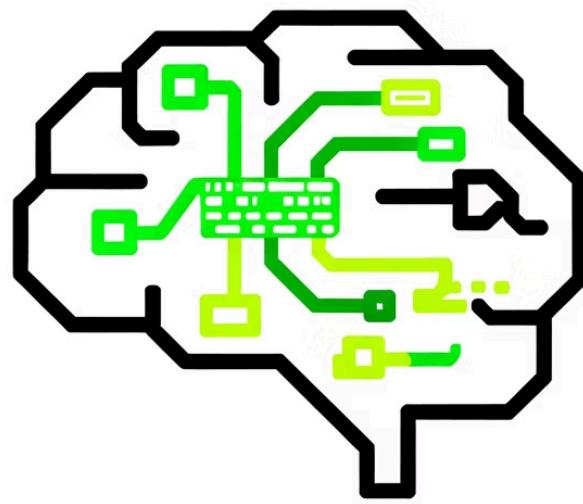


INTRODUCTION TO AI



What is AI? (Definition)

Artificial Intelligence (AI) means machines that can think, learn, and make decisions like humans.

Alternative Easy Definitions

- Machines behaving intelligently like humans.
- A system that understands data, learns from it, and uses it to achieve goals.



TYPES OF AI

ANI – Artificial Narrow Intelligence

- AI made for one specific task.
- Examples: Siri, Google Maps, Chatbots.

AGI – Artificial General Intelligence

- AI that can think and learn like a normal human in many areas.
- Not fully created yet.

ASI – Artificial Super Intelligence

- AI that is smarter than humans in everything.
- Only theoretical right now.

HUMAN + AI = BEST TEAM

STRENGTHS OF AI

- Processes huge data very fast.
- No tiredness, works 24/7.
- Finds patterns humans may miss.
- Optimises tasks in real time.

LIMITATIONS OF HUMANS

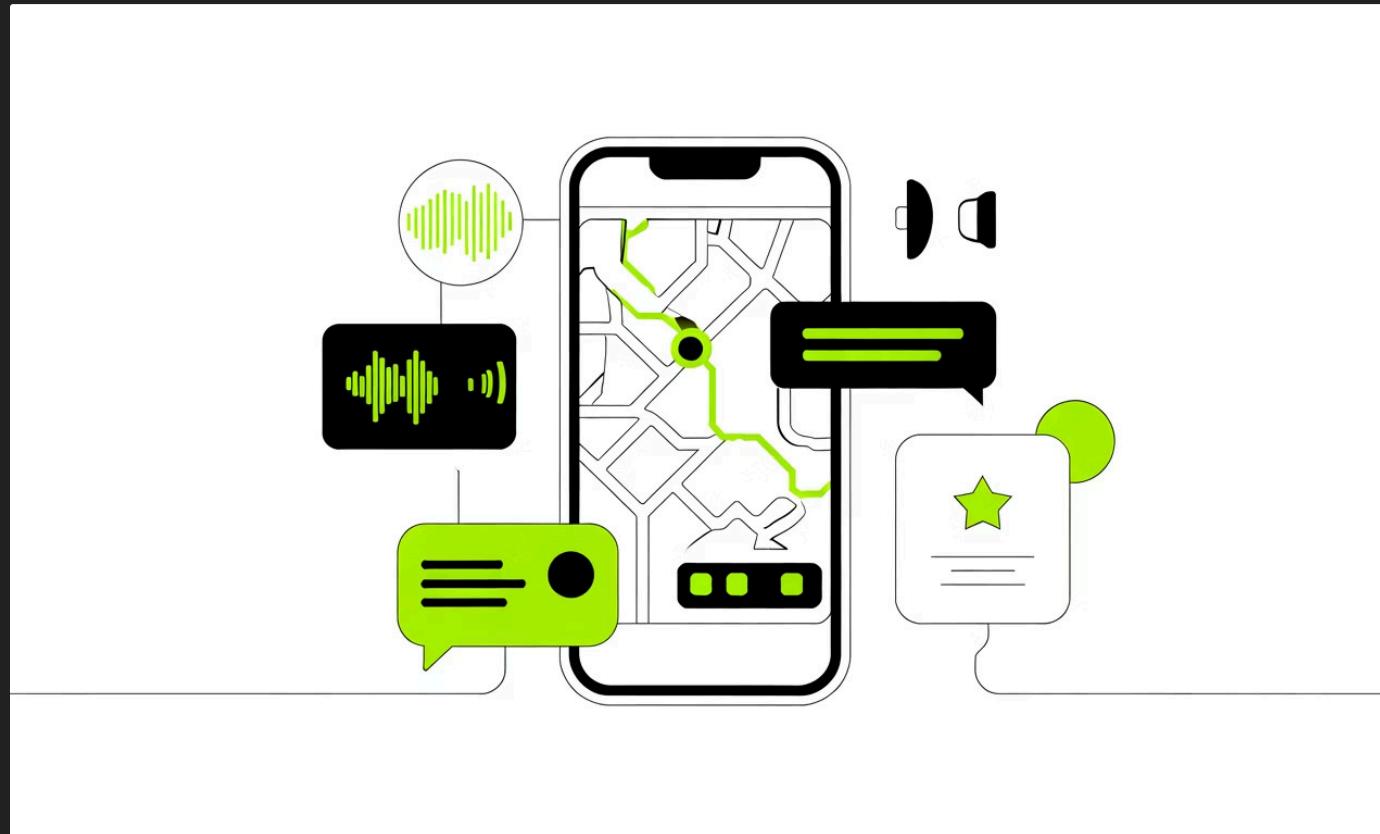
- Humans get tired.
- Emotions and biases affect decisions.
- Cannot handle very large data sets quickly.

HUMAN + AI = BEST TEAM

- AI gives data-driven solutions.
- Humans provide creativity, ethics, empathy.

AI IN DAILY LIFE

Simple Examples



Google Maps

Autocorrect

Instagram filters

YouTube recommendations

Chatbots

Voice assistants (Alexa, Siri)

DEEP LEARNING (DL)

Deep Learning

Deep Learning is advanced ML that uses many layers of artificial neurons to learn complex patterns.

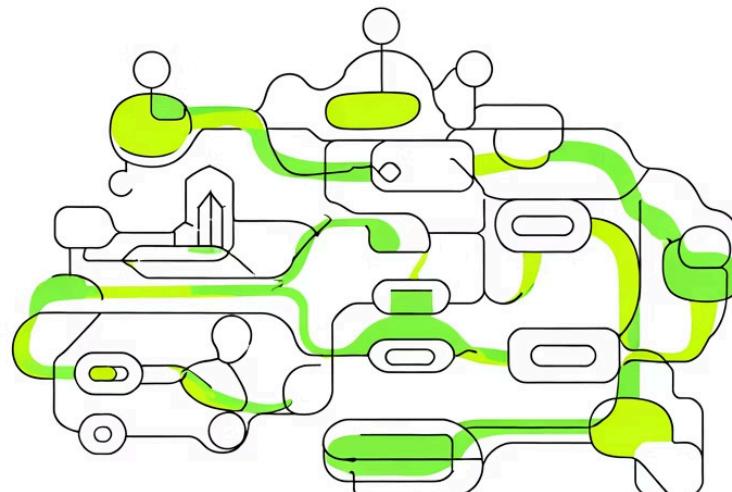
Examples:

- Face recognition
- Self-driving cars
- Language translation

Artificial Neural Network (ANN)

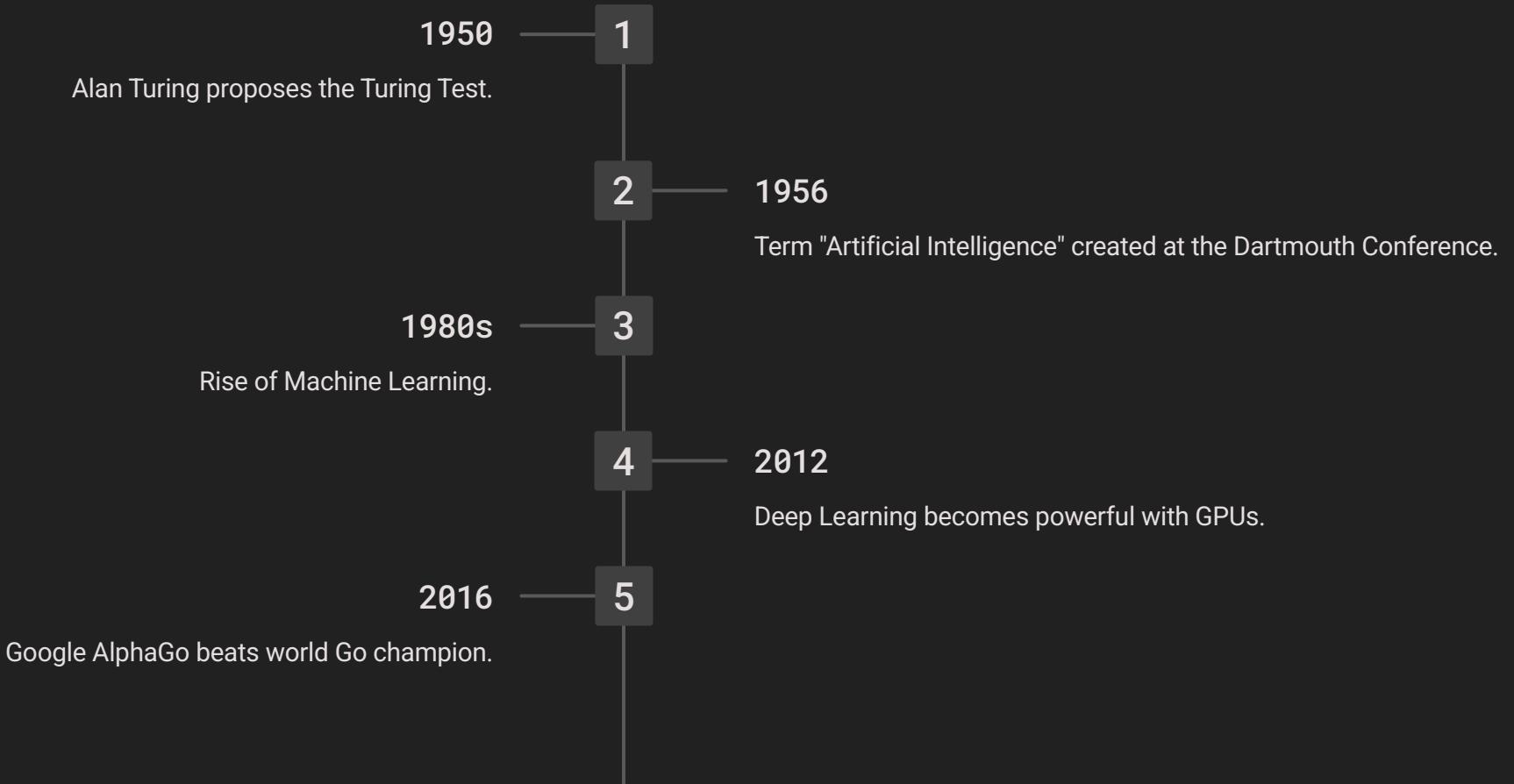
ANN is a network of nodes (artificial neurons) inspired by the human brain. It learns patterns like images, sounds, and words.

Structure: Input Layer → Hidden Layers → Output Layer



BRIEF HISTORY OF AI

(Very Short)



NEXT FRONTIER – AI AGENTS



AI Agent

Does tasks when asked. Example:
ChatGPT answering questions.

Agentic AI

AI that decides steps to complete your task. Example: AI suggesting and booking a restaurant table.

Autonomous Agents

AI runs independently without guidance. Example: Delivery robots, AutoGPT doing a whole project automatically.

MACHINE LEARNING (ML)

Machine Learning means teaching computers to learn from data instead of hard-coded rules. Example: Teaching a computer to recognise cats by showing cat images.

TYPES OF MACHINE LEARNING

1

Supervised Learning

- Learn from labelled data (input + correct answer).
- Example: Email spam detection.

2

Unsupervised Learning

- Learn patterns from unlabelled data.
- Example: Grouping customers by shopping habits.

3

Reinforcement Learning

- Learn by trial and error using rewards and punishments.
- Example: AI playing games, robots learning to walk.

GAN & TENSOR DATA



GAN (Generative Adversarial Network)

A GAN has two AIs competing with each other:

- Generator → creates fake data
- Discriminator → checks if data is real or fake

Used for:

- AI art
- Face generation
- Deepfakes
- Image enhancement



TENSOR DATA

A tensor is just a multi-dimensional data structure (like a box of numbers).

Examples:

- 1D: list
- 2D: table
- 3D: image ($\text{width} \times \text{height} \times \text{colour channels}$)

Frameworks like TensorFlow use tensors for DL.

JSON & IMPORTANT AI DATES

JSON (JavaScript Object Notation)

JSON is a lightweight data format used to store and exchange data. It looks like organised text.

Example:

```
{ "name": "Harsh", "age": 19 }
```

Used by: APIs, Web apps, Mobile apps, AI tools

IMPORTANT DATES & EVENTS IN AI

Quick and easy memory notes:

- 1950: Turing Test
 - 1951: First AI program (Christopher Strachey)
 - 1956: AI officially named at Dartmouth
 - 1966: ELIZA (first chatbot)
 - 1987–93: AI Winter (low funding)
 - 1997: IBM Deep Blue beats world chess champion
 - 2011: IBM Watson wins Jeopardy
 - 2012: AlexNet revolutionises Deep Learning
 - 2016: AlphaGo beats world Go champion
 - 2022: ChatGPT released
 - 2023–2024: Rise of Agentic and Autonomous AI
-

BONUS: HOW AI WORKS (Super Simple)

1. **Collect Data** (images, text, audio, numbers)
 2. **Train Model** AI finds patterns in the data.
 3. **Test Model** Check accuracy.
 4. **Deploy Model** Use AI in apps, websites, tools.
-

BONUS: COMMON AI TERMS (Very Short)

- **Dataset:** Collection of data.
- **Model:** The brain of the AI.
- **Training:** Teaching the model.
- **Inference:** AI giving answers after training.
- **Parameters:** Adjustable parts that AI learns.
- **Algorithm:** A method AI uses to learn.