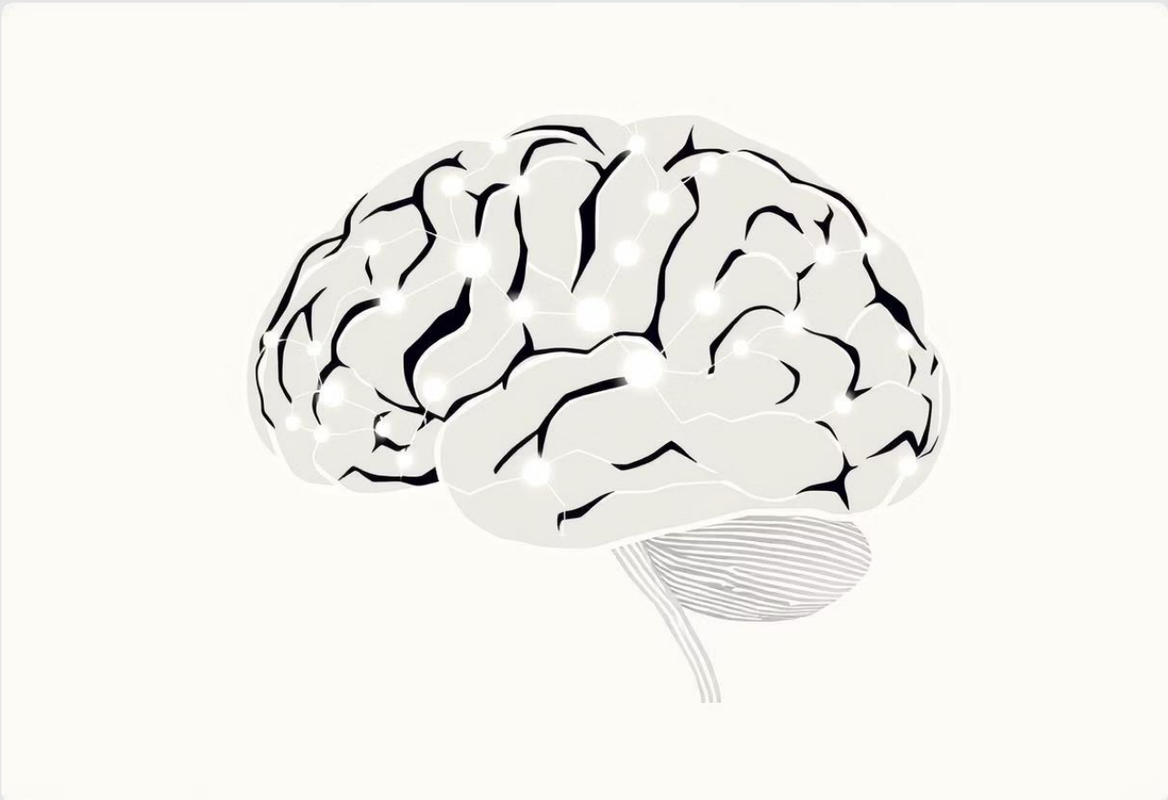
Introduction to Agent AI



Definition

Agents AI are software programs that use artificial intelligence to act on behalf of a user, autonomously pursuing goals and completing tasks.

Core Concept

Agent AI works in a cycle:

Reason

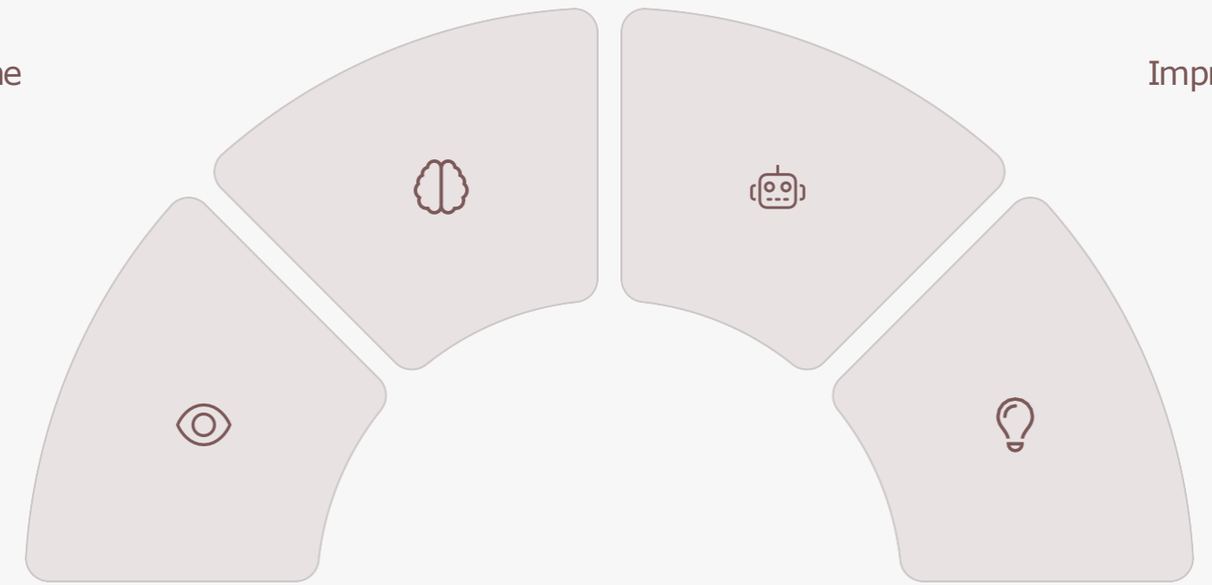
Understand and decide the next action.

Act

Execute the chosen action.

Perceive

Gather data from the environment.



Learn

Improve from feedback and results.

Main Layers

1	Perception Layer
2	Knowledge s Memory Layer
3	Reasoning s Decision-Making Layer
4	Planning s Action Layer
5	Interaction Layer
6	Feedback Loop

Perception Layer

Convert raw inputs into meaningful information.

Technologies:

NLP (Natural Language Processing)

Computer Vision

Speech Recognition

Knowledge s Memory Layer

Store, organize, and retrieve data for decision-making.

Types of Memory:

Short-Term Memory

Current task context.

Long-Term Memory

Historical data, facts, rules.

External Knowledge Sources

Databases, APIs, Knowledge Graphs.

Reasoning s Decision-Making Layer

Analyze data and choose the best course of action.

Components:

1 **Inference Engine**

Logical reasoning.

2 **Goal Manager**

Tracks objectives.

3 **Constraint Checker**

Ensures compliance with rules.

Planning s Action Layer

Turn goals into a sequence of executable steps.

Functions:

1 **Task Planner**

Creates step-by-step plans.

2 **Scheduler**

Decides when actions occur.

3 **Executor**

Interfaces with APIs, devices, or agents.

Interaction Layer

Communicate with users and other systems.

Functions:

- Conversational interface (text/voice)
- API calls to software or devices
- Multi-modal output (charts, dashboards, alerts)

Feedback Loop

Learn from results to improve future actions.

Process:

1. **Monitor outcomes**
2. **Compare with goals**
3. **Adjust strategies for better performance**