

- An AI agent is referred to as Rational Agent. A rational agent always performs right action, where the right action means the action that causes the agent to be most successful in the given percept sequence. The problem the agent solves is characterized by Performance Measure, Environment, Actuators and sensors (PEAS). These are collectively referred to as PEA's descriptions for the agent task environment it operates in.
- Another important place of information is task environment properties, while analyzing task environment the agent needs to consider following properties:
 1. Discrete or continuous If there are limited number of distinct clearly defined states of the environment, the environment is discrete; otherwise it is continuous.
 2. Observable or Partially observable If it is possible to determine the complete state of the environment at each time point from the percepts it is observable; otherwise it is only partially.
 3. Static or dynamic If the environment does not change while an agent is acting, then it is static; otherwise it is dynamic.
 4. Deterministic or Non deterministic If the next state of an environment is completely determined by the current state and the actions of the agent, then the environment.
 5. Episodic or sequential In an episodic environment, each episode of events consists of the agent perceiving and acting. The quality of its action depends upon the episode itself. Episodic environments are much simpler because the agent does not have to think ahead.
 6. Accessible or Inaccessible If the agent's sensory apparatus has access to the complete state of environment, then the environment is accessible to that agent.

* Working

1. Autonomous Lunar Rover
2. Deep Blue chess playing computer program
3. Eliza the natural language processing computer program created from 1964 to 1966 at MIT Psychological Intelligence Laboratory by Joseph Weizenbaum.
4. Automatic Portfolio management.
5. Sophia is a social humanoid robot developed by Hong Kong based company Hanson Robotics.
6. AlphaGo is a computer program that plays the board game Go. It was developed by Alphabet Inc Deep Mind Lab.
7. Apple's virtual assistance Siri.
8. Endurance : A companion for dementia patients
9. Casper : Helping Insomniacs getting through the night
10. Marvel : Guarding the Galaxy with comic-book crossover
11. Automated road world solver

→ 1. Deep Blue chess playing computer program

Performance measure :- Win / lose / draw, safety of chess pieces, safety of king piece, no. of moves, time for each move

Environment :- chess board, chess pieces

Actuators :- Desktop, server CPU

Sensors :- chess board

Task environment :- Discrete, Fully Observable, static, Deterministic, sequential, single agent, Achievable

2. ELIZA, the NLP computer program created from 1964 to 1966 at the MIT Artificial Intelligence Laboratory by Joseph Weizenbaum

Performance measure :- Understanding user, maintaining

Conversation Environment :- user, program, keyboard, user text input, ELIZA, texts, output window.

Actuators :- texts

Sensors :- user texts, inputs

Task environment properties :- continuous, fully measurable, static, deterministic, sequential, single agent, accessible

3. Sophia is a social humanoid robot developed by Hong Kong based company Hanson Robotics.

Performance measure :- understanding maintaining conversation social apperents, response time

Environment :- Human, object,

Actuators :- Arms, mouth, legs, speaker

Sensors :- Eyes, ears, mic, audio sensors

Task environment properties :- continuous, fully observable, dynamic, deterministic, sequential, single agent, accessible