

# Introduction

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## 1 What is AI?

**Artificial Intelligence:** the synthesis and analysis of computational agents that act intelligently

The aspects that go into an agent acting intelligently include:

- what it does is appropriate for its circumstances, its goals, and its perceptual and computational limitations
- it takes into account the short-term and long-term consequences of its actions, including the effects on society and the environment
- it learns from experience
- it is flexible to changing environments and changing goals

Scientific goals of AI Research are:

- **analysis** of natural and artificial agents
- **testing hypotheses** about agent construction
- **building and experimenting** with agents

Engineering deals with designing and building useful intelligent artifacts.

**Machine Learning:** designing algorithms that learn from data

**Deep Learning:** machine learning with focus on neural networks

**Natural Language Processing/Computational Linguistics:** understanding/generating human language

**Computer Vision:** interpreting and generating visual information

**Robotics:** building robots that can act autonomously

**Cognitive Science:** understanding how humans/animals think, learn, and act