Good behavior: the concept of rationality in artificial intelligence

**An agent should act as a Rational Agent. A rational agent is one that does the right thing that is the right actions will cause the agent to be most successful in the environment.**

**Performance measures**

A performance measures embodies the criterion for success of an agent‘s behavior. As a general rule, it is better to design performance measures according to what one actually wants in the environment, rather than according to how one thinks the agent should behave.

**Rationality**

**What is rational at any given time depends on four things:**

* The performance measure that defines the criterion of success.
* The agent‘s prior knowledge of the environment.
* The actions that the agent can perform.
* The agent‘s percept sequence to date.

This leads to a definition of a rational agent (ideal rational agent)

“For each possible percept sequence, a rational agent should select an action that is expected to maximize its performance measure, given the evidence provided by the percept sequence and whatever built-in knowledge the agent has, that is the task of rational agent is to improve the performance measure depends on percept sequence”

* Omniscience, learning, and autonomy-An omniscient agent knows the actual outcome of its actions and can act accordingly; but omniscience is impossible in reality.
* A rational agent not only to gather information, but also to learn as much as possible from what it perceives. The agent‘s initial configuration could reflect some prior knowledge of the environment, but as the agent gains experience this may be modified and augmented.

Successful agents split the task of computing the agent function into three different periods: when the agent is being designed, some of the computation is done by its designers; when it is deliberating on its next action, the agent does more computation; and as it learns from experience, it does even more computation to decide how to modify its behavior.

**A rational agent should be autonomous** – it should learn what it can to compensate for partial or incorrect prior knowledge. Concrete implementation, running on the agent architecture.