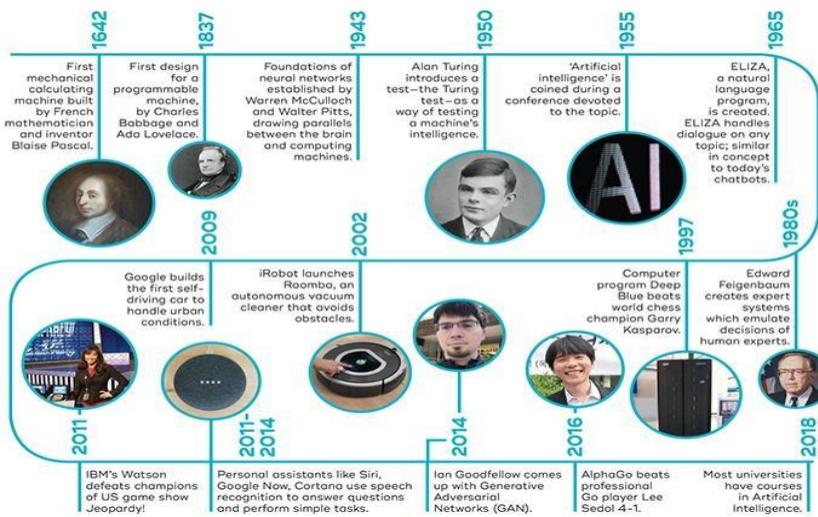


INDIVIDUAL TASK – MODULE 1

Research and Presentation: Timeline Showing Major Milestones in Artificial Intelligence (AI) History

1. Timeline of Major Milestones in Artificial Intelligence (AI) History

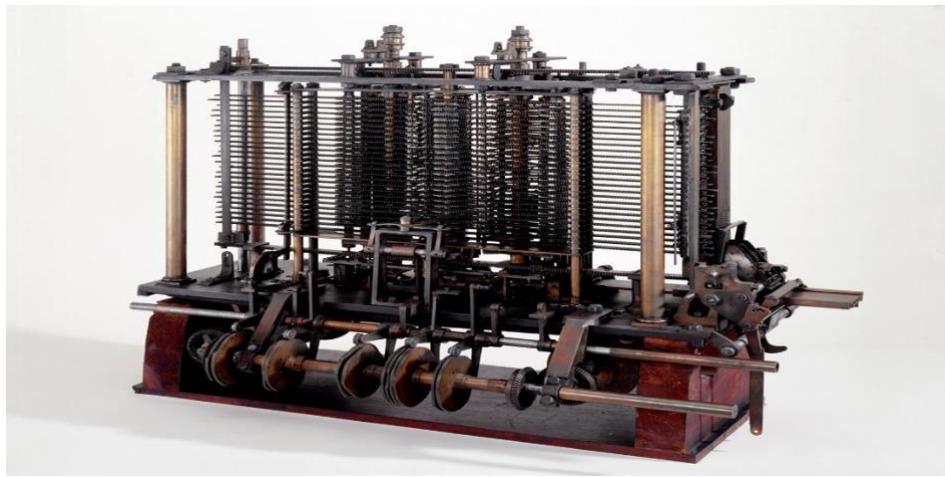


Introduction to Artificial Intelligence

Artificial Intelligence (AI) refers to the ability of machines and computer systems to perform tasks that normally require human intelligence. These tasks include learning from experience, reasoning, problem-solving, understanding natural language, recognizing patterns, and making decisions. AI aims to simulate or replicate human cognitive abilities using machines.

The idea of intelligent machines has existed since ancient times, but AI as a scientific discipline emerged in the 20th century with the development of digital computers. Over the decades, AI has gone through several phases—early optimism, disappointment, revival, and explosive growth. This report presents a **comprehensive timeline of major milestones in AI history**, explaining how each stage shaped the modern AI systems we use today.

2. Early Philosophical and Mechanical Foundations (Before 1940)



Before electronic computers existed, philosophers and mathematicians explored ideas related to logic, reasoning, and intelligence.

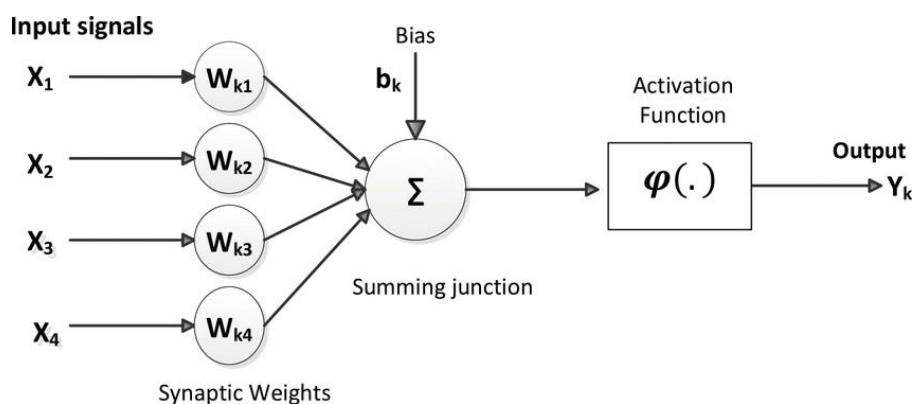
Key Developments

- Ancient Greek philosophers such as Aristotle developed formal logic.
- Mechanical calculating devices like the abacus and early calculators showed that machines could follow rules.
- In the 19th century, Charles Babbage designed the Analytical Engine, a programmable mechanical computer.

Importance

These early ideas proved that **logical reasoning could be mechanized**, laying the foundation for future intelligent machines.

3. 1943 – The First Artificial Neuron Model



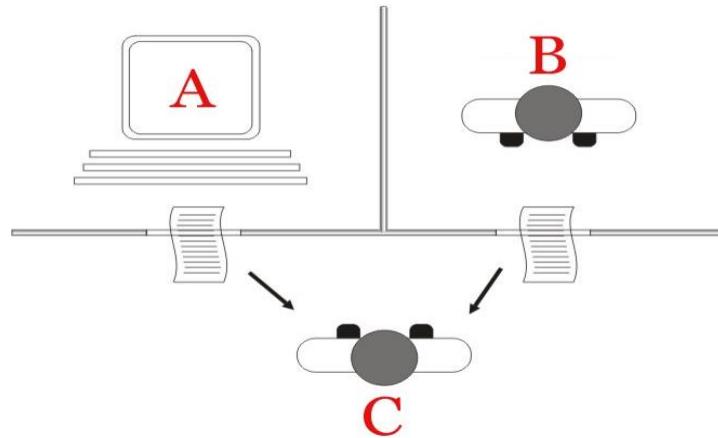
In 1943, **Warren McCulloch** and **Walter Pitts** proposed the first mathematical model of an artificial neuron.

Key Contributions

- Modeled human brain neurons using logical functions.
- Demonstrated how networks of neurons could perform computations.

Importance

4. 1950 – The Turing Test and Machine Intelligence



In 1950, **Alan Turing** published the paper “*Computing Machinery and Intelligence*”.

Key Ideas

- Asked the famous question: “*Can machines think?*”
- Introduced the **Turing Test**, where a machine is considered intelligent if it can imitate human conversation.
-

Importance

This paper provided a **practical benchmark for machine intelligence** and inspired future AI research.

5. 1956 – Dartmouth Conference: Birth of AI



The Dartmouth Conference marked the official beginning of AI as a research field.

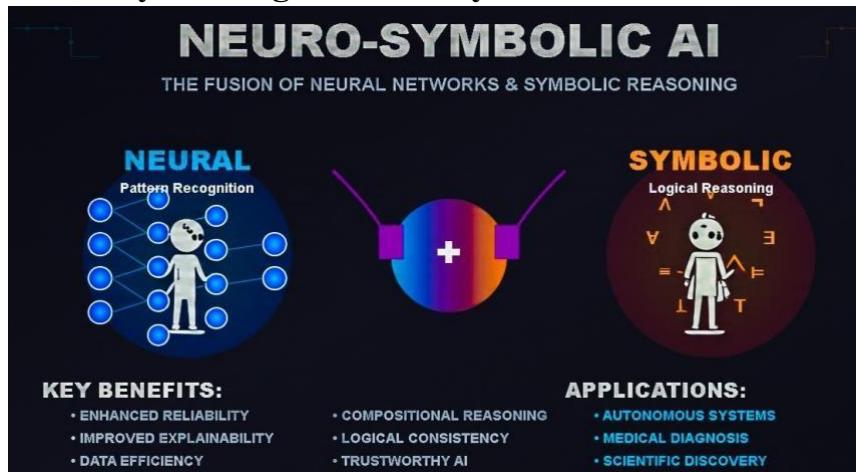
Key Figures

- Organized by **John McCarthy**.
- The term **Artificial Intelligence** was coined.

Importance

- AI became a recognized academic discipline.
- Researchers believed machines could achieve human-level intelligence.

6. 1960s – Early AI Programs and Symbolic AI



During the 1960s, AI research focused on **symbolic reasoning**, where intelligence was represented using symbols and rules.

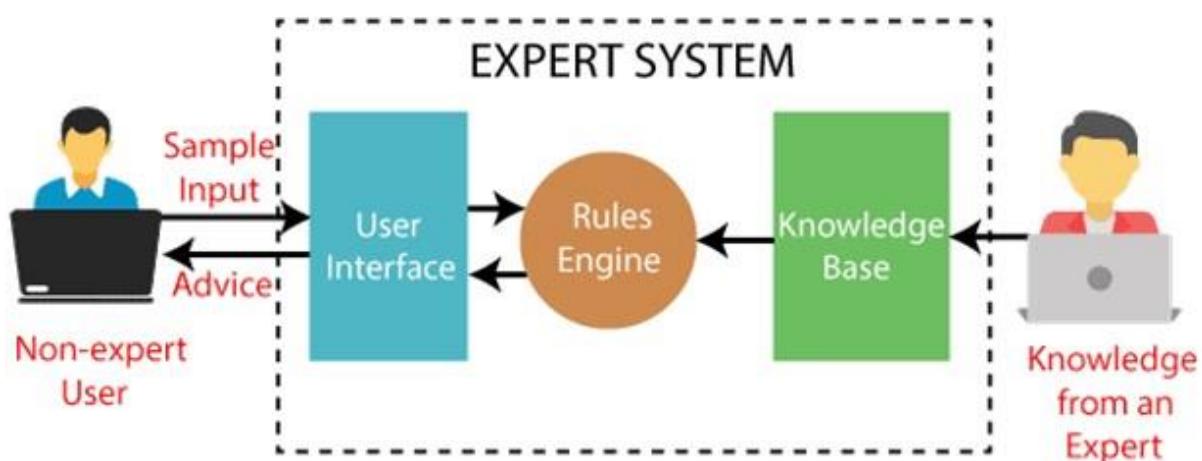
Major Achievements

- Development of problem-solving programs.
- Creation of **ELIZA**, an early chatbot that simulated conversation.
- Use of logical rules and search algorithms.

Importance

Symbolic AI showed that machines could mimic **basic reasoning and communication**, though with limitations.

7. 1970s–1980s – Expert Systems



Expert systems were designed to replicate the decision-making ability of human experts.

Characteristics

- Used knowledge bases and rule engines.
- Applied in medicine, finance, and engineering.
- Required manual rule creation by experts.

Importance

Expert systems became the **first commercially successful AI applications**.

8. Late 1980s–1990s – AI Winter



Despite early success, AI faced major setbacks known as **AI Winters**.

Reasons

- High expectations were not met.
- Systems were expensive and inflexible.
- Limited computing power and data.

Impact

- Funding and interest declined.
- Researchers shifted focus to more practical approaches.

9. 1997 – Deep Blue Defeats Chess Champion

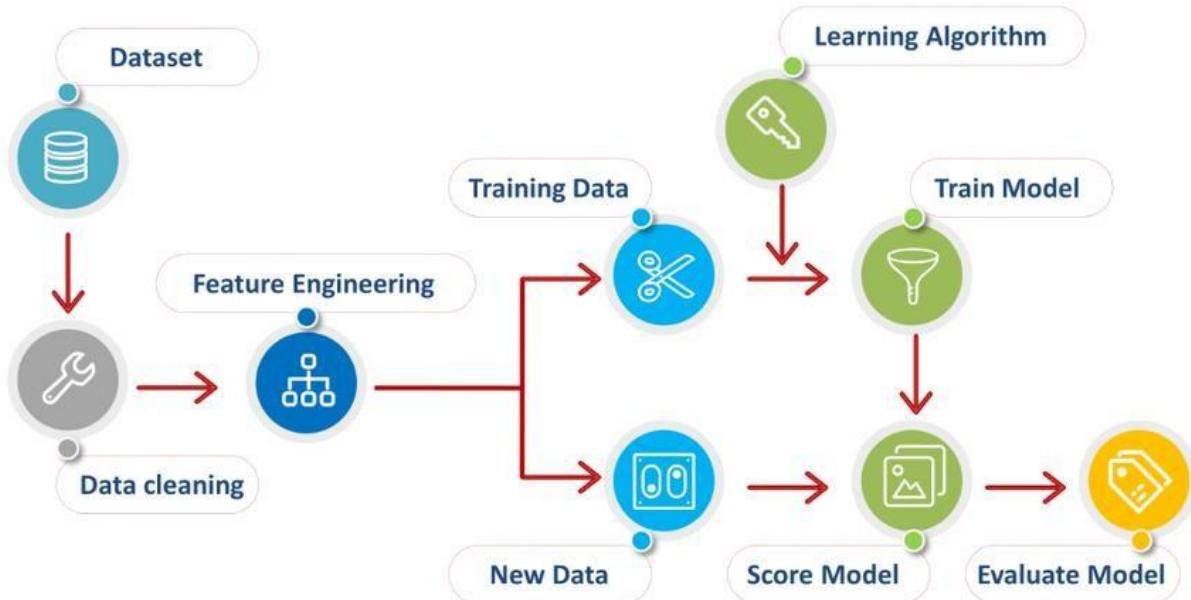


In 1997, IBM's Deep Blue defeated **Garry Kasparov**.

Importance

- Demonstrated machine superiority in complex games.
- Renewed global interest in AI.

• 10. 2000s – Rise of Machine Learning



AI research shifted from rule-based systems to **machine learning**.

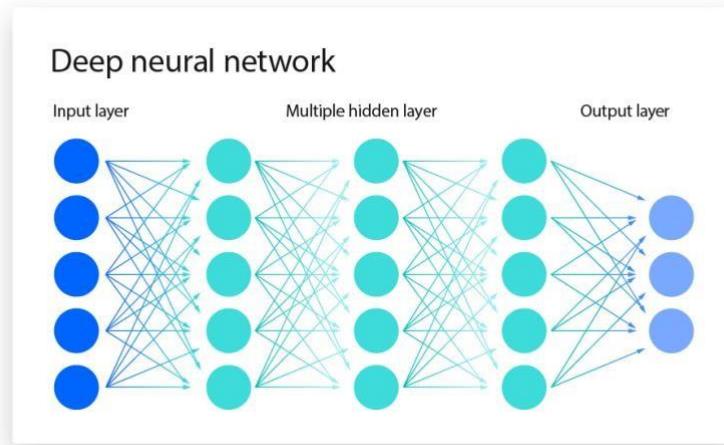
Key Features

- Systems learned patterns from data.
- Algorithms improved performance with experience.
- Used in spam detection, recommendations, and predictions.

Importance

Machine learning made AI **more adaptive and scalable**.

11. 2012 – Deep Learning Revolution



In 2012, deep learning achieved a major breakthrough.

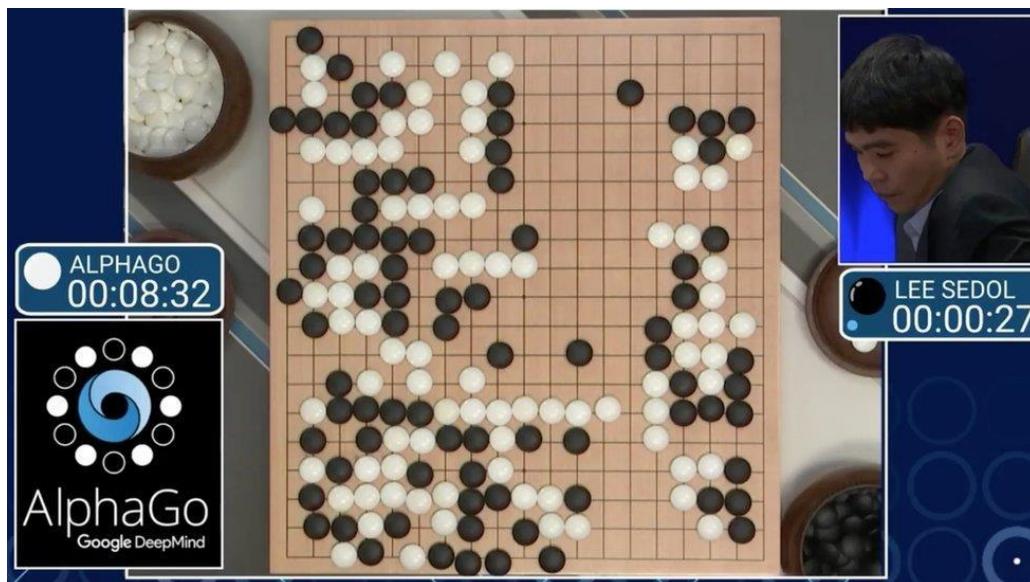
Key Contribution

- **Geoffrey Hinton**'s team won the ImageNet competition.
- Used deep convolutional neural networks.

Importance

Marked the beginning of **modern AI dominance**.

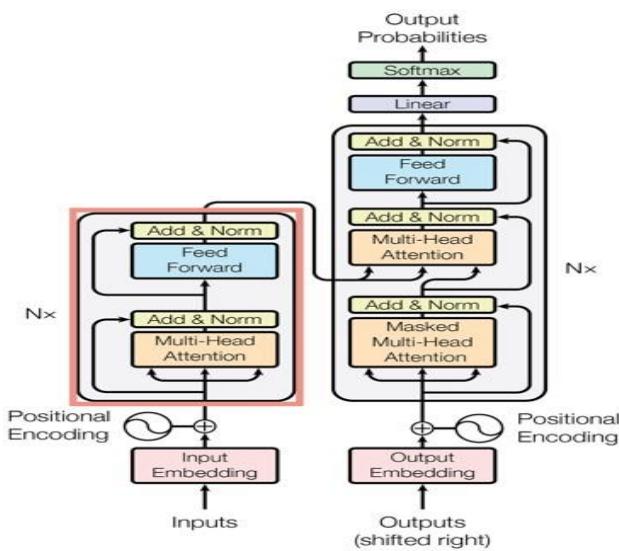
12. 2016 – AlphaGo and Reinforcement Learning



Importance

- Demonstrated self-learning systems.
- Combined deep learning and reinforcement learning.

13. 2020s – Generative AI and Modern AI Systems



Modern AI systems can generate text, images, music, and code.

Applications

- Education
- Healthcare
- Business analytics
- Creative industries

Importance

AI became **accessible, powerful, and widely used**.

Conclusion

The evolution of Artificial Intelligence is not a single breakthrough story, but a continuous journey of scientific curiosity, experimentation, setbacks, and revolutionary discoveries. From the early theoretical ideas of computation introduced by Alan Turing to the formal establishment of AI as a field at the Dartmouth Conference led by John McCarthy, the foundations of AI were built on mathematics, logic, and human imagination.

The progress of AI has moved through distinct phases—early symbolic systems, AI winters, expert systems, machine learning, deep learning, and now generative AI. Each stage contributed something essential. The symbolic era taught machines to reason using rules. The machine learning era allowed systems to learn from data. The deep learning revolution, accelerated by powerful computing and big data, enabled breakthroughs in image recognition, speech processing, and natural language understanding.

Landmark achievements such as IBM’s Deep Blue defeating Garry Kasparov and DeepMind’s AlphaGo defeating Lee Sedol proved that AI could master complex tasks once believed to be uniquely human. In recent years, organizations like OpenAI have introduced advanced language models that can understand and generate human-like text, bringing AI directly into everyday life.

Today, AI is not limited to research laboratories—it powers search engines, medical diagnostics, financial systems, recommendation platforms, autonomous vehicles, and creative tools. It has become an integral part of modern society. However, alongside its benefits come significant responsibilities. Ethical concerns such as bias, transparency, privacy, job displacement, and AI safety must be carefully managed to ensure that AI development benefits humanity as a whole.