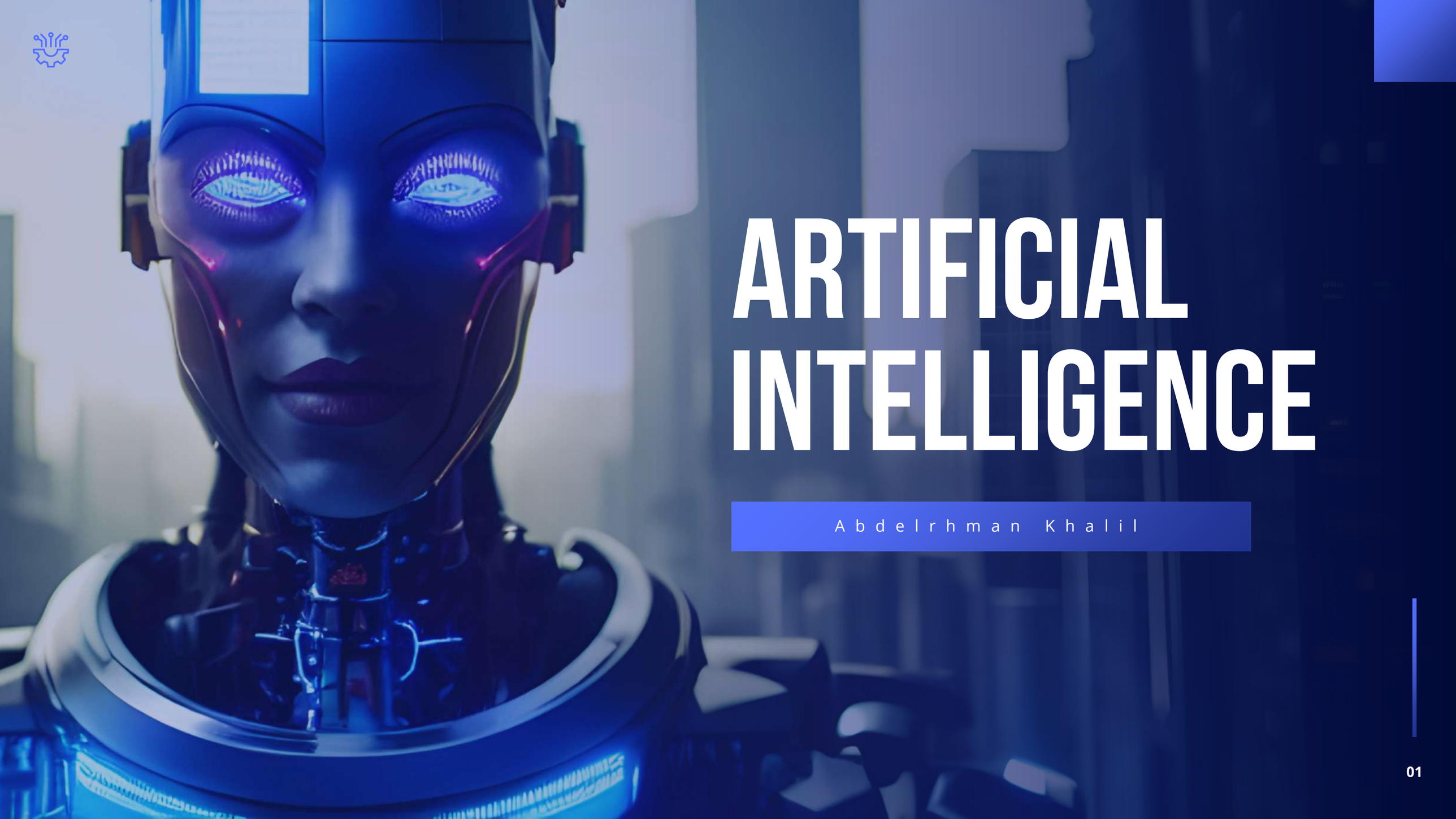


ARTIFICIAL INTELLIGENCE

Abdelrhman Khalil

AGENDA

1. Introduction
2. History of AI
3. Types of AI
4. Branches of AI
5. Applications of AI
6. Benefits & Challenges
7. Future of AI
8. Conclusion

Introduction

What is Artificial Intelligence (AI)?

- AI is a branch of computer science that enables machines and systems to "think" or "learn" like humans.
- Simply, it is the simulation of human abilities such as understanding, learning, decision-making, and problem-solving.
- Examples:
  - Voice assistants (Siri, Alexa).
  - Automatic translation (Google Translate).
  - Movie and music recommendations (Netflix, Spotify).

Why is it important now?

Technology is everywhere: from mobile phones to factories and hospitals.

Big Data: the huge amount of data is difficult for humans to analyze, but AI can handle it.

Faster results: saves time and effort in fields like medicine, education, and cybersecurity.

Competitiveness: **companies or countries that don´t adopt** AI will fall behind.

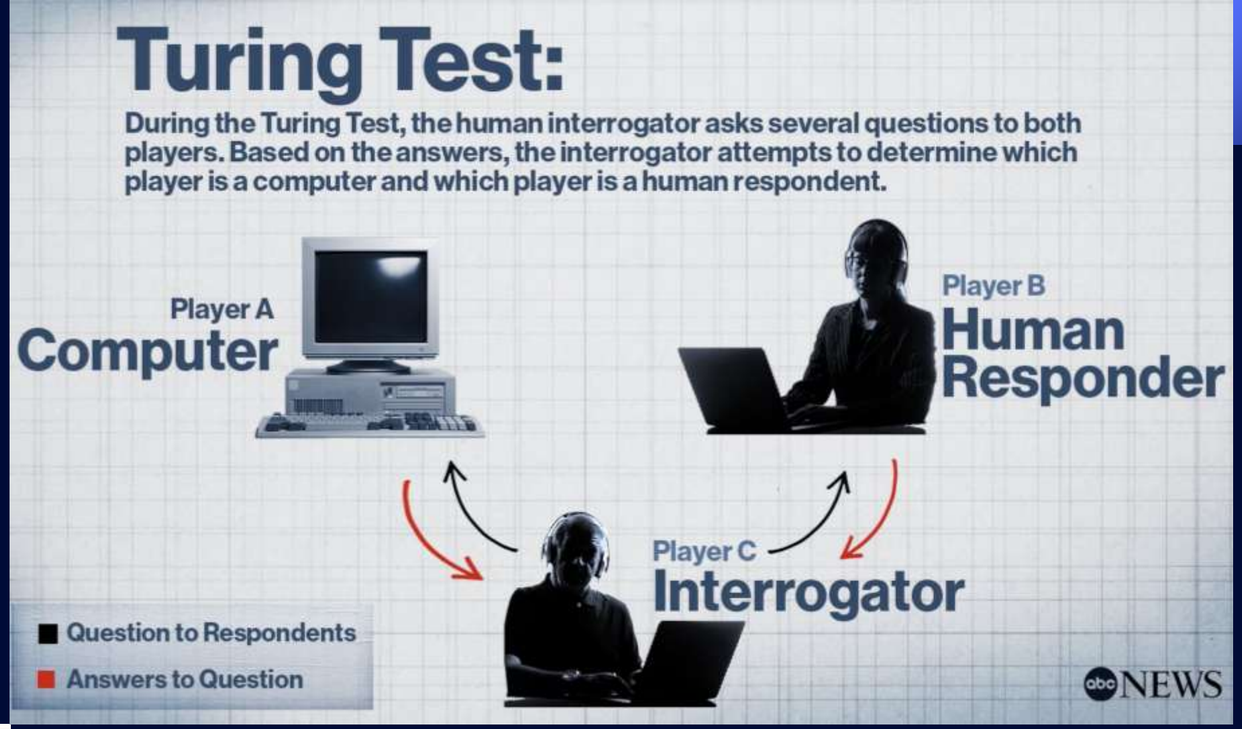
History of AI

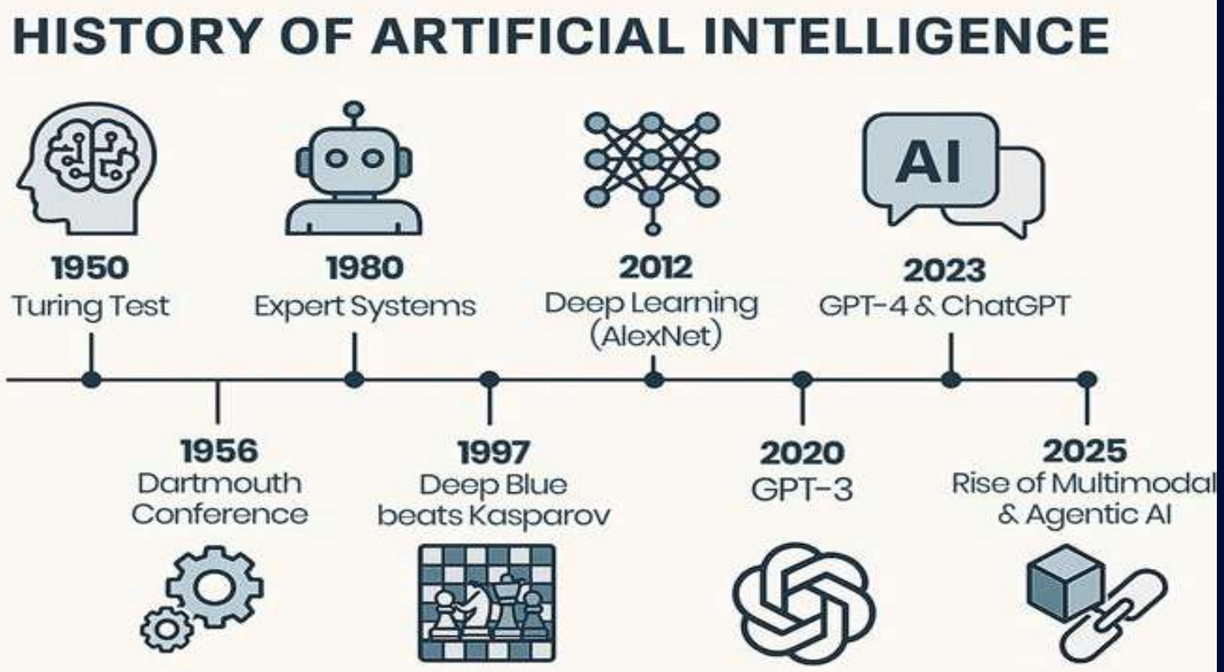
Early Beginnings (1950s – Alan Turing and first ideas)

In the 1950s, Alan Turing asked the famous question: *"Can machines think?"*

He introduced the Turing Test, a way to measure machine intelligence.

Early AI research focused on problem-solving, logic, and simple games (like chess).





Evolution over Time

Symbolic AI (1950s – 1980s): Based on rules and logic; machines **followed "if - then" statements.**

Machine Learning (1980s – 2000s): Focus shifted to teaching machines to learn from data.

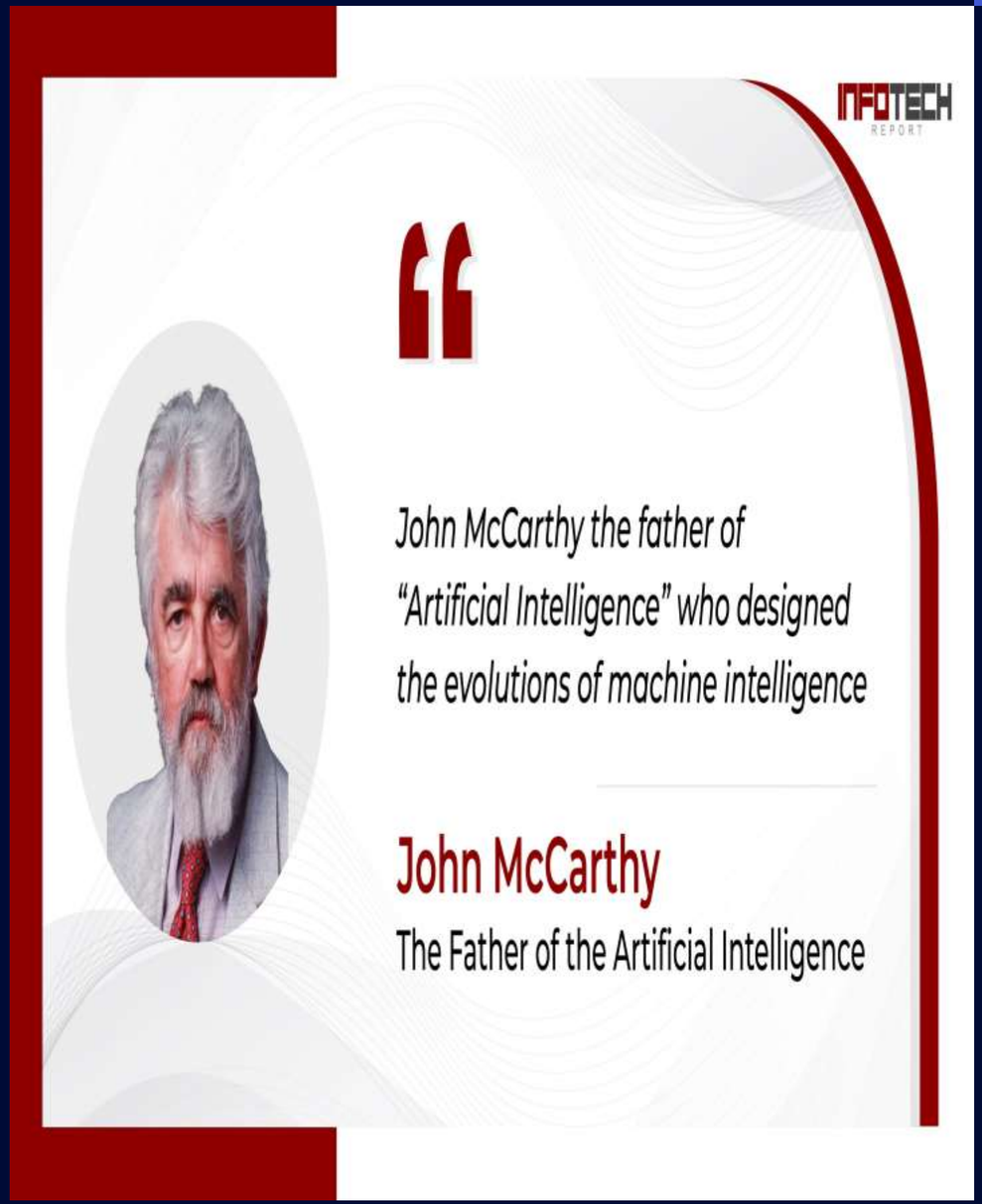
Modern AI (2000s – Present): Deep Learning, Neural Networks, and Generative AI; breakthroughs in speech, vision, and natural language processing.

History of AI

John McCarthy (1956 – The Father of AI)

In 1956, John McCarthy organized the Dartmouth Conference, where the term *"Artificial Intelligence"* was first introduced.

He also developed the LISP programming language, which became one of the most important tools for AI research.



Types of AI

Weak / Narrow AI

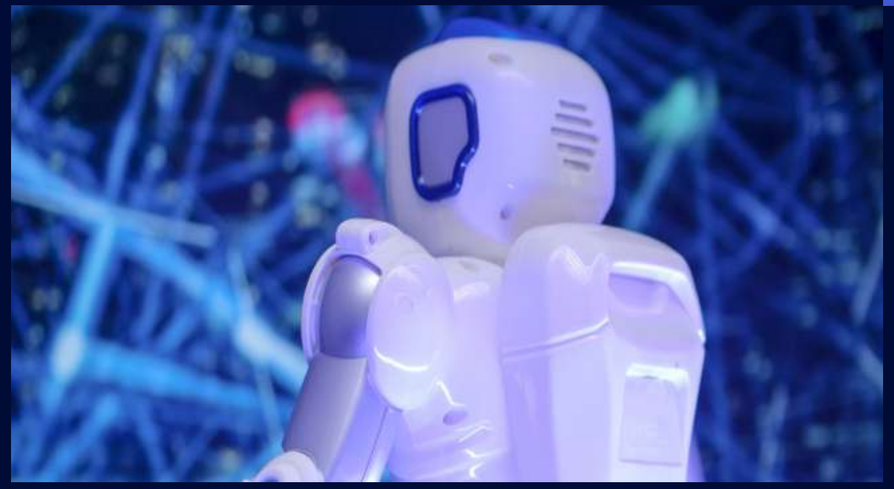
- Designed for a specific task.
- Cannot perform outside its programmed domain.
- Examples:
- Chatbots (like customer service bots).
- Recommendation Systems (Netflix, YouTube, Spotify).

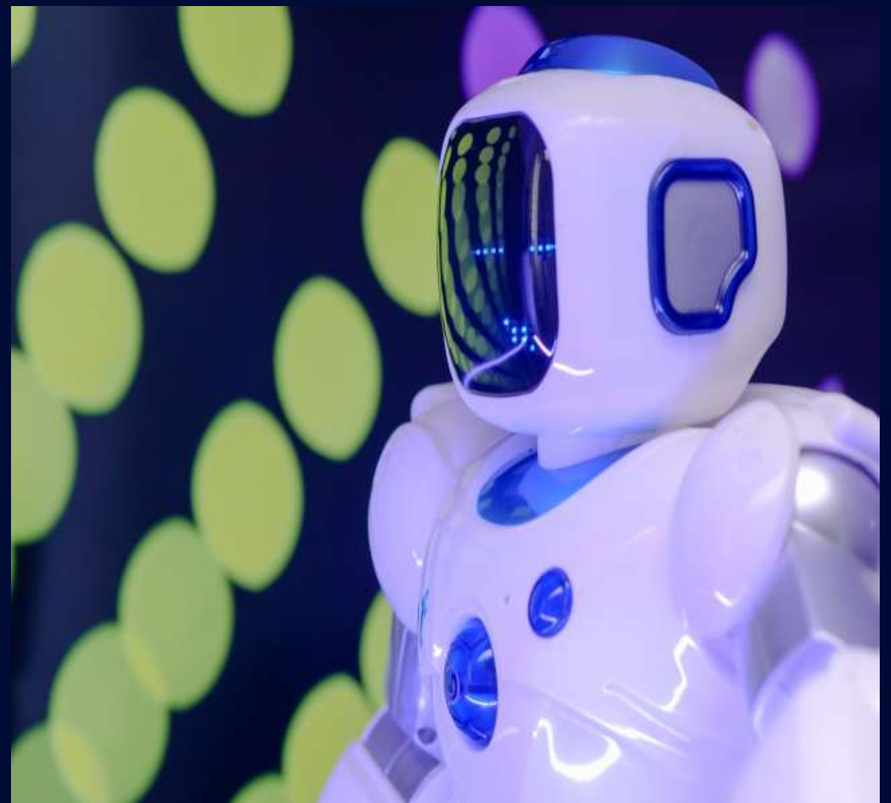
Strong / General AI

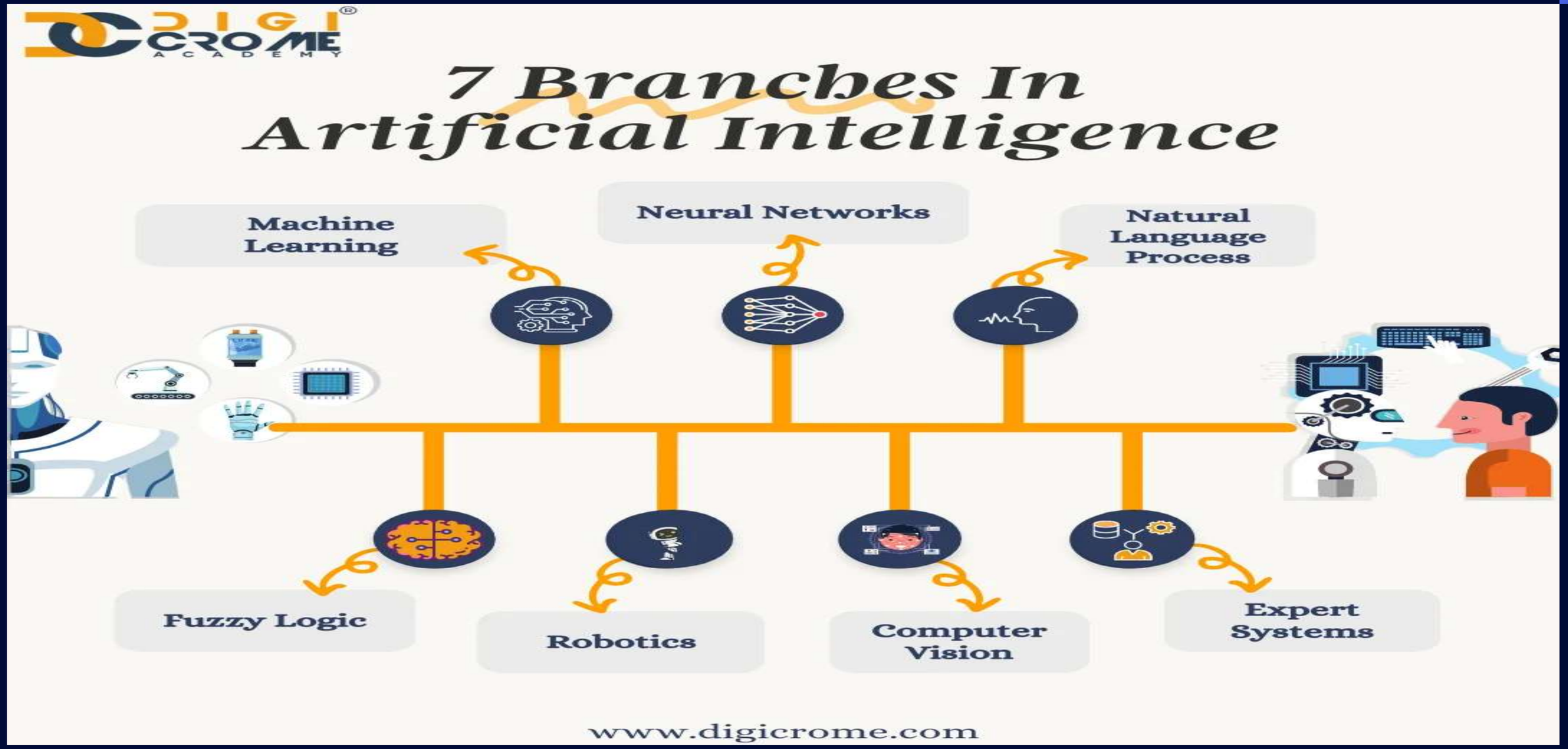
- AI with human-like intelligence.
- Can learn, understand, and perform any intellectual task like humans.
- Still in the research stage, not yet achieved.

Super AI

- AI that surpasses human intelligence in every aspect: creativity, problem-solving, decision-making, and emotions.
- A theoretical concept — not real yet.
- Raises ethical and safety concerns (control, trust, and impact on humanity).







Branches of AI

Branches of AI

Machine Learning (ML)

Teaches machines to learn from data and improve over time without being explicitly programmed.

Example: Email spam filters.

Deep Learning (DL)

A subfield of ML using neural networks with many layers.

Very powerful for image, speech, and text recognition.

Example: Self-driving cars detecting objects

Natural Language Processing (NLP)

Helps machines understand, interpret, and generate human language.

Examples: ChatGPT, Google Translate, sentiment analysis.

Computer Vision

Enables machines to see and interpret images or videos.

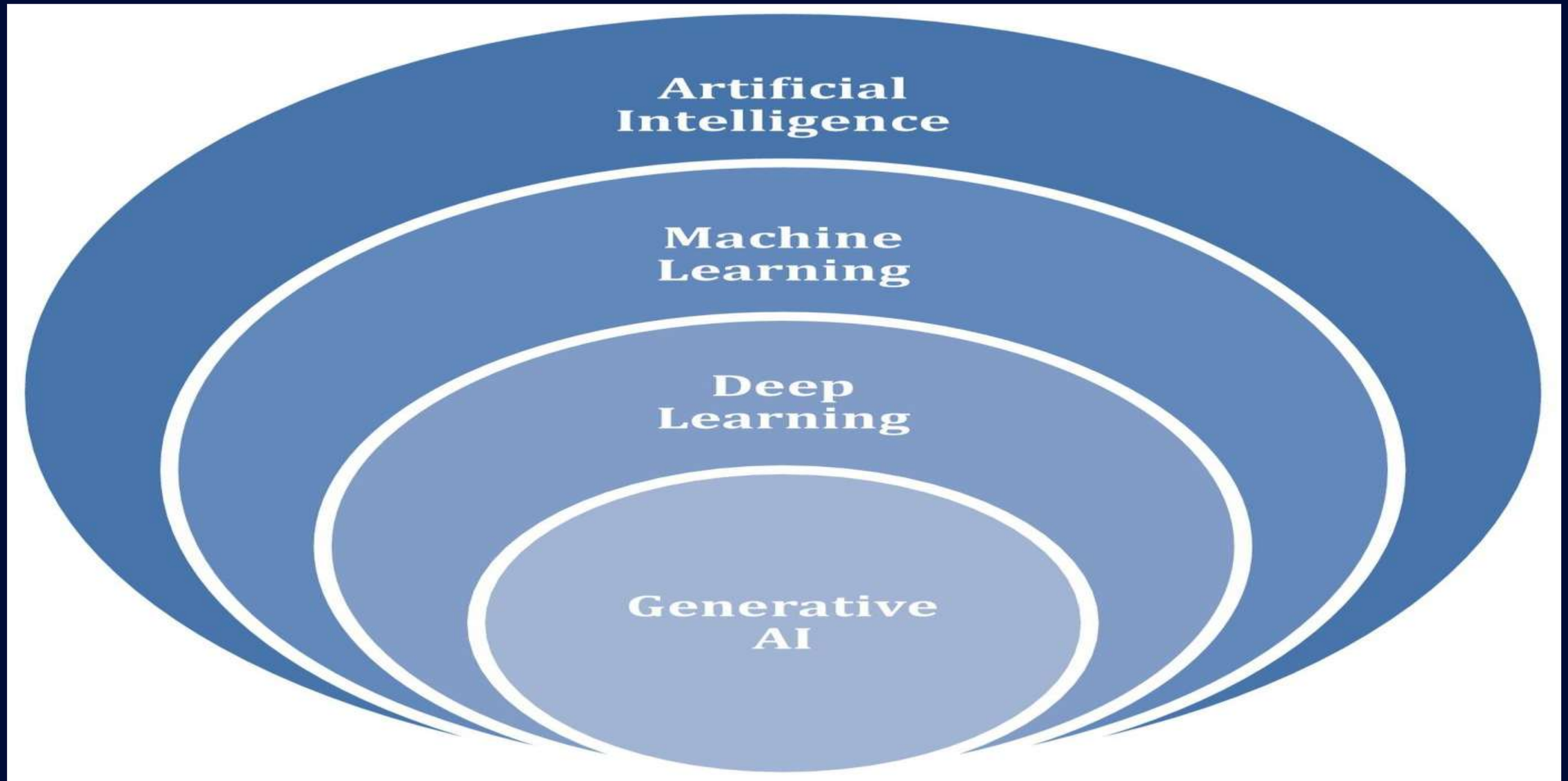
Examples: Face recognition, medical imaging.

Robotics

Combines AI with mechanical systems to create machines that can act and interact with the physical world.

Examples: Industrial robots, humanoid robots.

fields within AI



Applications of AI

Daily Life

Google Maps → **real**-time navigation and traffic prediction.

Netflix → **personalized movie & series recommendations.**

Facebook / Instagram → **face recognition, targeted ads**.

Healthcare

AI for early disease detection (e.g., cancer, diabetes).

Robot-assisted surgeries.

Drug discovery and development.

Cybersecurity

AI-based intrusion detection.

Detecting phishing, malware, and cyberattacks.

Automated threat response.

Education

Personalized learning platforms.

AI tutors and chatbots to assist students.

Automatic grading systems.

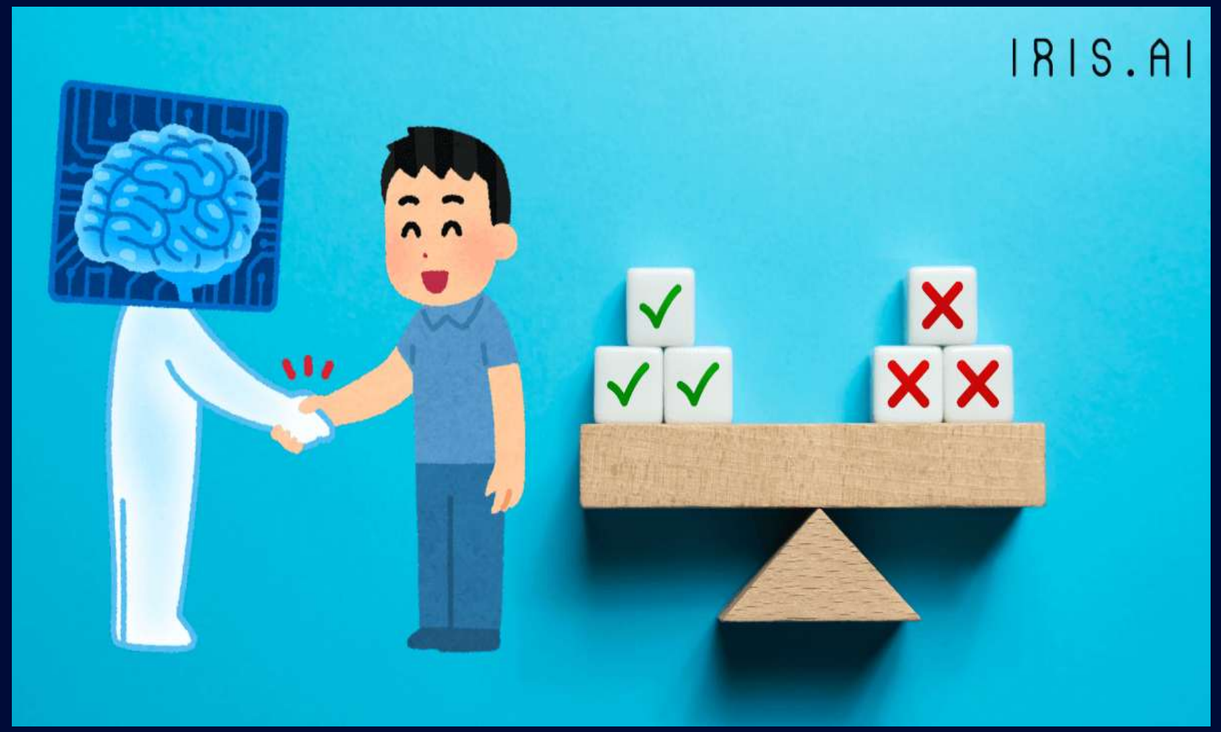
Industry

Smart manufacturing and quality control.

Predictive maintenance in factories.

Supply chain optimization.

Benefits & Challenges



Benefits of AI

Efficiency: Performs tasks faster than humans.

Automation: Reduces the need for repetitive manual work.

Accuracy: Improves decision-making with data-driven insights.

Innovation: Enables new technologies (e.g., self-driving cars, smart assistants).

Challenges of AI

Privacy Issues: Sensitive personal data can be misused.

Bias: AI may inherit bias from training data.

Job Loss: Automation may replace some human jobs.

Cybersecurity Risks: AI systems can be attacked or misused by hackers.

Ethical Concerns: Responsibility, transparency, and trust in AI decisions.

Future of AI

How AI Might Shape Our World (Next 10–20 Years)?

Healthcare: AI doctors and faster drug discovery.

Education: Fully personalized learning for every student.

Transportation: Widespread use of autonomous cars, drones, and smart cities.

Workplace: Collaboration between humans and AI-powered tools.

Everyday Life: Smarter homes, virtual assistants, and seamless digital services.

Opportunities

Better quality of life.

New industries and job opportunities.

Solving complex global problems (climate change, energy, food supply).

Concerns

Ethical dilemmas (AI decision-making without human control).

Job displacement due to automation.

Risk of misuse (AI in warfare, surveillance, or deepfakes).

Conclusion

Quick Recap

AI is about making machines think, learn, and act intelligently.

We covered:

- ✓ Introduction to AI
- ✓ History of AI
- ✓ Types of AI
- ✓ Branches of AI
- ✓ Applications
- ✓ Benefits & Challenges
- ✓ Future of AI

Final Note

AI is not just a technology, it is a revolution that will shape how we live, work, and interact.

The key is to use it wisely and responsibly.

Conclusion

Q&A

Now the floor is open for your questions.

Thank You

By: Abdelrhman Khalil