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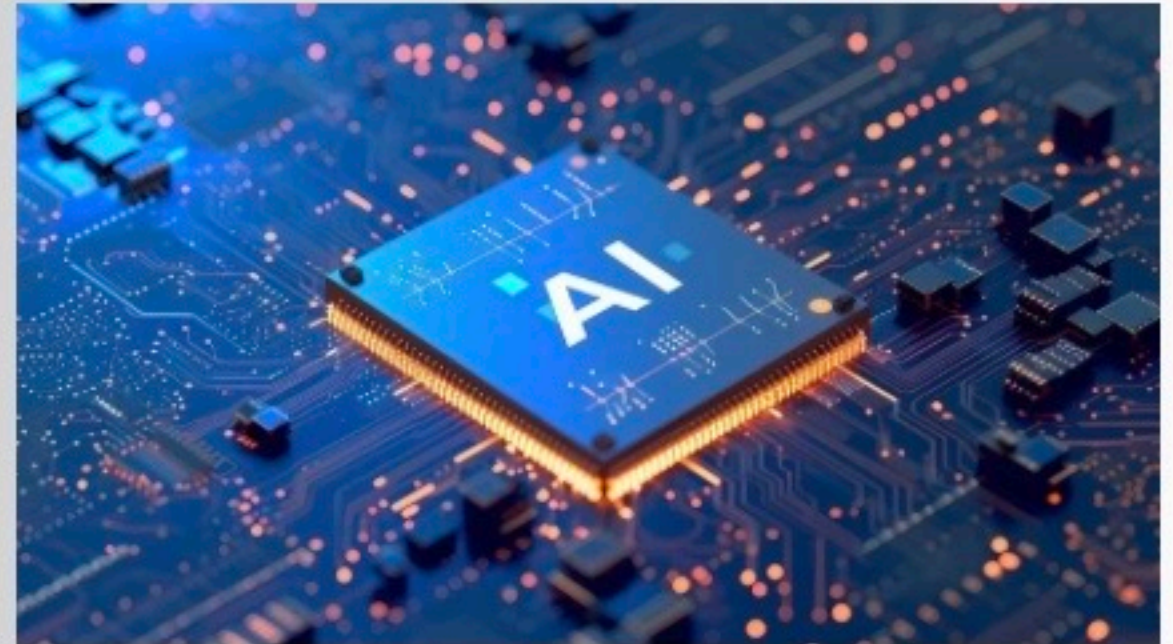
# Foundation Of AI

# Introduction to AI Foundations

Artificial Intelligence (AI) is a branch of computer science focused on creating systems capable of performing tasks that typically require human intelligence.

The goal of the AI Foundation is to help people understand how AI works, its real-world applications, and how it can be used responsibly and ethically.

It teaches the principles that form the base of all intelligent systems, from voice assistants like Alexa to self-driving cars.



# Key Concepts in AI

Machine learning is a core subset of AI that enables systems to learn from data and improve their performance over time.

Machine learning systems learn patterns from previously stored data and improve automatically without explicit programming

Natural language processing (NLP) allows machines to understand, interpret, and respond to human language in a meaningful way that humans can easily understand



# History of AI Development

The concept of AI dates back to the 1950s, with early pioneers like Alan Turing proposing ideas that laid the groundwork for modern AI.

This field undertook many phases including the 'AI Winter of 1980s' and the Modern AI prevailing now

From simple machines to smart systems, AI has come a long way. Its history shows how human curiosity and innovation shaped today's intelligent world

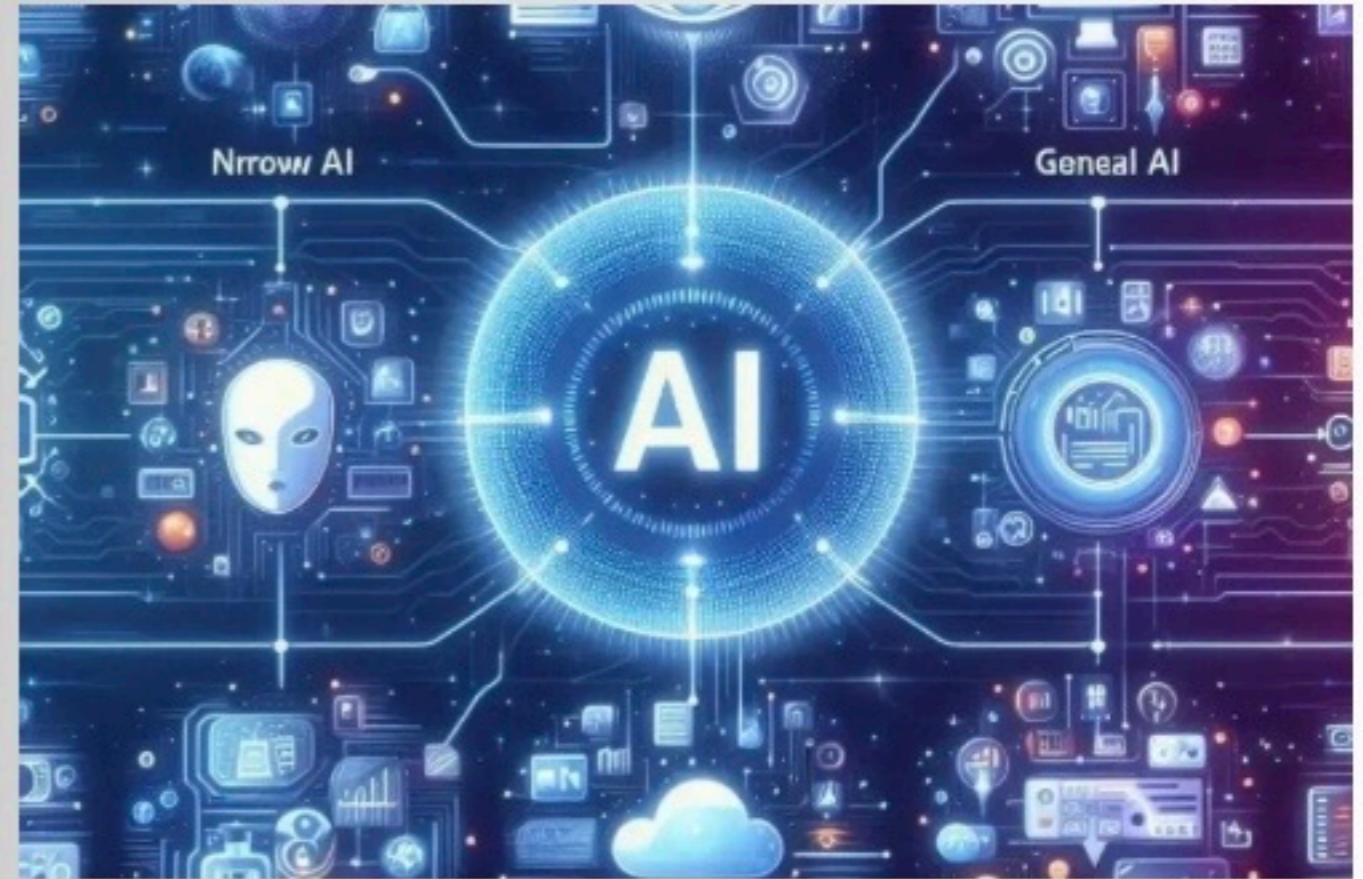


# Goals of AI

**1 To improve accuracy and efficiency :-** AI helps achieve faster and more accurate results than humans in many fields

**2 To solve complex problems:-** AI can analyze huge amounts of data and find patterns humans may miss

**3 To learn and adapt :-** AI systems aim to improve their performance over time by learning from data



# Types of AI

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graph TD; A[Types of AI] --> B[Based on capabilities]; A --> C[Based on Functionality];
```

## Based on capabilities

- Narrow AI
- General AI
- Super AI

## Based on Functionality

- Reactive Machines
- Limited Memory
- Theory of Mind
- Self - Aware AI

# Based on Capabilities

## 1 Narrow AI (Weak AI)

- Designed for one specific task

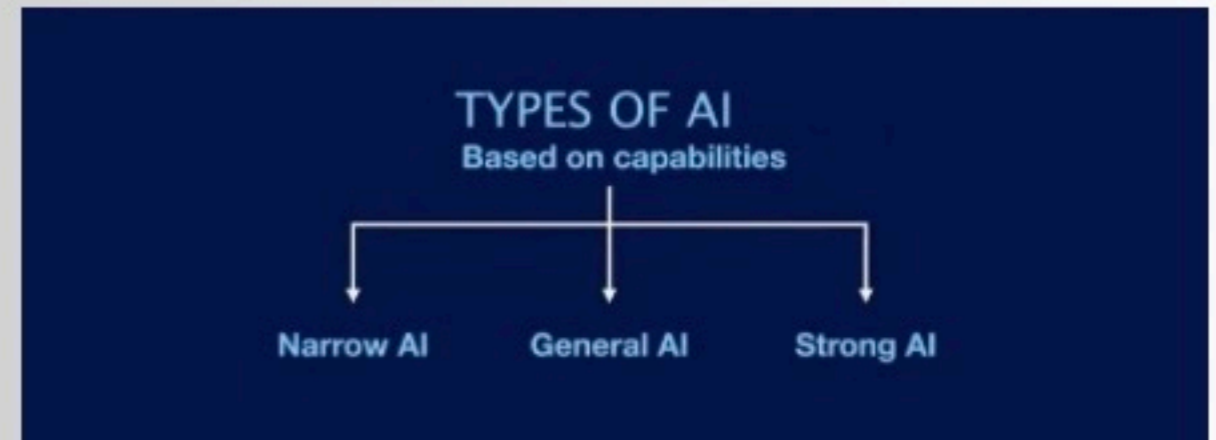
Example: Siri, ChatGPT, Google Maps

## 2 General AI (Strong AI)

- Can think and learn like a human
- Still theoretical (not yet developed)

## 3 Super AI

- More intelligent than humans
- Fully hypothetical



# Based on Functionality

## 1 Reactive Machines

- No memory, only respond to current inputs

Example: Siri, ChatGPT, Google Maps

## 2 Limited Memory

- Learns from past data
- Used in self-driving cars, chatbots

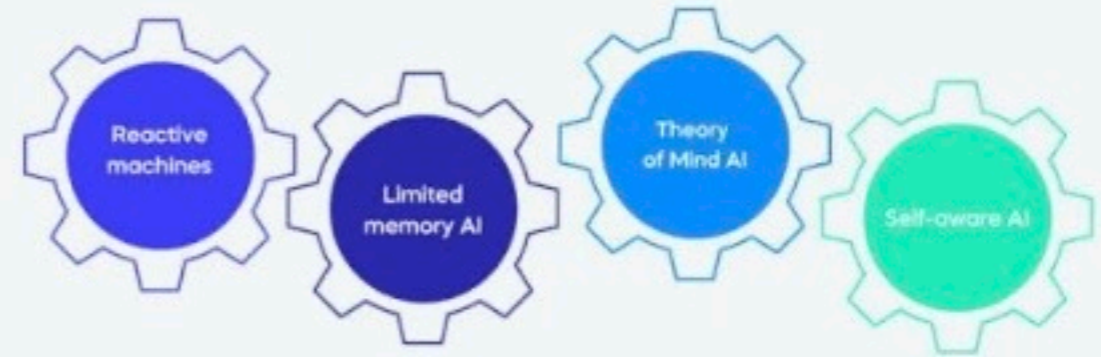
## 3 Theory of Mind

- Understands emotions, beliefs, intentions

## 4 Self Aware

- Has consciousness and self-awareness

### 4 types of AI based on functionality



# Key concepts

## 1 Machine learning:-

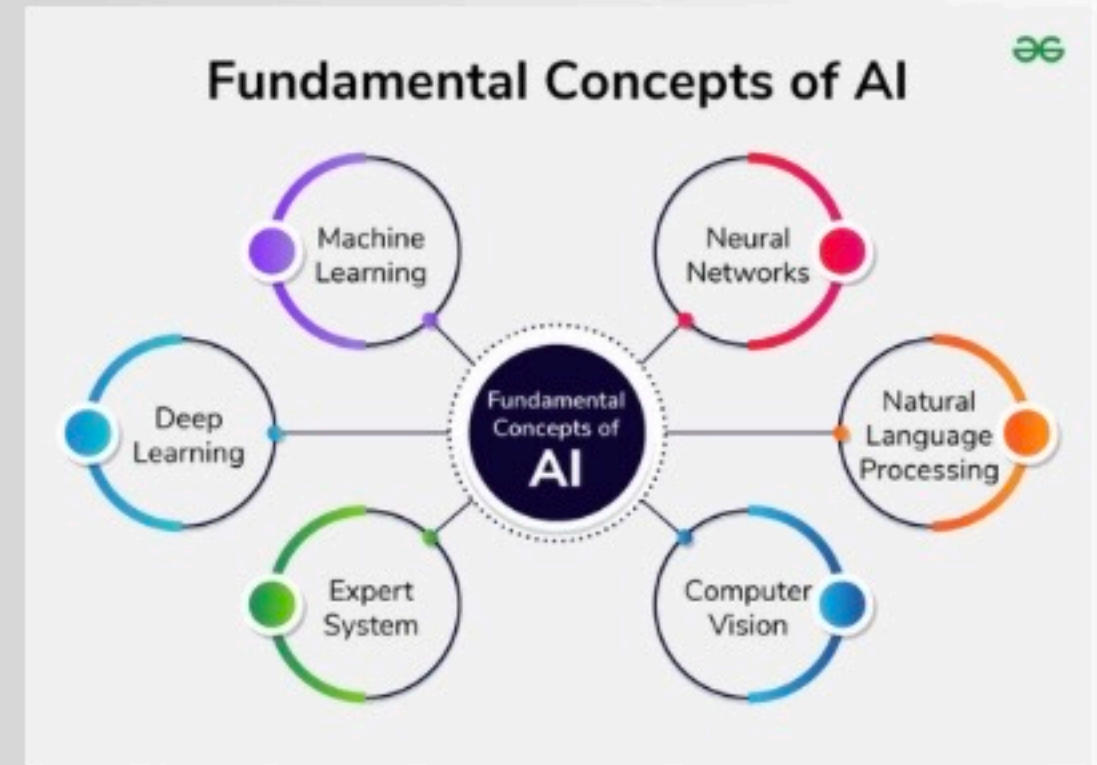
Machines learn from data and improve their performance without being explicitly programmed

## 2 Deep learning:-

A type of ML that uses multiple layers of neural networks to understand complex patterns like images, speech, and text.

## 3 Natural Language Processing (NLP):-

Enables machines to understand, interpret, and use human language (like chatbots, translators)



# Ethical Considerations in AI

The rapid advancement of AI raises ethical concerns regarding bias, transparency, and accountability in AI systems.

Data privacy and security are critical issues, as AI systems often rely on vast amounts of personal data for training.

Establishing guidelines and regulations is essential to ensure that AI technologies are developed and deployed responsibly.

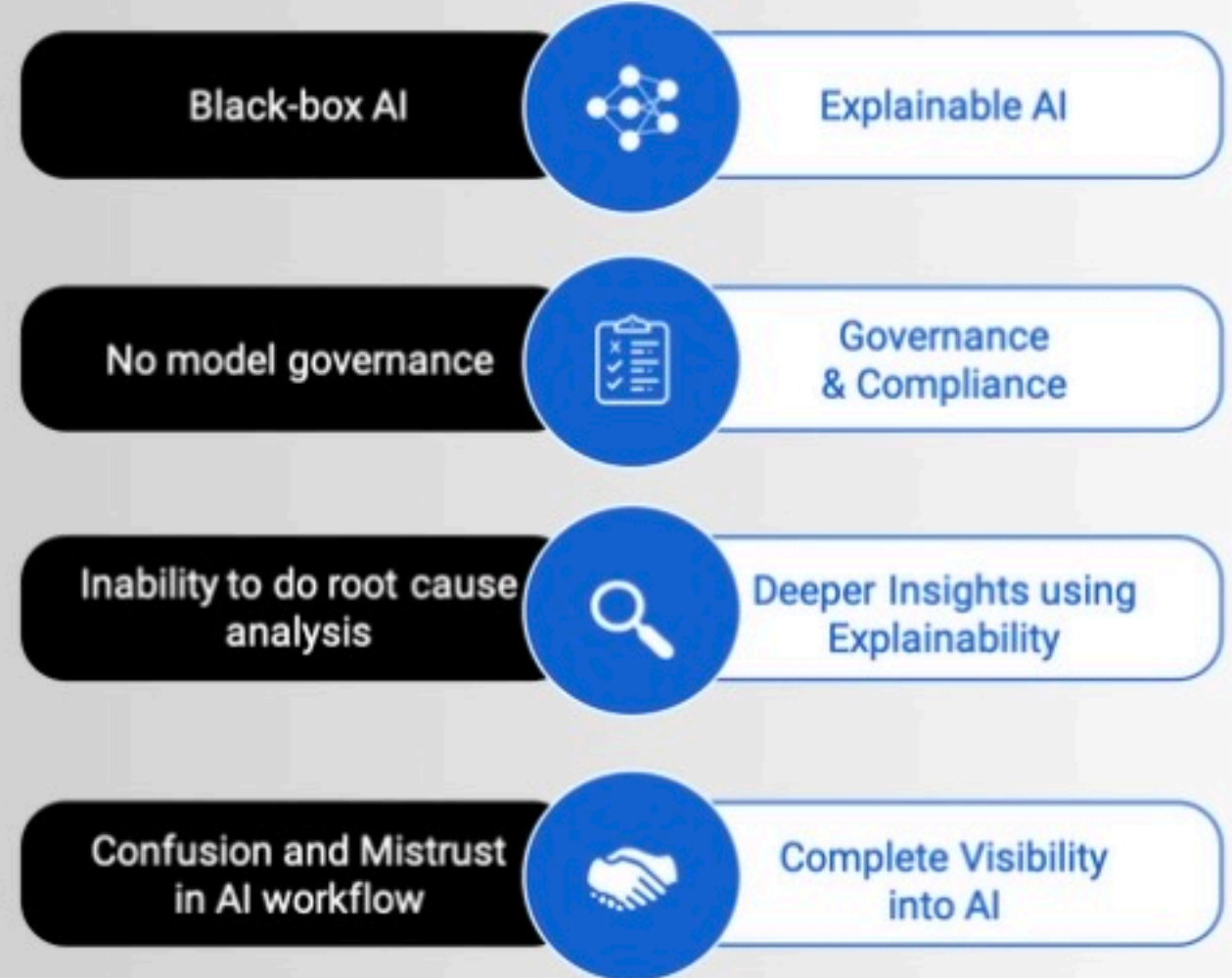


# Future Directions in AI

Artificial Intelligence is rapidly changing the way we work, learn, and live. By understanding its foundations and key concepts, we can appreciate how AI systems think, learn, and make decisions like human

While AI offers many advantages like speed, accuracy, and automation, it also brings challenges such as privacy issues, bias, and job changes. These concerns remind us that AI must be used carefully and responsibly

In the future, AI will continue to evolve and become more advanced. With ethical use and proper guidelines, AI has the potential to create a better, more efficient, and more innovative world for everyone.



# Conclusion

Understanding the foundations of AI is crucial for leveraging its potential and addressing its challenges effectively.

As AI continues to evolve, ongoing research and ethical considerations will shape its impact on society.

Embracing the possibilities of AI while being mindful of its implications will drive responsible innovation in the future.

**DATA-DRIVEN INSIGHTS:**  
**LEVERAGING AI FOR**  
**BUSINESS INNOVATION**



Thank You