

# Introduction to Artificial Intelligence

## chapter 1 summary

### What is AI?

**Artificial Intelligence (AI)** is the science and engineering of creating intelligent machines capable of:

- Thinking and reasoning
- Learning from data
- Problem-solving
- Decision-making
- Understanding language

**Core idea:** Make machines *act* and *think* like humans.

### Brief History

- **Aristotle:** logic, reasoning
- **Al-Khwarizmi:** algorithms
- **Turing (1950):** Turing Machine, Turing Test
- **1956:** AI term coined (Dartmouth)
- **Expert systems:** MYCIN, DENDRAL
- **Today:** ChatGPT, deep learning, vision

### Types of AI

#### Weak AI (Narrow AI)

- One specific task
- No understanding or consciousness
- Examples: ChatGPT, Google Maps

#### Strong AI (General AI)

- Human-level intelligence
- Can learn any task
- Does not exist (theoretical)

### Symbolic AI

- Rule-based (IF–THEN)
- Transparent, no learning

### Connectionist AI

- Neural networks
- Learns from data
- Black-box decisions

### AI Domains

#### Machine Learning

*AI that learns from data*

Data → Model → Prediction

#### Natural Language Processing

*AI that understands human language*

- ChatGPT
- Translation
- Voice assistants

#### Computer Vision

*AI that sees images/videos*

- Face recognition
- Medical imaging
- Self-driving cars

#### Robotics

*AI with a physical body*

- Industrial robots
- Drones

**Key point:** Weak AI exists everywhere • Strong AI does not exist •  
Symbolic AI = rules • Connectionist AI = learning • AI solves real problems