new content.
- That content could be:
 - Text (like ChatGPT)
 - Images (like **Stable Diffusion**)
 - Music, code, even videos (in newer models)
- It's not just copying — it **creates new output** based on what it has learned.



How Smart is AI Today?

- AI can now do things that were thought impossible a few years ago:
 - Answer complex questions
 - Create art and poetry
 - Write essays and code
 - Play strategy games better than humans
- But it's still a tool, and it's only as smart as the data it's trained on.



Should We Be Concerned?

- **Some people worry** that AI might:
 - Take away jobs
 - Be misused
 - Become too powerful without enough control
- **Others believe** AI can:
 - Help doctors save lives
 - Make industries more efficient
 - Support education and innovation



Conclusion – Where is AI Going?

- AI is growing **faster than ever**.
- It's becoming part of **our daily lives**, from smartphones to hospitals to entertainment.
- It has **great power** — and with that, comes a need for **responsible use**.