
What is
Artificial
Intelligence

What is AI?

Why AI?

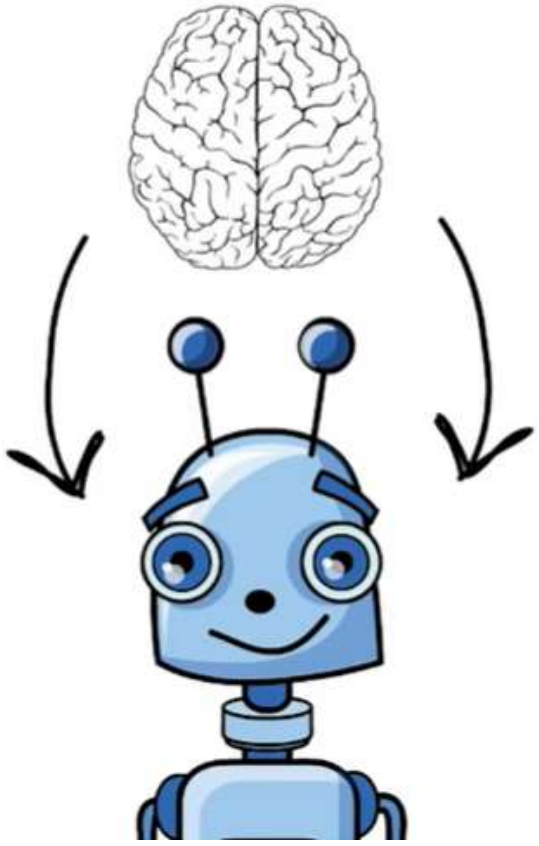
Applications of AI

What is artificial intelligence?

« The capacity given by humans to machines to memorize and learn from experience, to think and create, to speak, to judge and make decisions »

THESE ARE THE PRODUCTS OF ARTIFICIAL INTELLIGENCE

LEARN



ACT

WHAT IS ARTIFICIAL INTELLIGENCE?

Machine Learning

Using sample data to train computer programs to recognize patterns based on algorithms.

Neural Networks

Computer systems designed to imitate the neurons in a brain.

Natural Language Processing

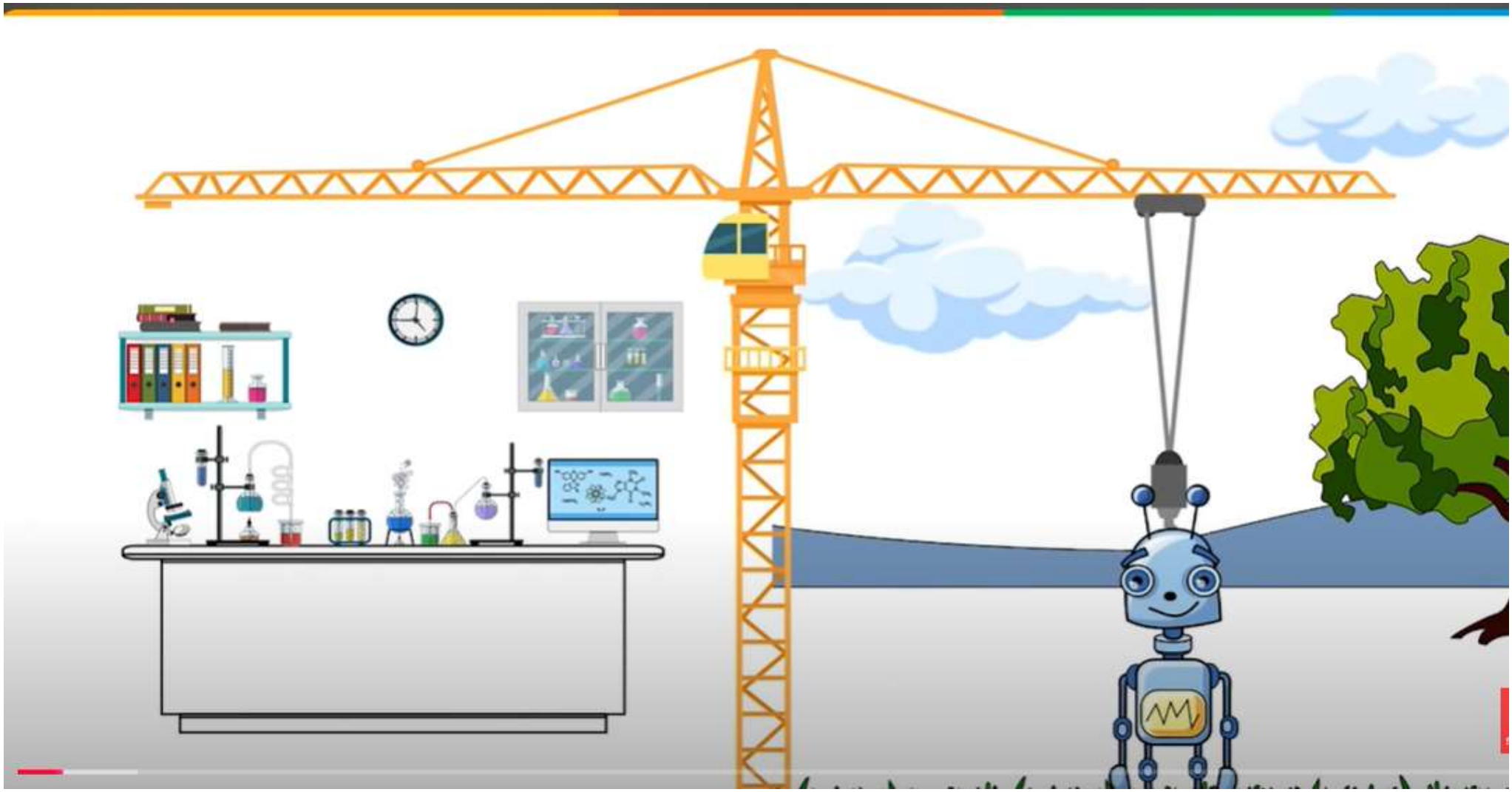
The ability to understand speech, as well as understand and analyze documents.

Robotics

Machines that can assist people without actual human involvement.

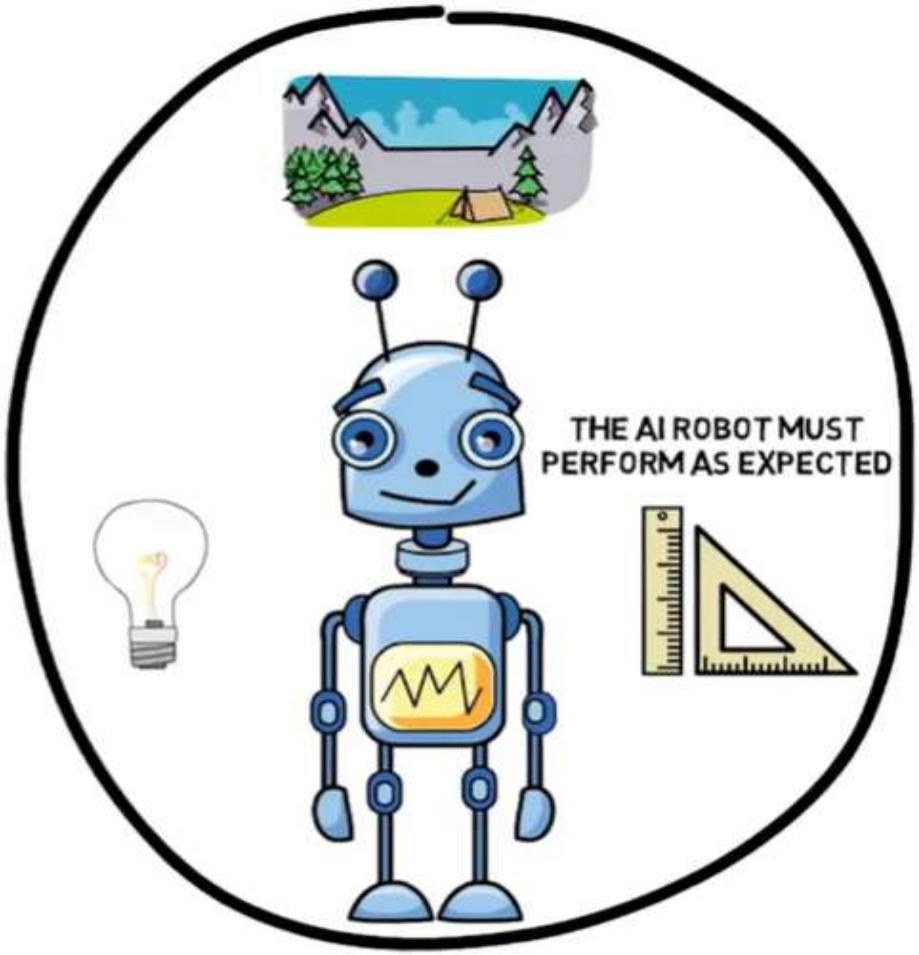
The Motley Fool

AI MAY NOT BE AS OBVIOUS AS IN THE PREVIOUS EXAMPLES

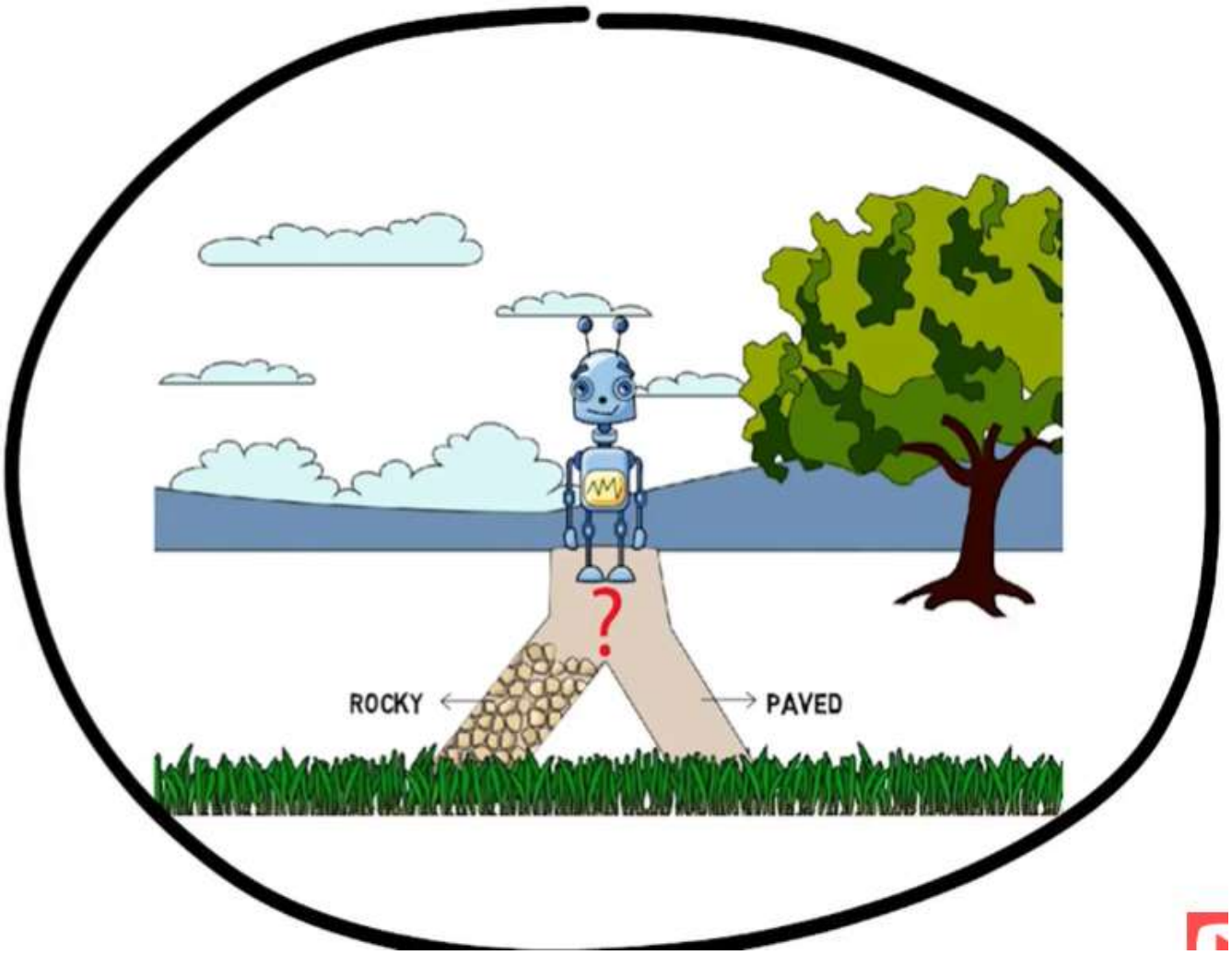


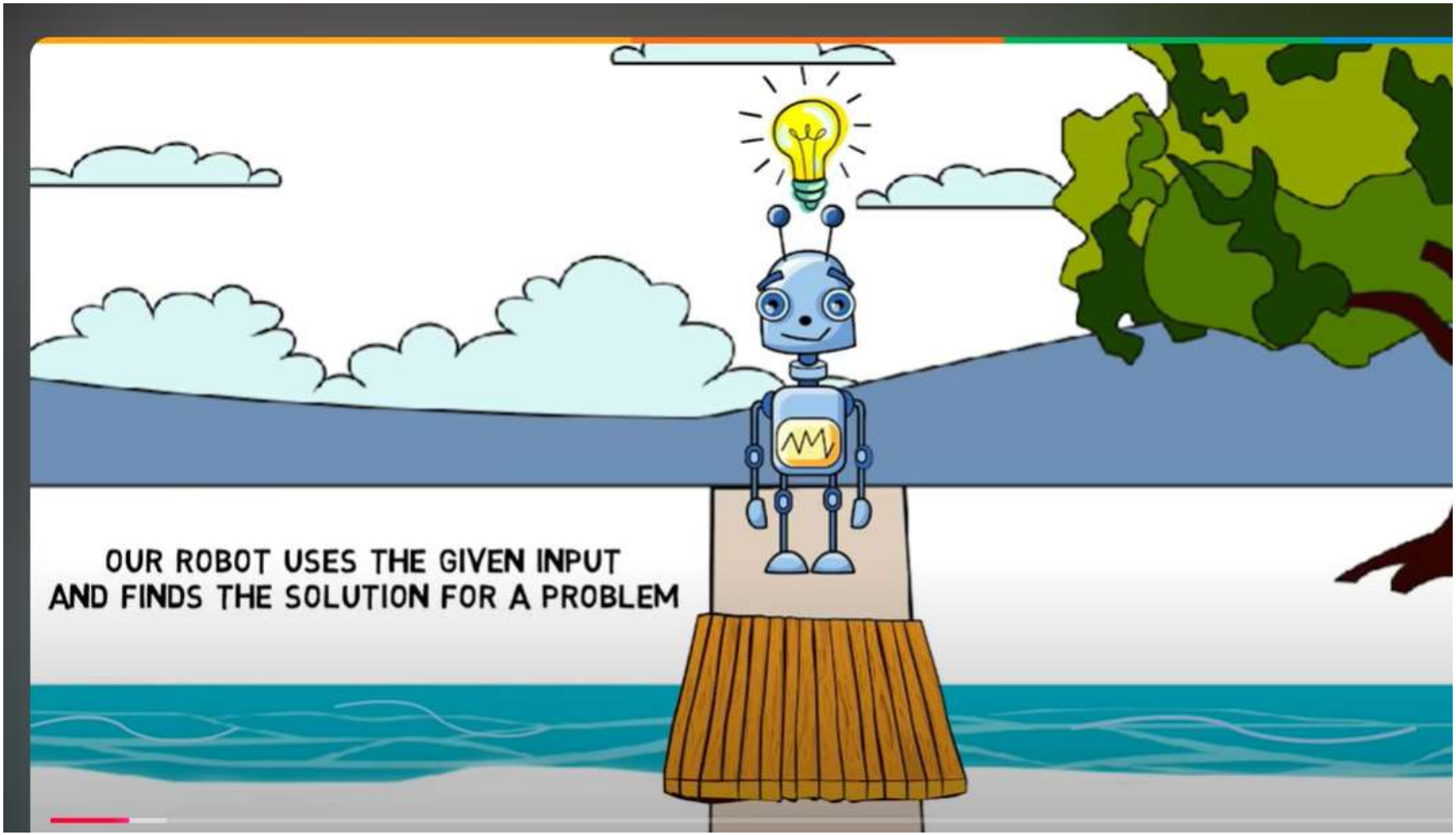
Why **Artificial Intelligence** Is Important?

GENERALIZED LEARNING

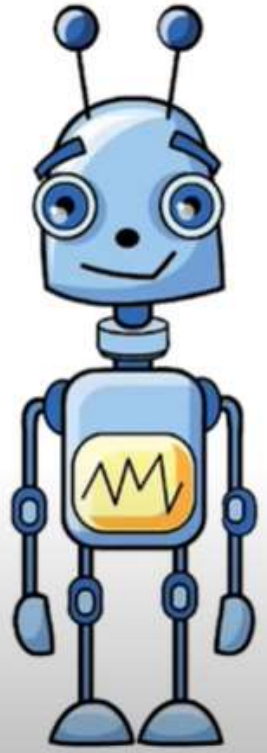


REASONING

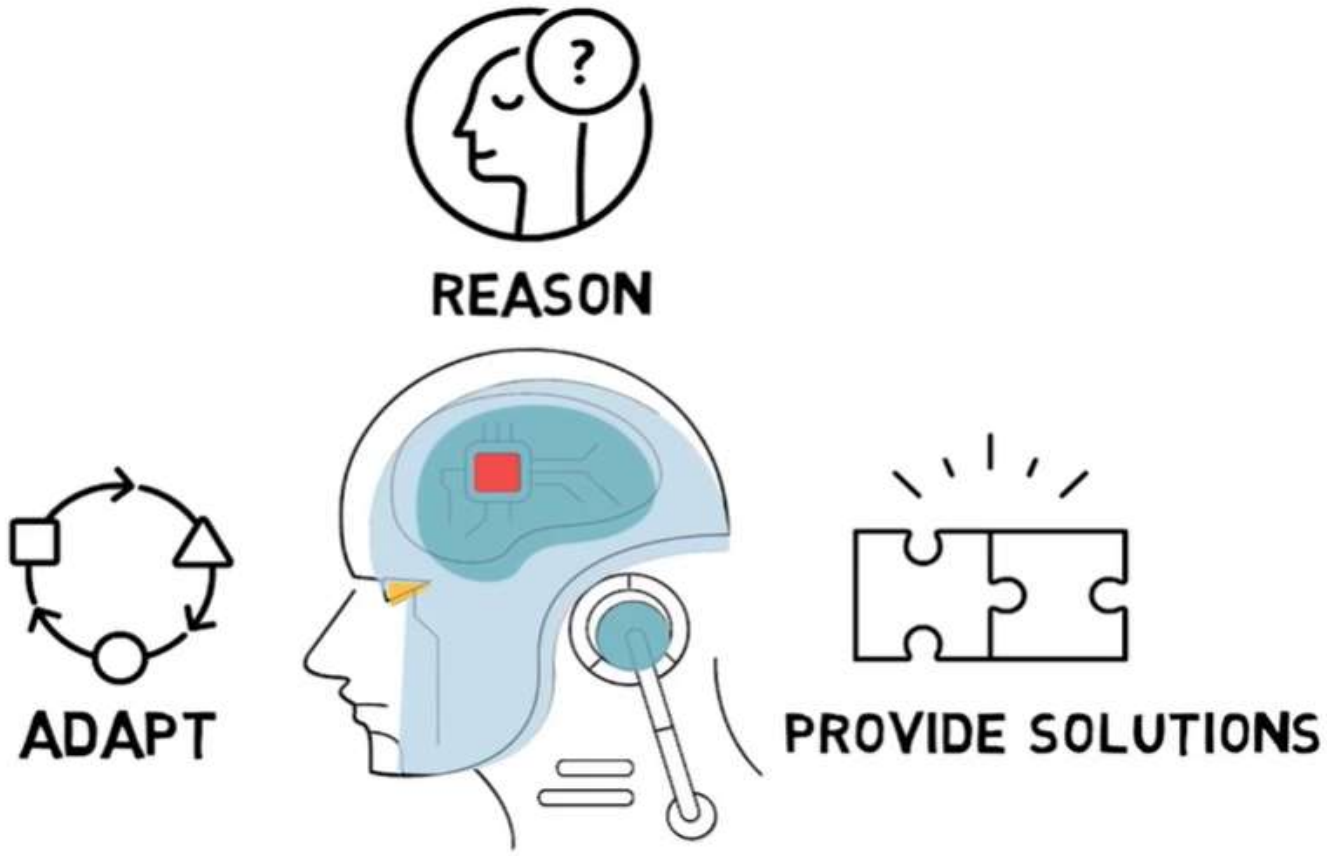


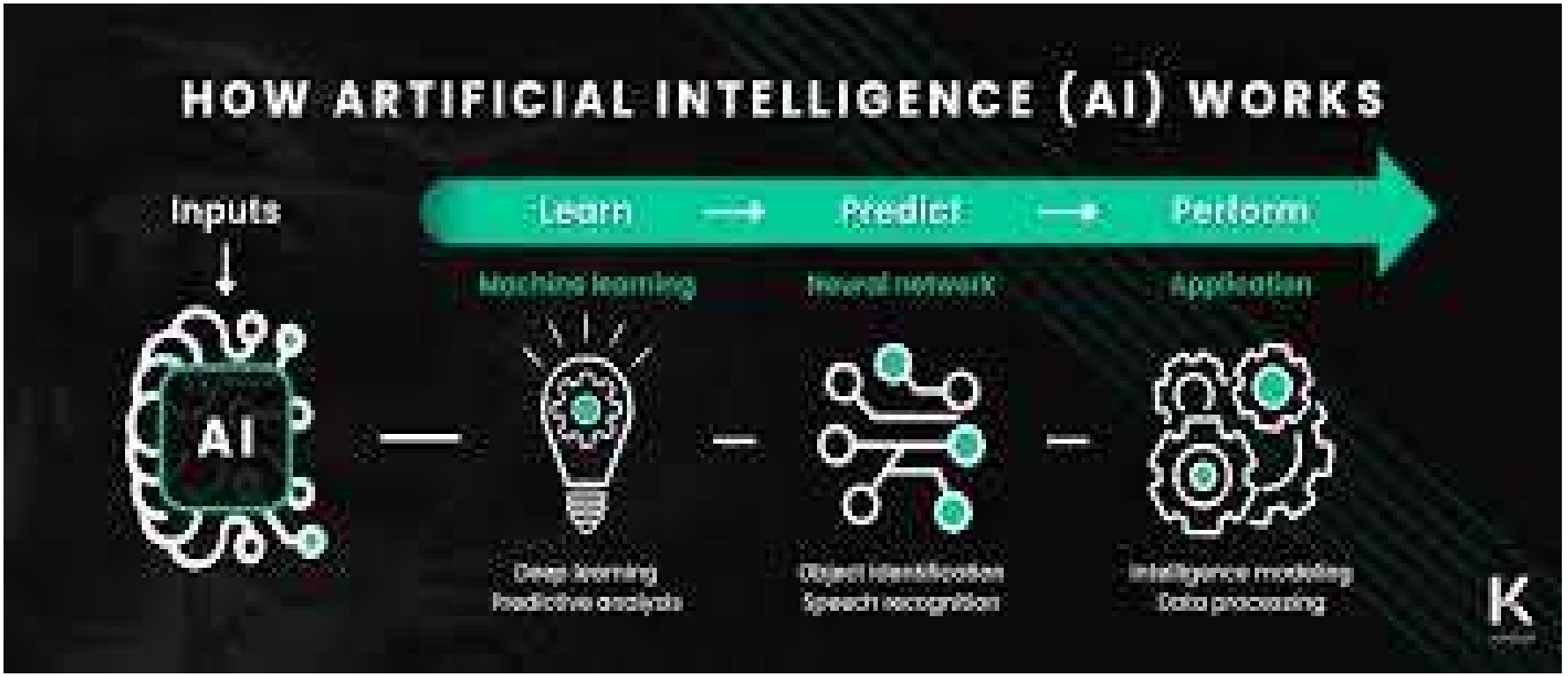

OUR ROBOT USES THE GIVEN INPUT
AND FINDS THE SOLUTION FOR A PROBLEM

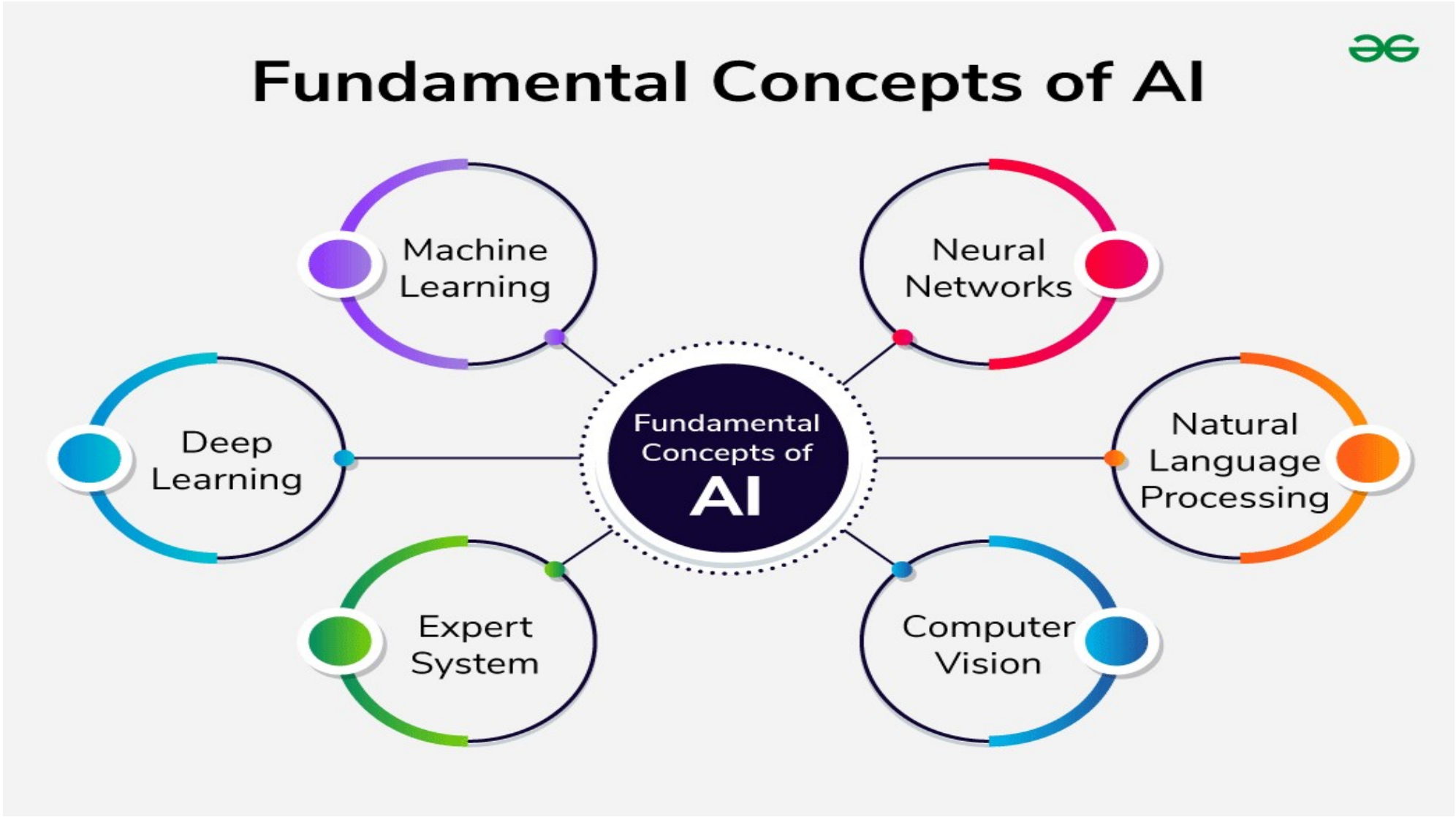
- [x] Generalized learning
- [x] Reasoning
- [x] Problem solving



ARTIFICIALLY INTELLIGENT

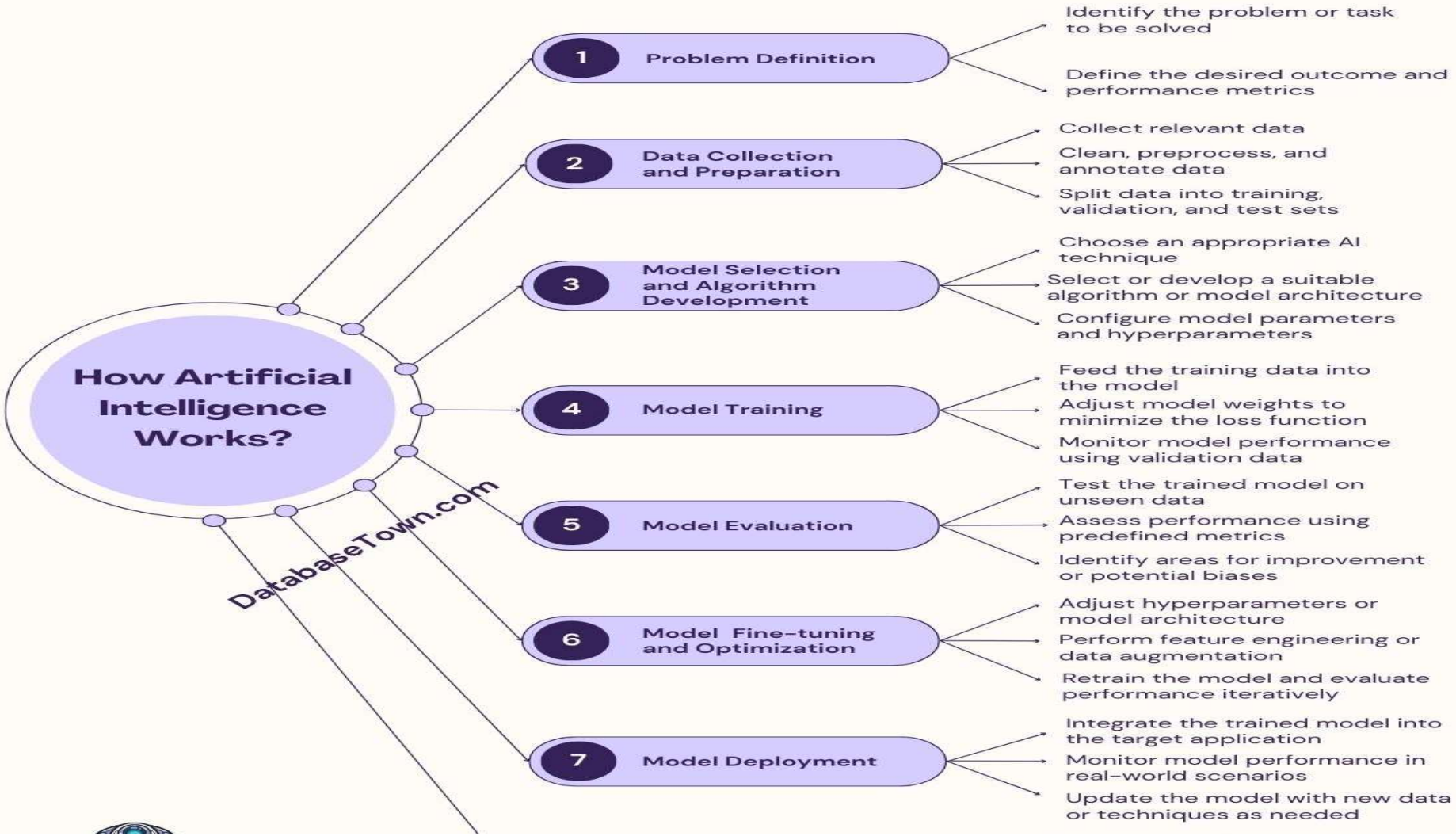

REASON
ADAPT
PROVIDE SOLUTIONS


HOW ARTIFICIAL INTELLIGENCE (AI) WORKS
Inputs
AI
Learn
Predict
Perform
Machine learning
Neural network
Application
Deep learning
Predictive analysis
Object identification
Speech recognition
Intelligence modeling
Data processing

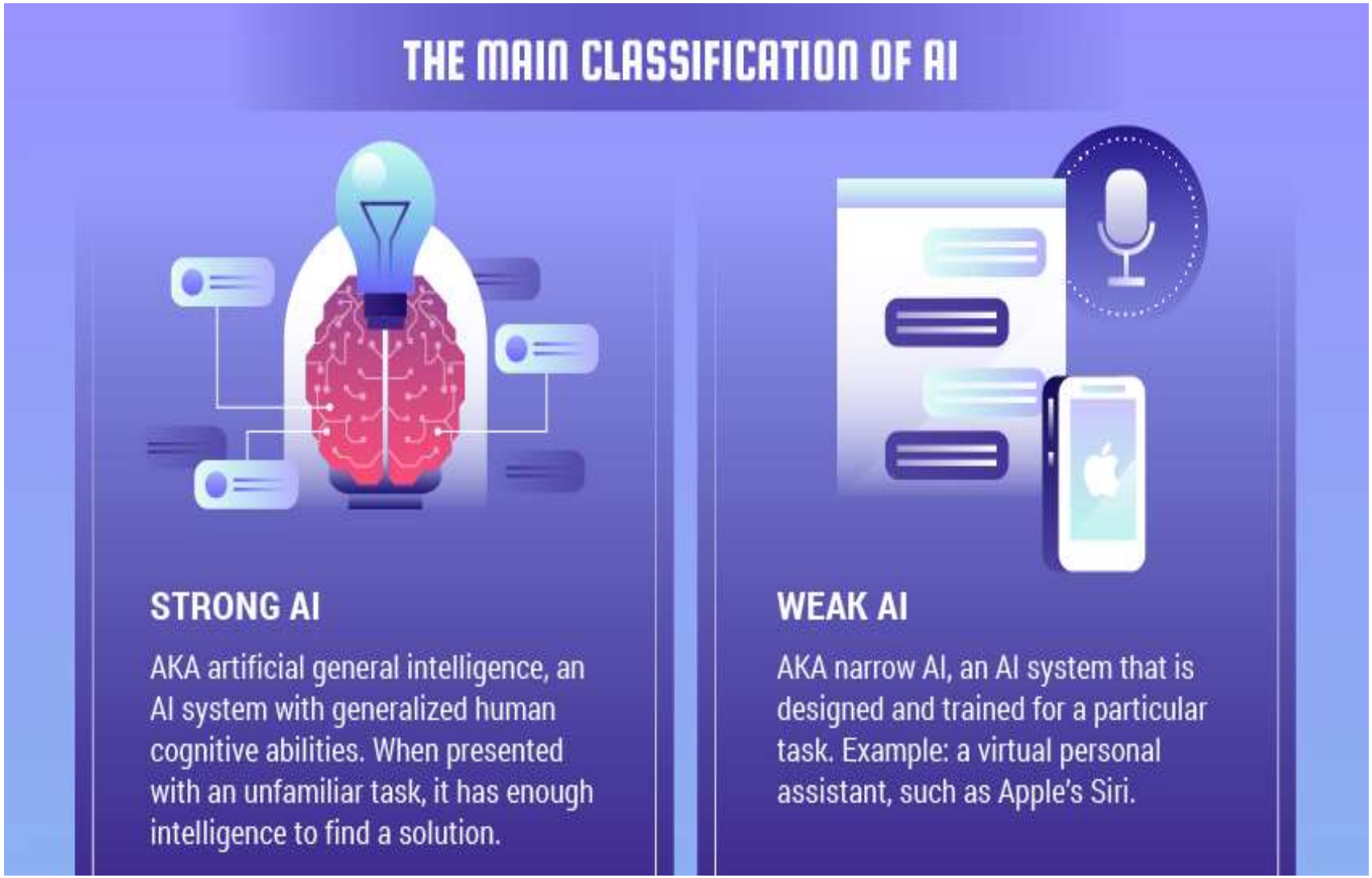

Fundamental Concepts of AI
Machine Learning
Neural Networks
Deep Learning
Fundamental Concepts of AI
Natural Language Processing
Expert System
Computer Vision

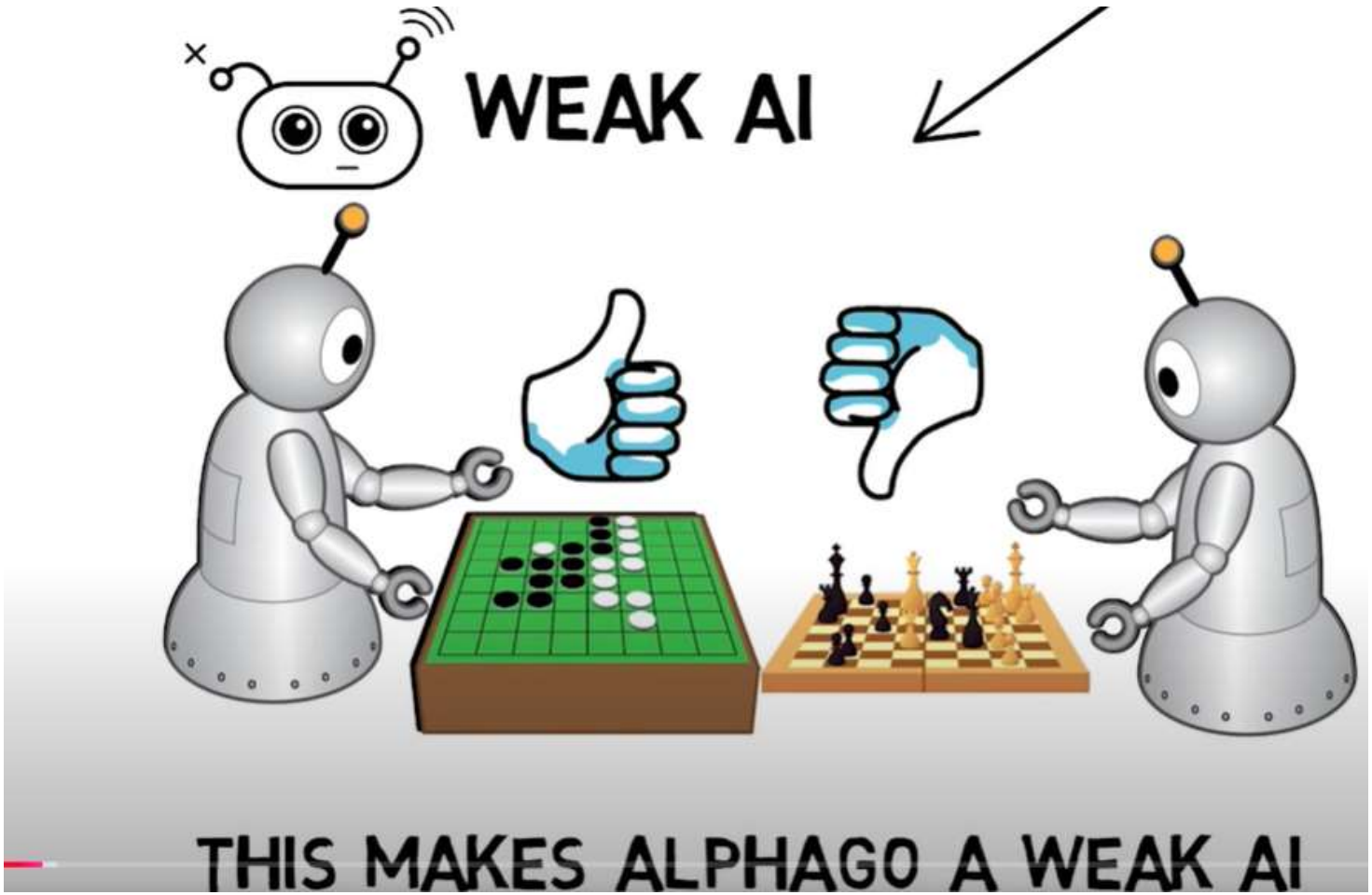
Intelligence Works?

DatabaseTown.com

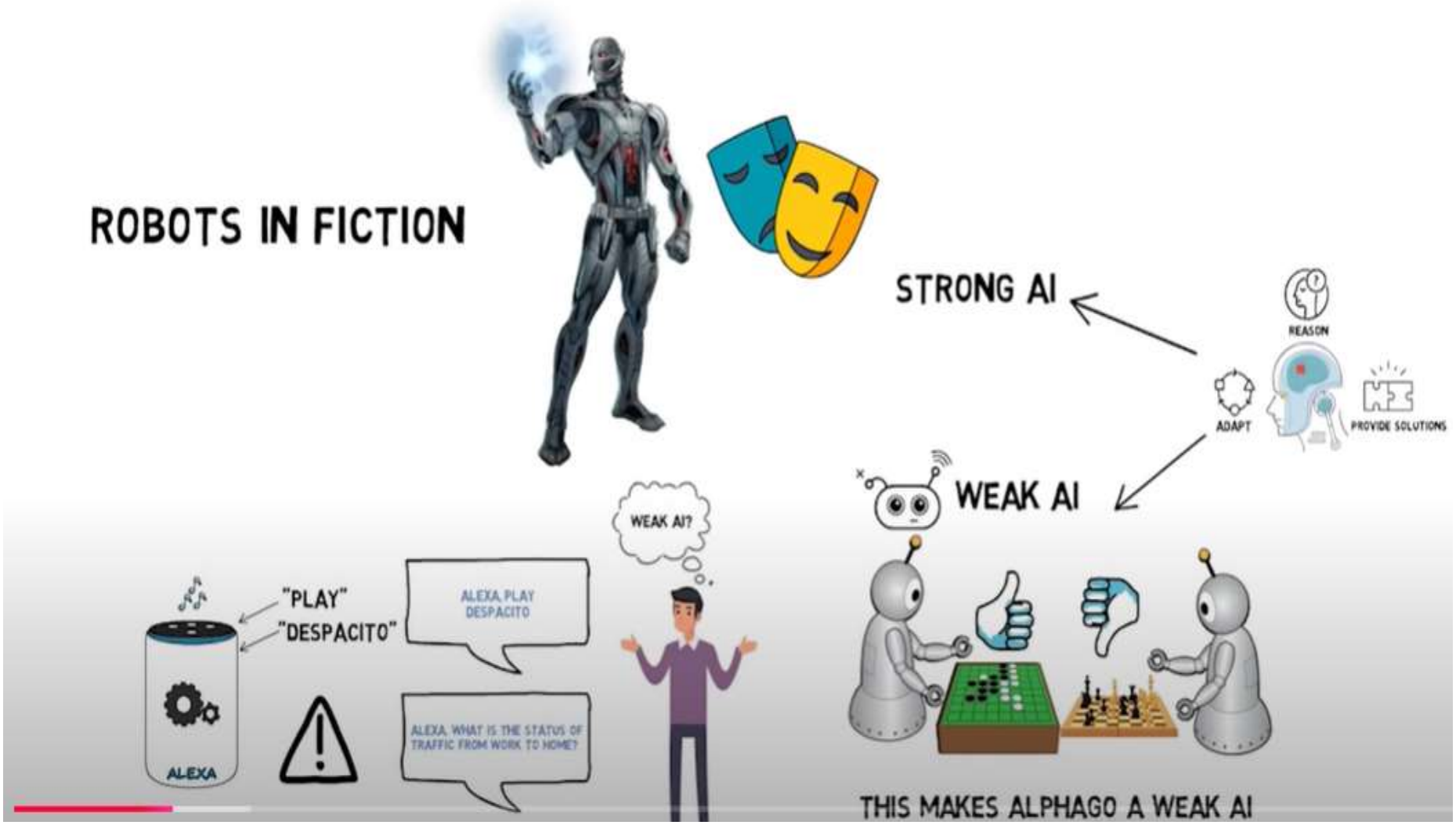


Types of AI
WEAK AI
STRONG AI



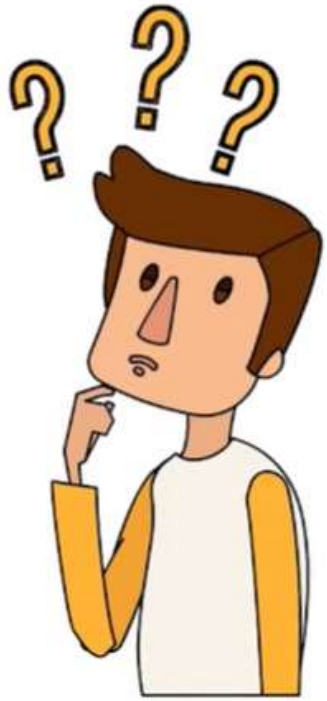

WEAK AI
THIS MAKES ALPHAGO A WEAK AI

What is ALEXA? Weak ? Or strong ai?
AI application
Where we can use ALEXA?
Uses of ALEXA

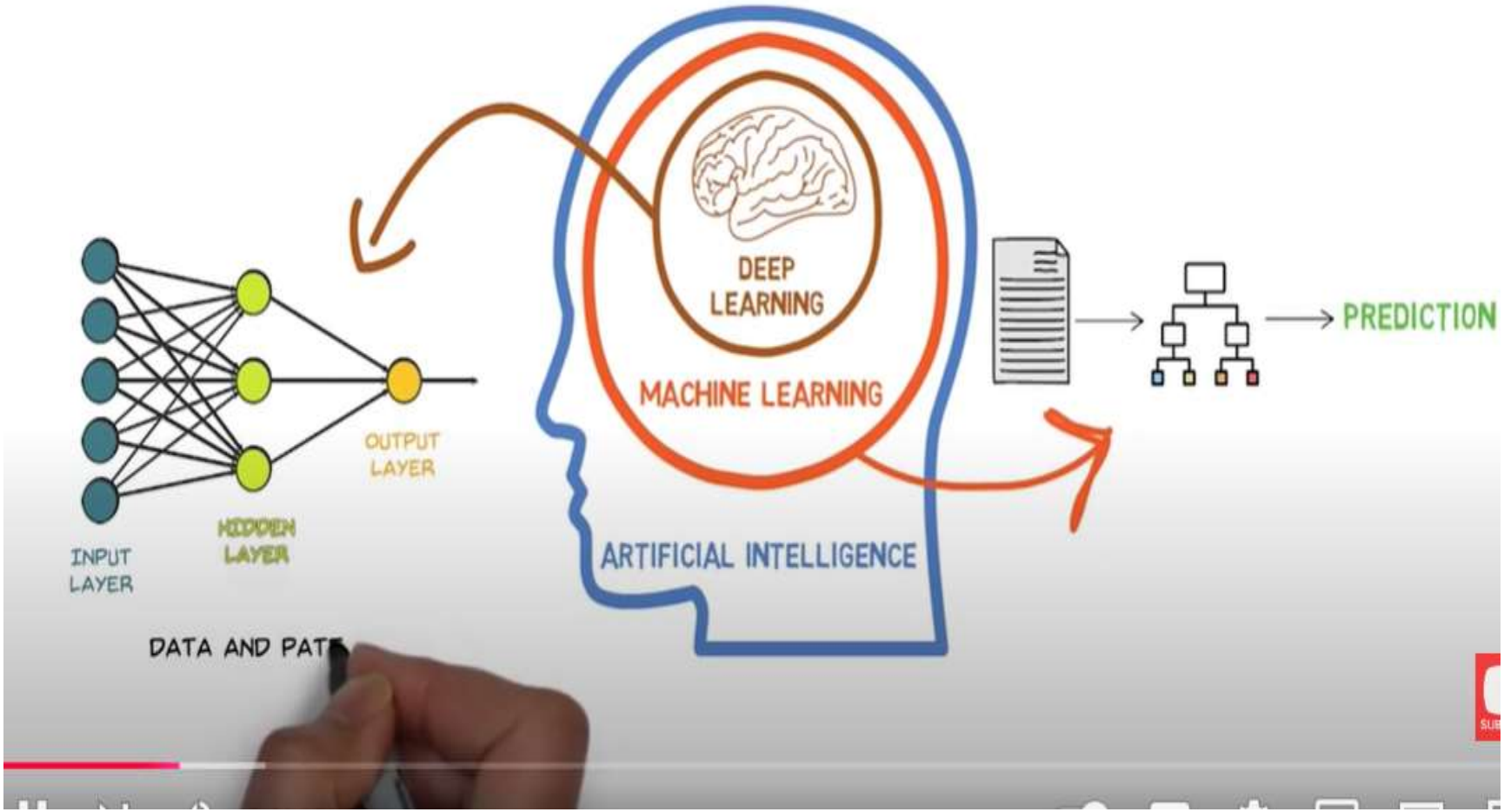

ROBOTS IN FICTION
STRONG AI
REASON
ADAPT
PROVIDE SOLUTIONS
WEAK AI
"PLAY"
"DESPACITO"
ALEXA
ALEXA, PLAY DESPACITO
ALEXA, WHAT IS THE STATUS OF TRAFFIC FROM WORK TO HOME?
WEAK AI?
THIS MAKES ALPHAGO A WEAK AI

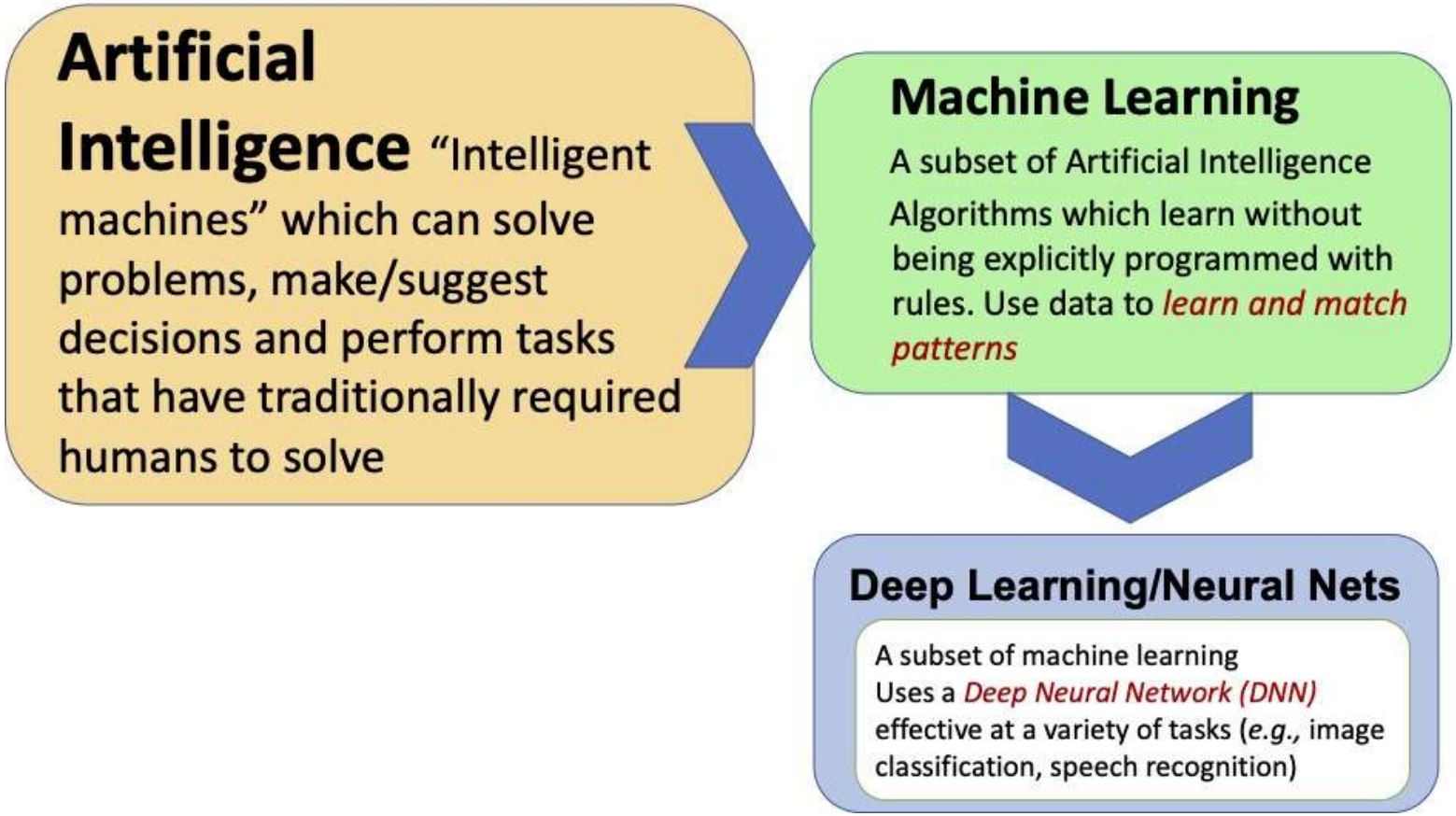
MACHINE LEARNING

ARTIFICIAL INTELLIGENCE



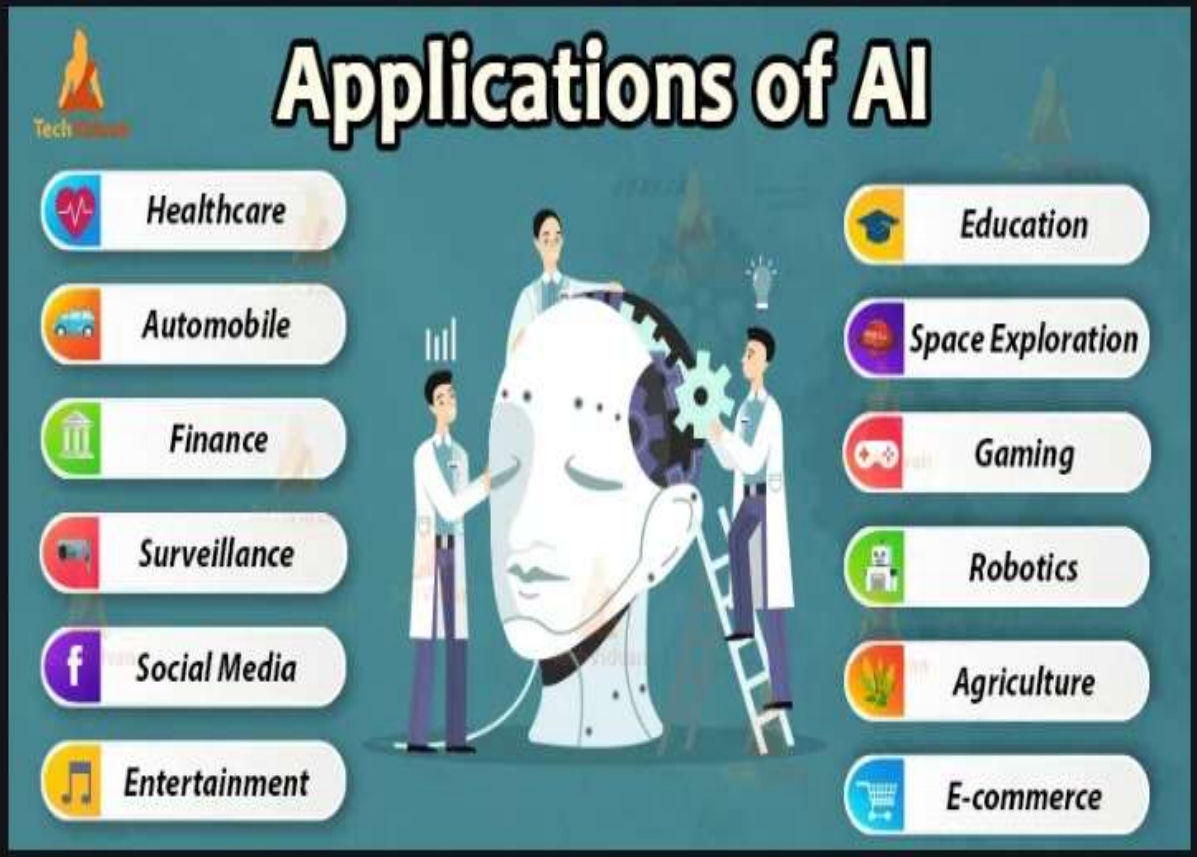
DEEP LEARNING

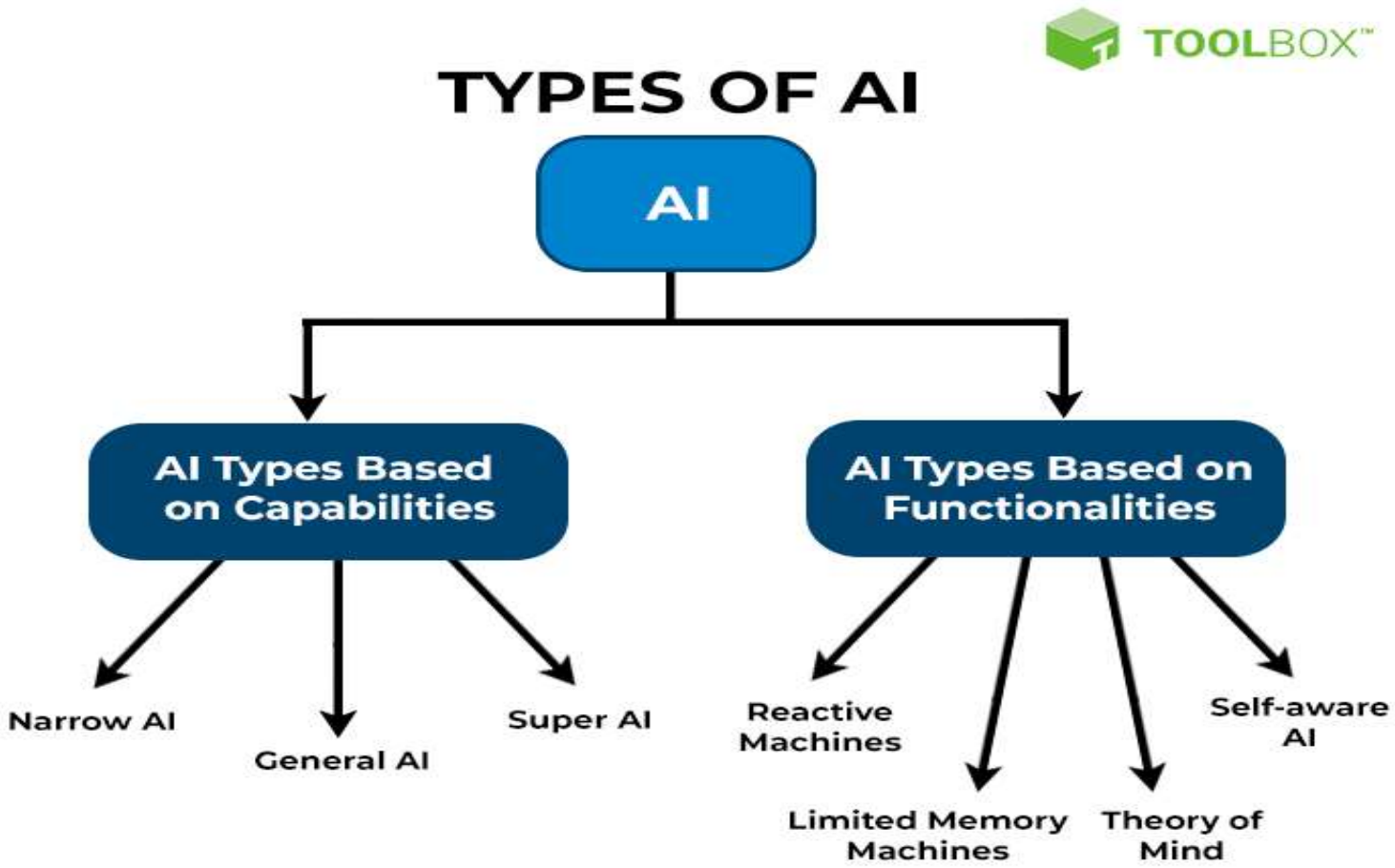

DEEP
LEARNING
MACHINE LEARNING
ARTIFICIAL INTELLIGENCE
PREDICTION
INPUT
LAYER
HIDDEN
LAYER
OUTPUT
LAYER
DATA AND PAT


Artificial Intelligence "Intelligent machines" which can solve problems, make/suggest decisions and perform tasks that have traditionally required humans to solve
Machine Learning
A subset of Artificial Intelligence
Algorithms which learn without being explicitly programmed with rules. Use data to learn and match patterns
Deep Learning/Neural Nets
A subset of machine learning
Uses a Deep Neural Network (DNN)
effective at a variety of tasks (e.g., image classification, speech recognition)

Application of Artificial Intelligence

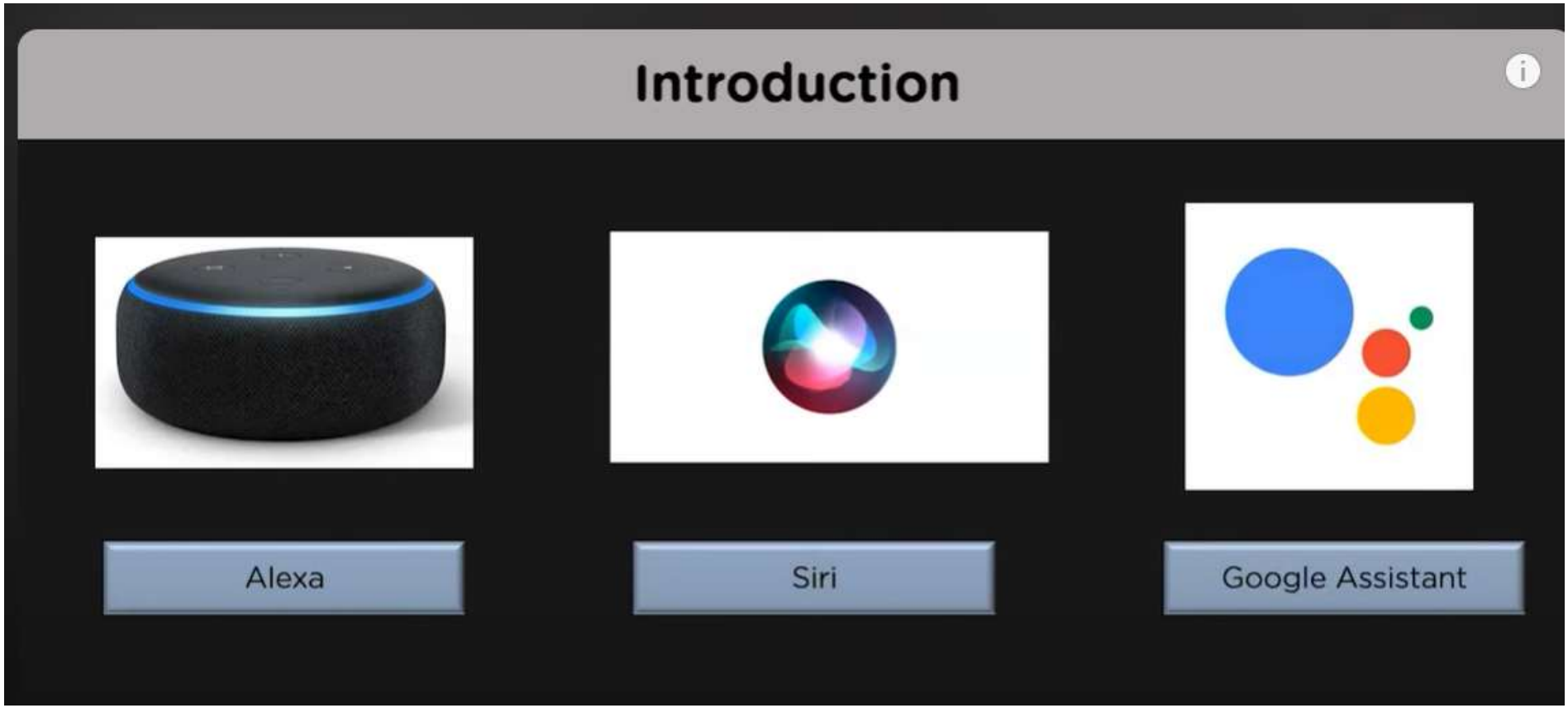
Artificial Intelligence has many practical applications across various industries and domains, including:




TOOLBOX™
TYPES OF AI
AI
AI Types Based on Capabilities
AI Types Based on Functionalities
Narrow AI
General AI
Super AI
Reactive Machines
Limited Memory Machines
Theory of Mind
Self-aware AI

19/12/2024

- Intelligent Agents
- [AI AGENT =PROGRAM]
- Define problem as a state space search
- Solving problems
- Problem solving agents
- Searching for solutions



Who is behind these devices?

What are AI Agents?

It can be defined as a program that makes decisions and takes action based on the decisions

Chatbot

What are AI Agents ?

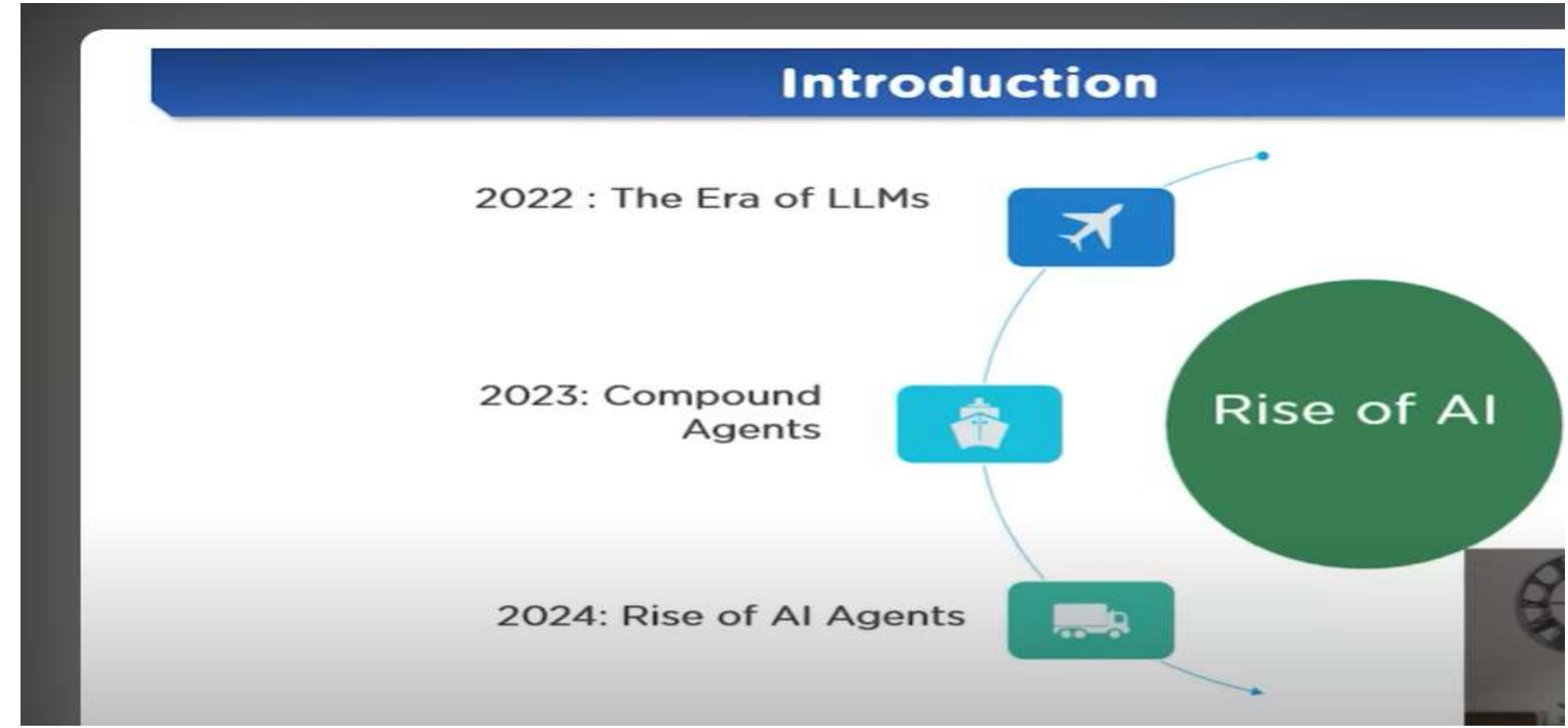
In artificial intelligence, an agent is a computer program or system designed to perceive its environment, make decisions, and take actions to achieve specific goals.

Introduction

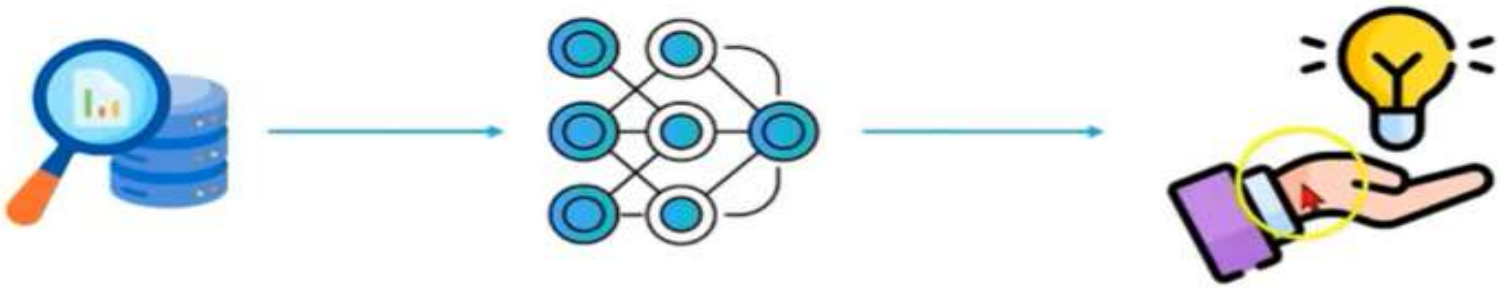
2022 : The Era of LLMs

2023: Compound Agents

2024: Rise of AI Agents



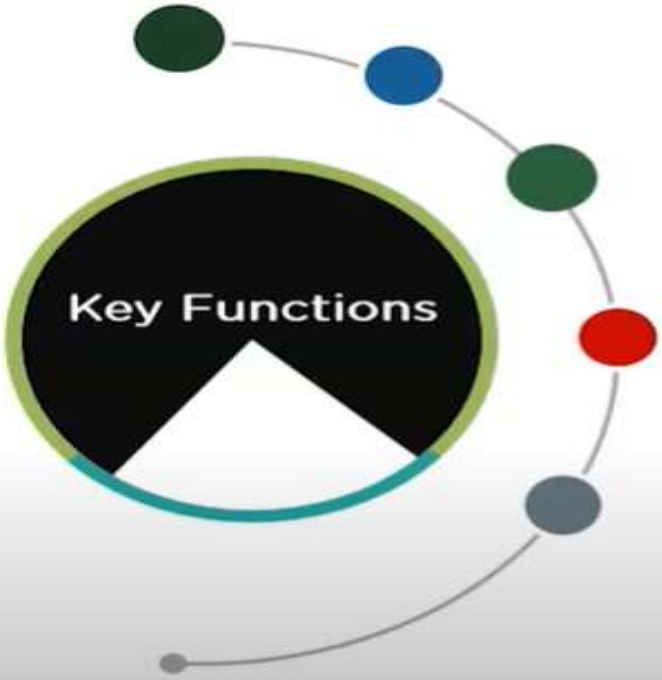
What are AI Agents ?



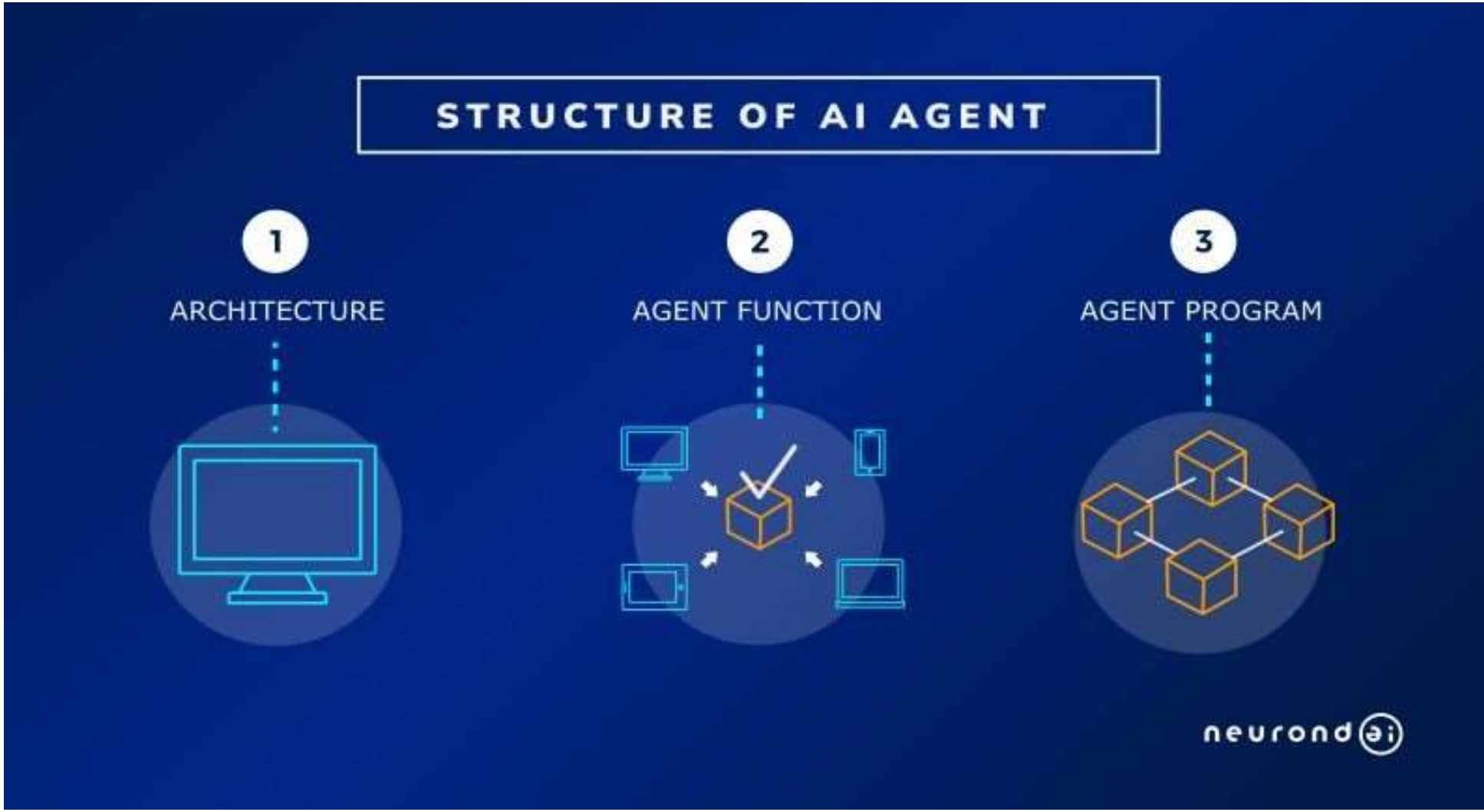
Query Model(LLM) Solution

Shift Models

Key Responsibilities of AI Agents



- Perceive Dynamic changes
- Responsive Actions
- Reasoning & Interpretation
- Inference & Learning
- Regular Updates and Maintenance

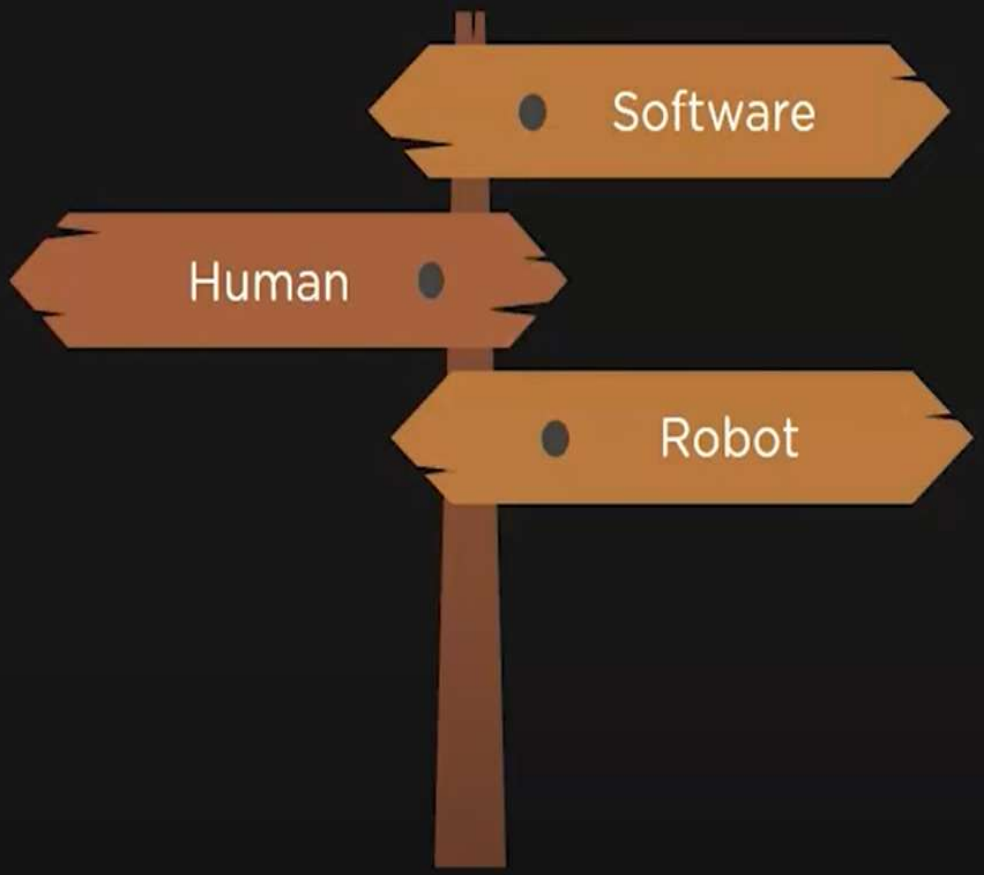

STRUCTURE OF AI AGENT
1
ARCHITECTURE
2
AGENT FUNCTION
3
AGENT PROGRAM
neurond ai

Examples of AI Agents

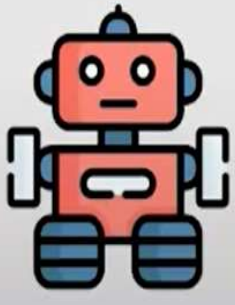
Software - This Agent acts on sensory inputs, such as file contents and network packets it has received, by acting on those inputs and with the result on the screen

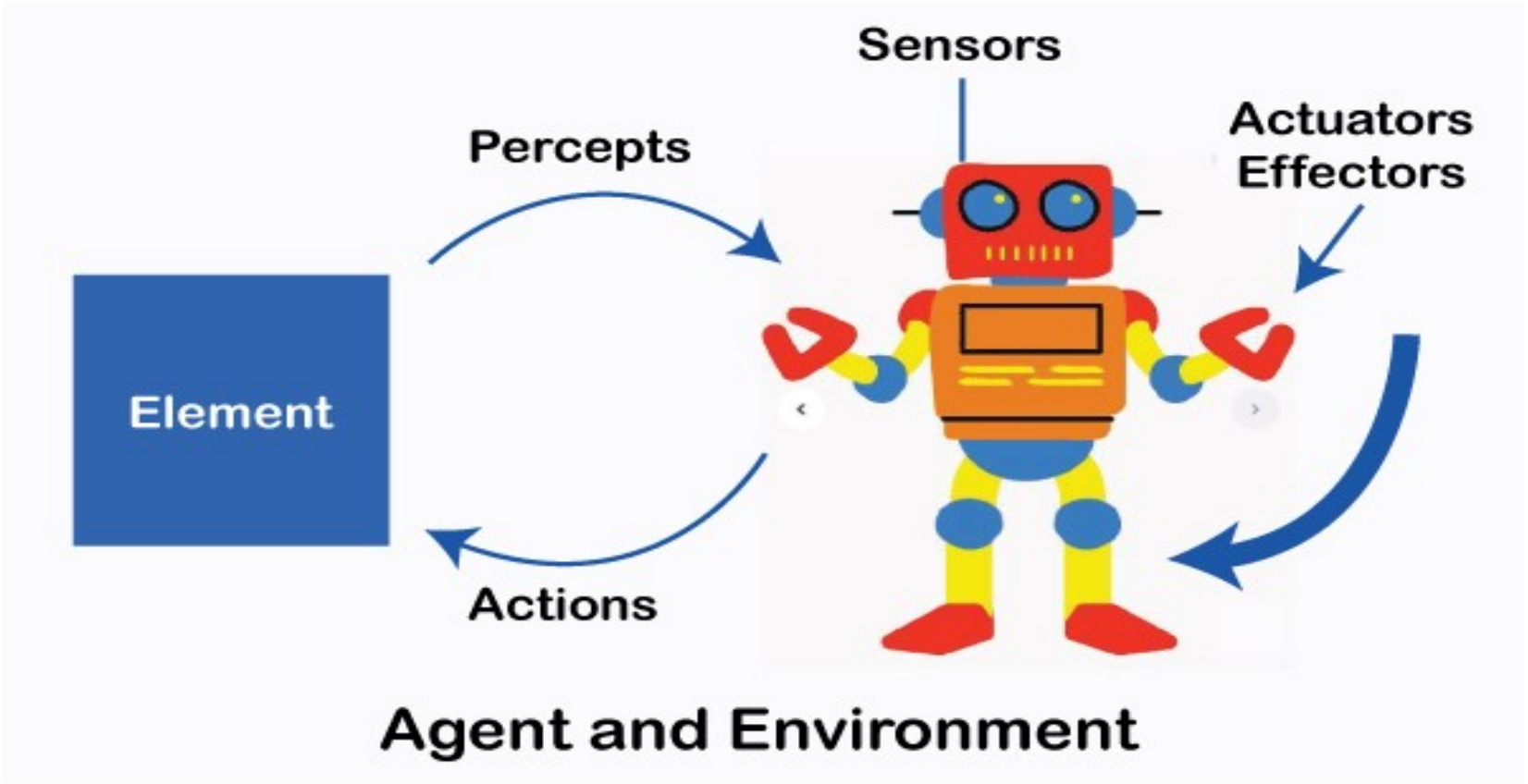
Examples of AI Agents

Human - Humans contain sensors like their eyes, hearing, and other organs, as well as actuators like their hands, legs, mouths, and other bodily parts.

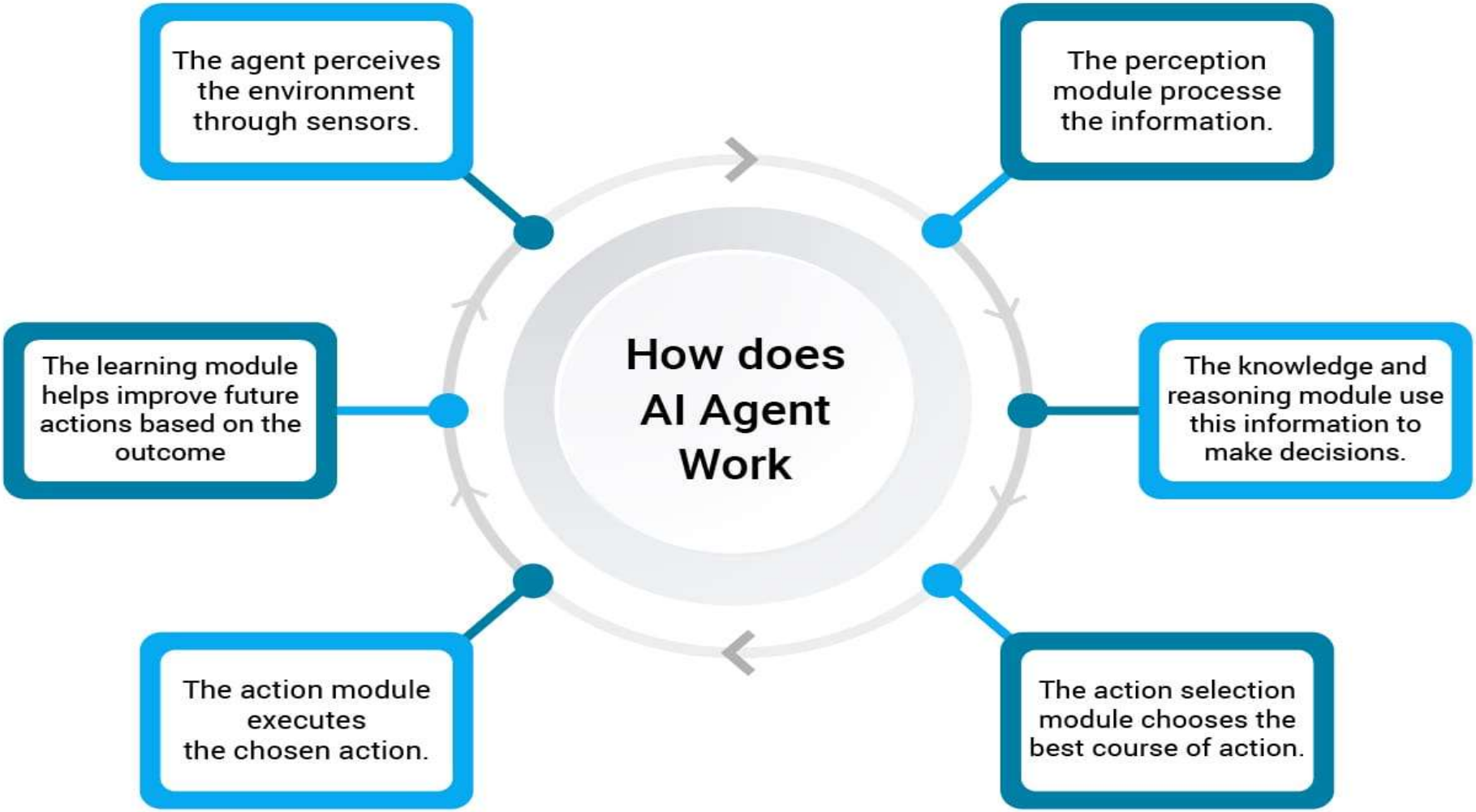


Robots - These agents feature a variety of high-quality motors that serve as actuators, as well as cameras and infrared range finders that serve as sensors.





Agent and Environment


How does AI Agent Work
The agent perceives the environment through sensors.
The perception module processe the information.
The learning module helps improve future actions based on the outcome
The knowledge and reasoning module use this information to make decisions.
The action module executes the chosen action.
The action selection module chooses the best course of action.

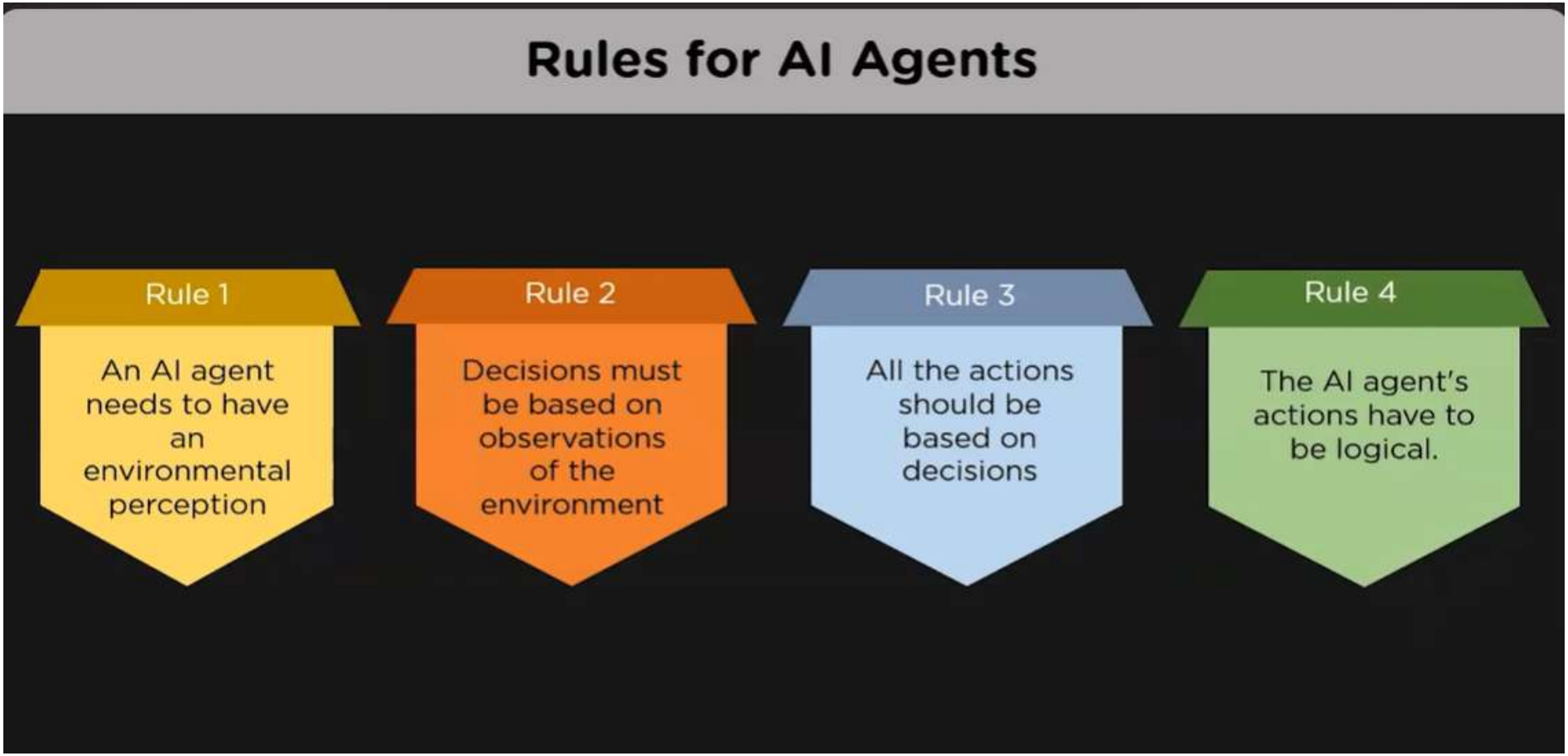
AI agents works on

1.Environmental perception

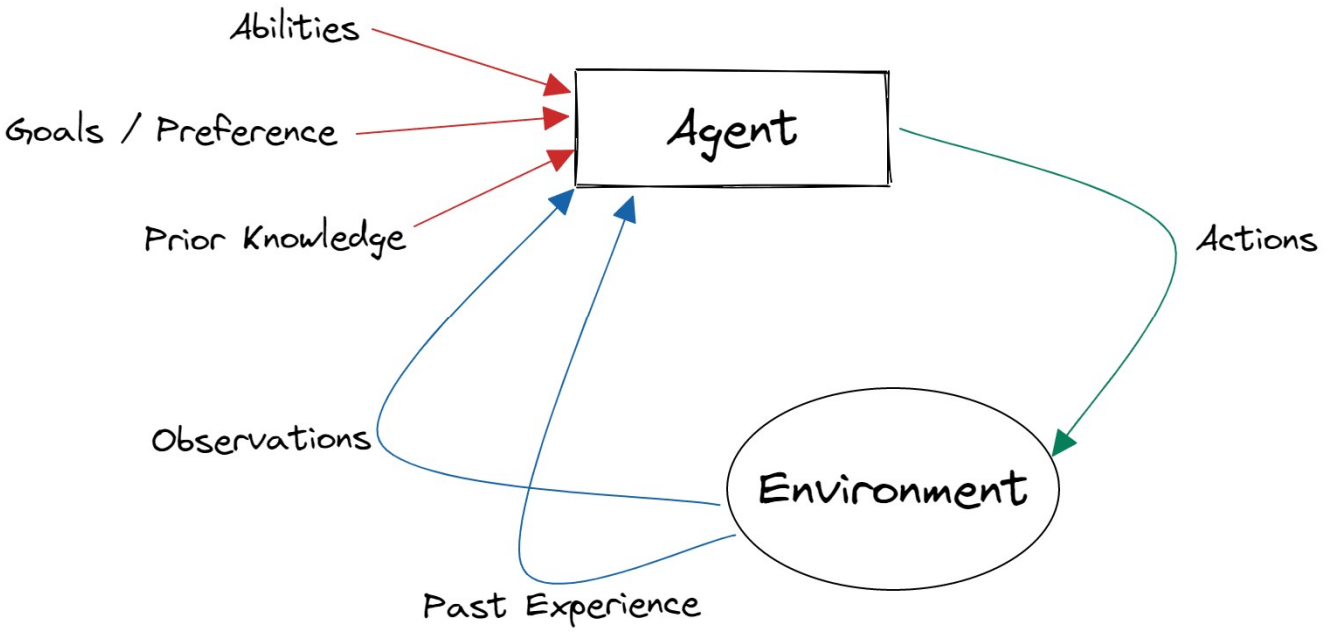
2.Observations of the Environment

3.Actions based on Decisions

4.Actions should be logical



1. AI Agent :Environmental perception



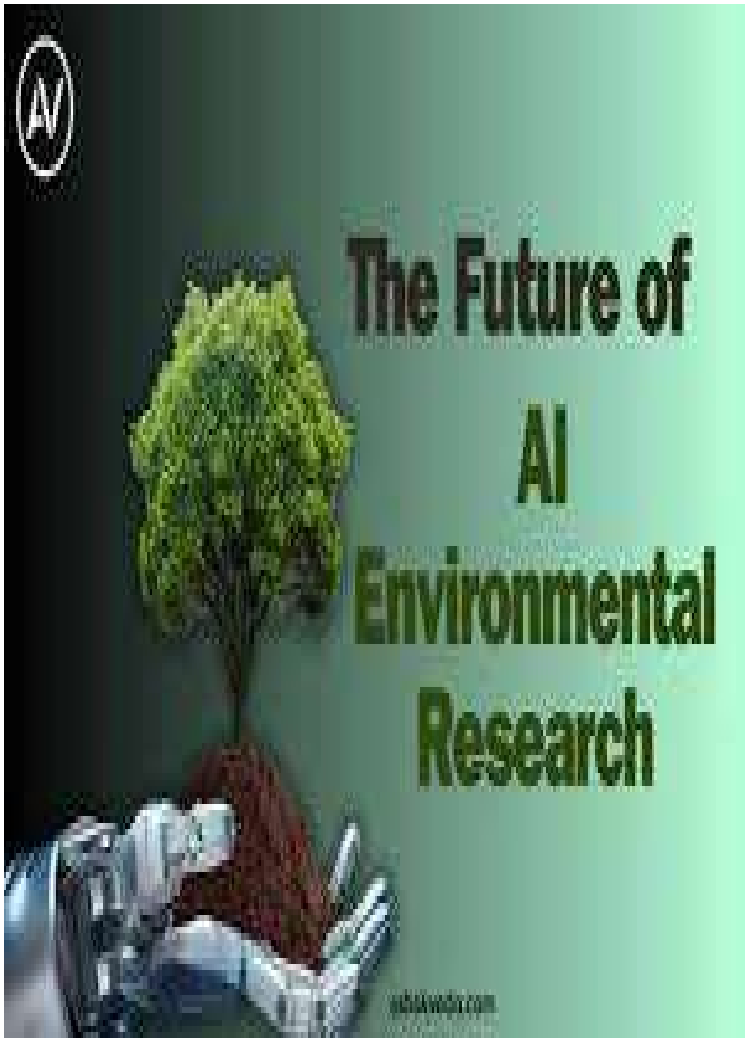
Functions of AI Agents

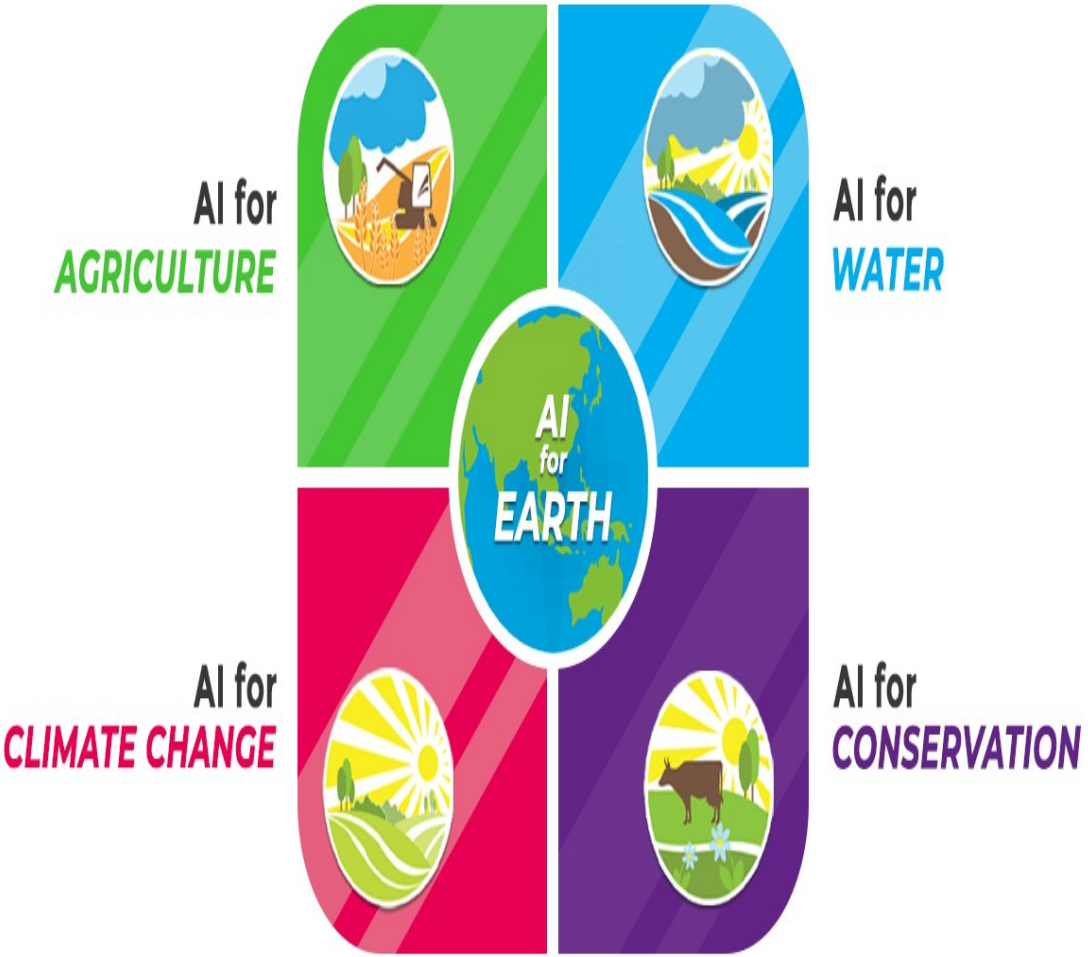
Performance

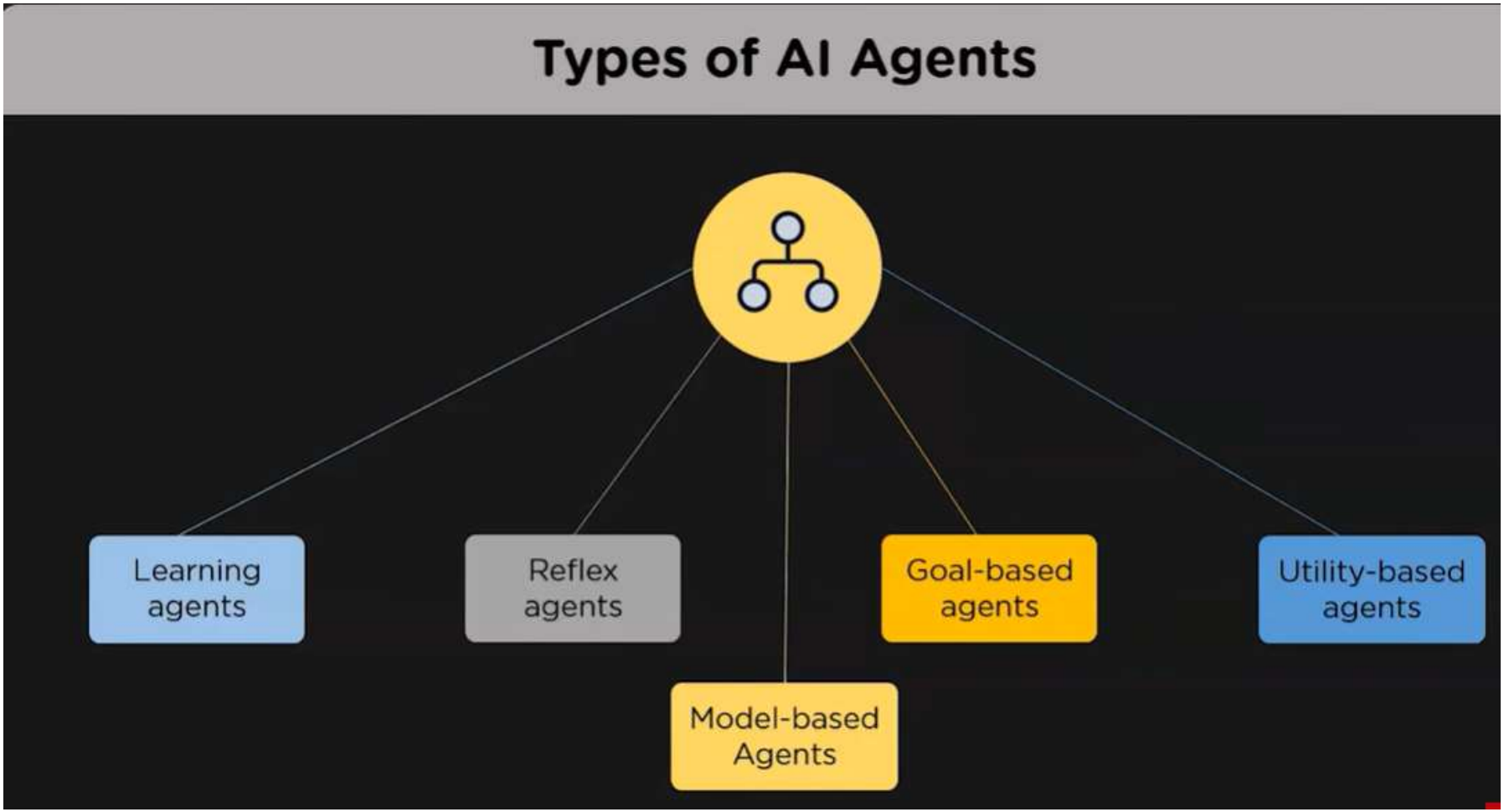
Environment

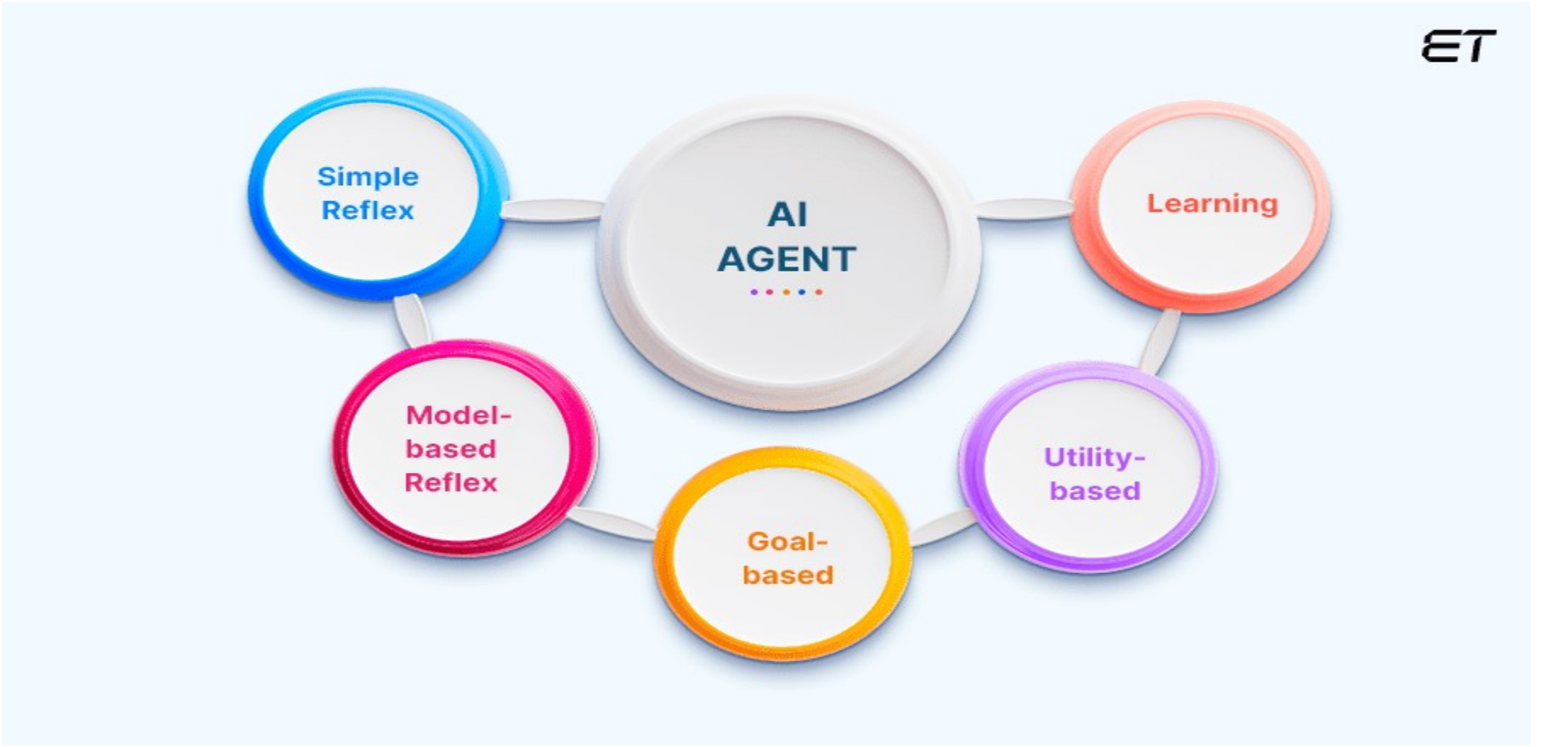
Actuators

Sensors


The Future of
AI
Environmental
Research

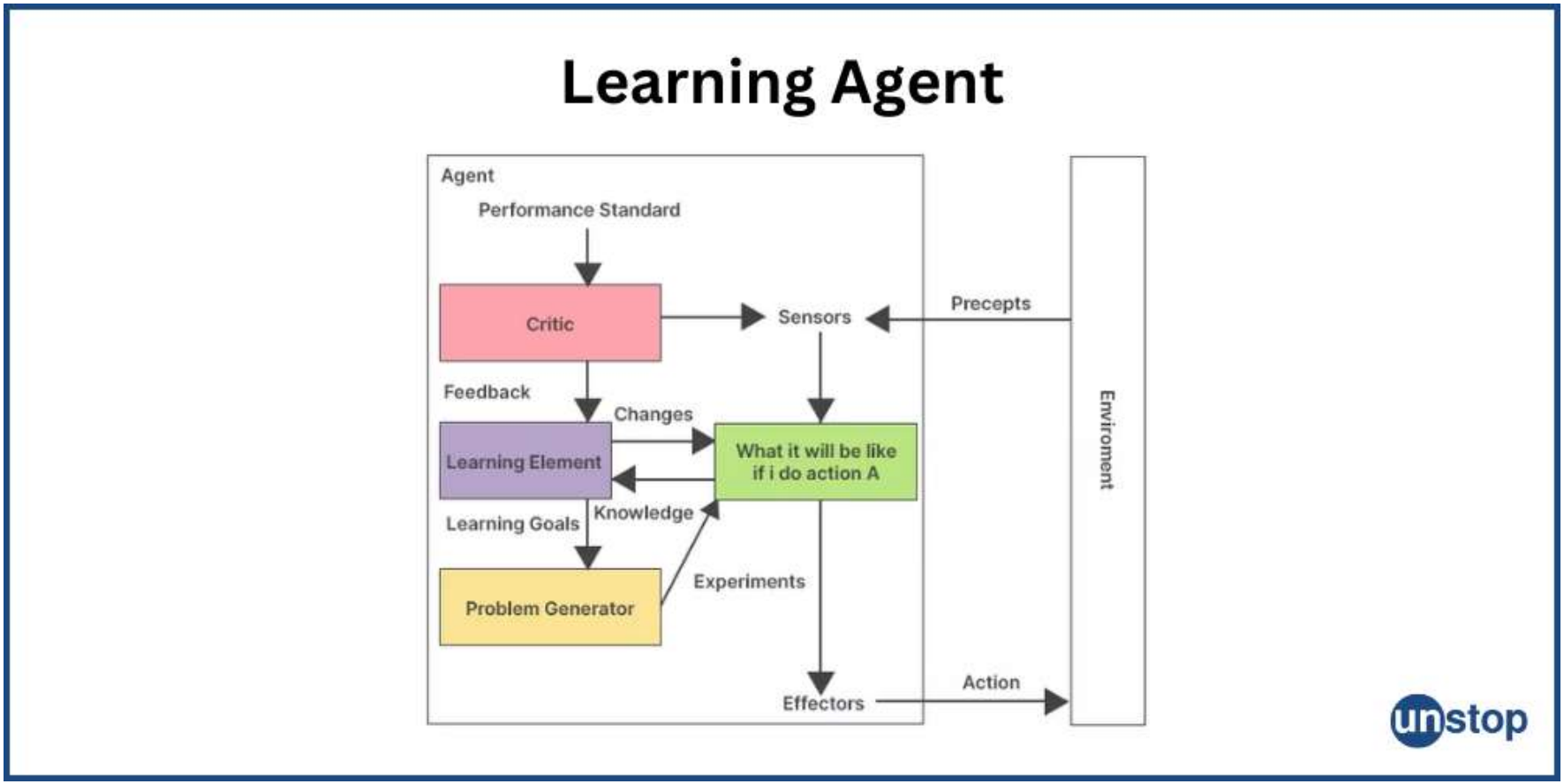

AI for
AGRICULTURE
AI for
WATER
AI
for
EARTH
AI for
CLIMATE CHANGE
AI for
CONSERVATION


Types of AI Agents
Learning agents
Reflex agents
Model-based Agents
Goal-based agents
Utility-based agents


ET
Simple Reflex
AI AGENT
Learning
Model-based Reflex
Goal-based
Utility-based

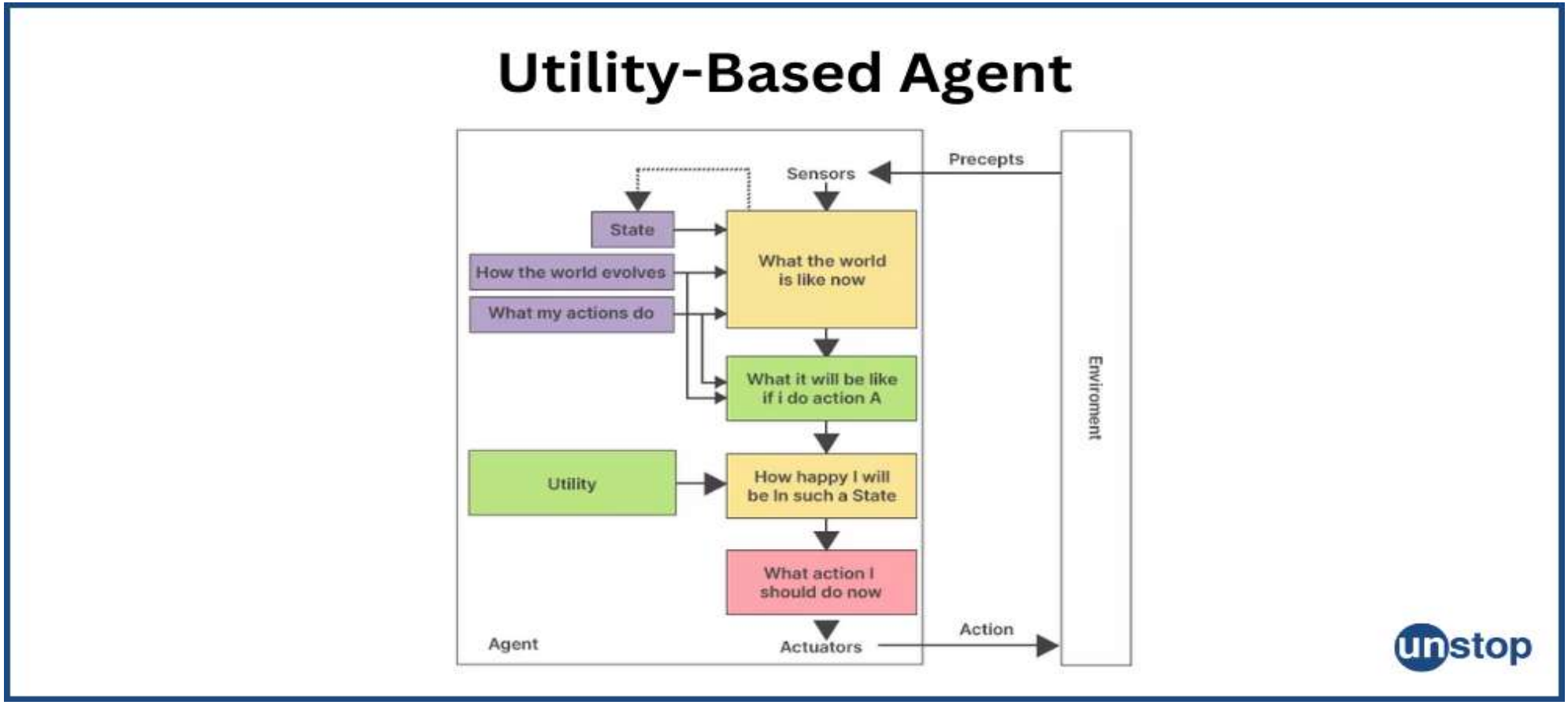
AI :Learning agents

A learning agent continuously learns from previous experiences to improve its results. Using sensory input and feedback mechanisms, the agent adapts its learning element over time to meet specific standards. On top of that, it uses a problem generator to design new tasks to train itself from collected data and past results.



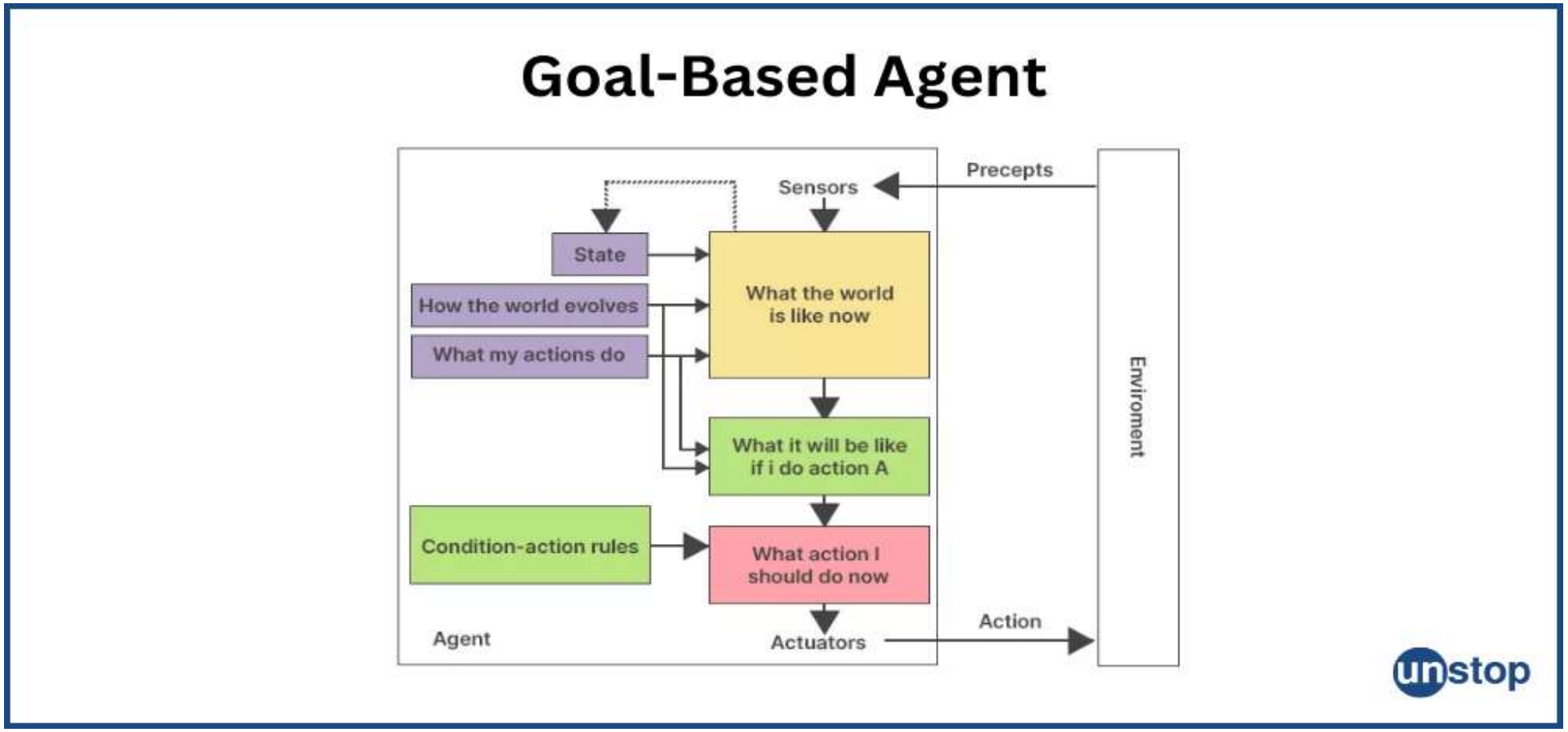
AI :Utility-based agents

A utility-based agent uses a complex reasoning algorithm to help users maximize the outcome they desire. The agent compares different scenarios and their respective utility values or benefits. Then, it chooses one that provides users with the most rewards. For example, customers can use a utility-based agent to search for flight tickets with minimum traveling time, irrespective of the price.



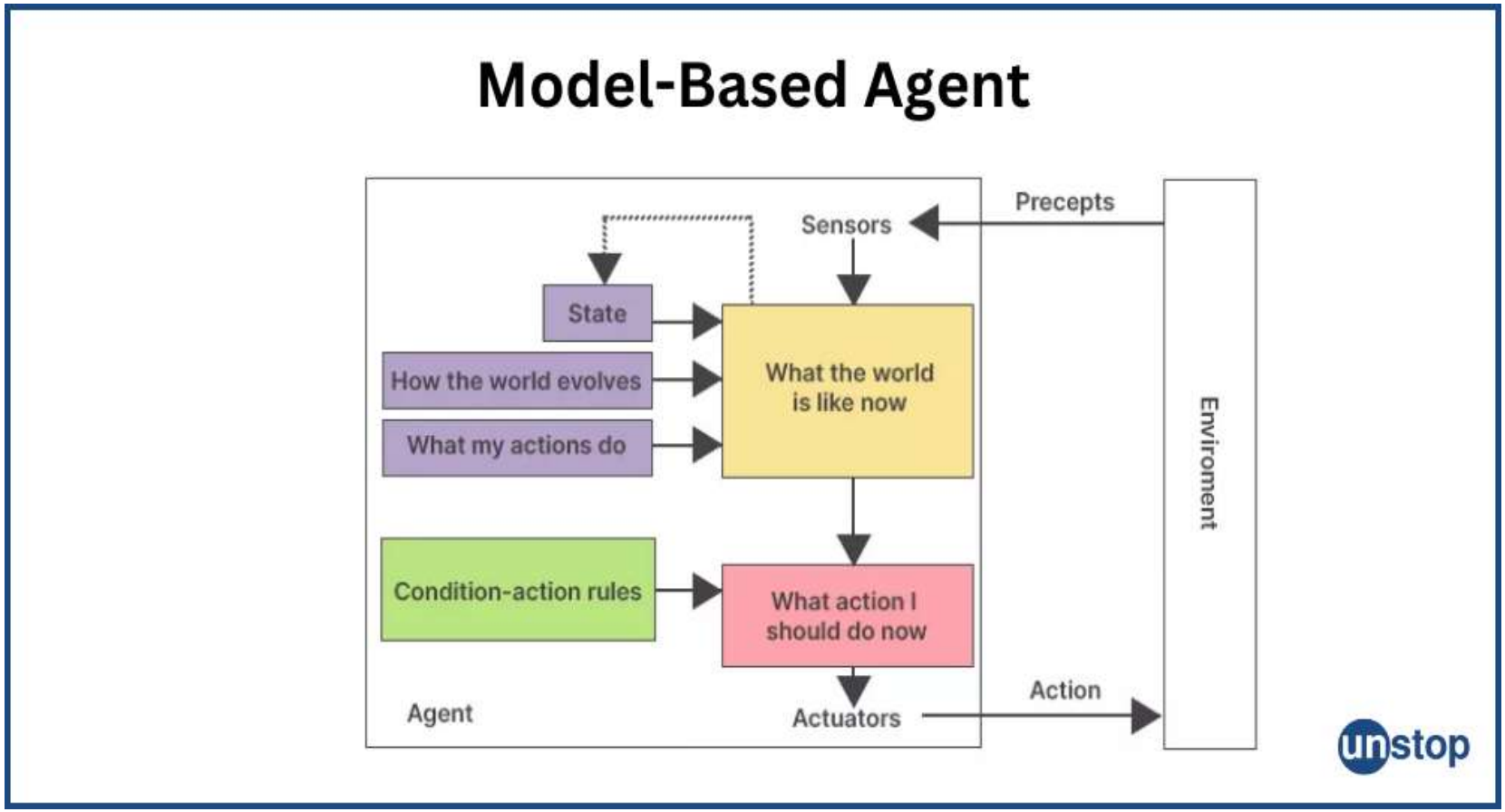
AI :Goal-based agents

Goal-based agents, or rule-based agents, are AI agents with more robust reasoning capabilities. Besides evaluating the environment data, the agent compares different approaches to help it achieve the desired outcome. Goal-based agents always choose the most efficient path. They are suitable for performing complex tasks, such as natural language processing (NLP) and robotics applications.



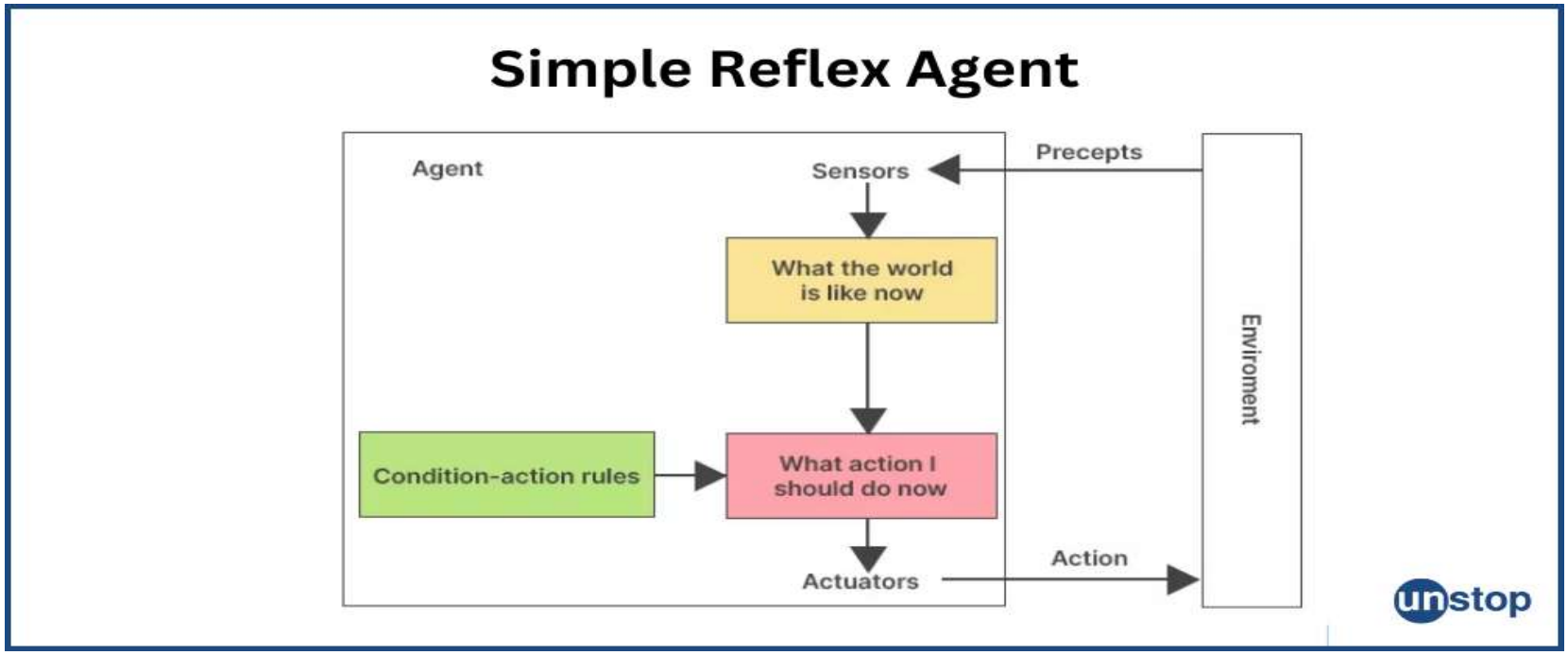
AI :Model-based reflex agents

A model-based agent is similar to simple reflex agents, except the former has a more advanced decision-making mechanism. Rather than merely following a specific rule, a model-based agent evaluates probable outcomes and consequences before deciding. Using supporting data, it builds an internal model of the world it perceives and uses that to support its decisions.



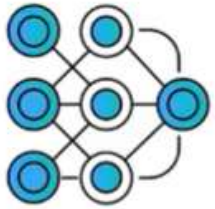
AI:Simple reflex agents

A simple reflex agent operates strictly based on predefined rules and its immediate data. It will not respond to situations beyond a given event condition action rule. Hence, these agents are suitable for simple tasks that don't require extensive training. For example, you can use a simple reflex agent to reset passwords by detecting specific keywords in a user's conversation.



What are AI Agents ?

Query



Model(LLM)

Solution

database

Compound AI sytems