AI Lecture. Prof. Carolina Ruiz. Worcester Polytechnic Institute

AGENTS – Black Box
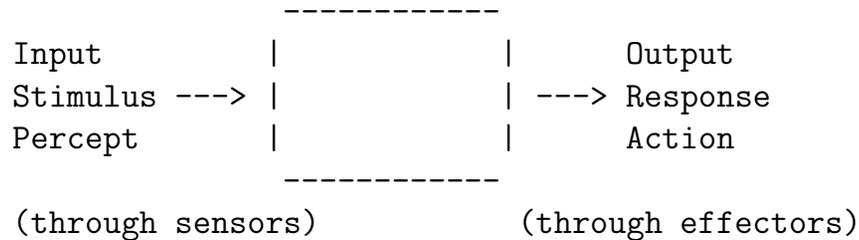
```
              E N V I R O N M E N T


                  ------------
Input             |          |         Output
Stimulus --->     |          | ---> Response
Percept           |          |         Action
                  ------------
(through sensors)            (through effectors)


- Goal
- Performance measure: Criteria to determine
    how successful an agent is.
```

An agent may be:

Rational: does the right thing.

Omniscient: does the perfect thing.

Ideal: does the optimal thing given its state of knowledge.

Autonomous: Initial kn. + ability to learn.

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Agents

- **Type of Agents:**

  – Simple reflex agents
  – Model–based reflex agents (keep track of the world)
  – Goal-based agents
  – Utility-based agents
  – Learning agents

- **Agents are expected to:**

  – **Achieve goals:** search and planning
  – **Sense environment:** machine vision, NLP
  – **Be autonomous:** machine learning
  – **Store knowledge:** knowledge representation

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AGENTS – Inside the Black Box

```
          E N V I R O N M E N T


                ------------
Input          |  MAPPING   |       Output
Stimulus ---> |     /       | ---> Response
Percept        |  FUNCTION   |       Action
                ------------
(through sensors)           (through effectors)
```
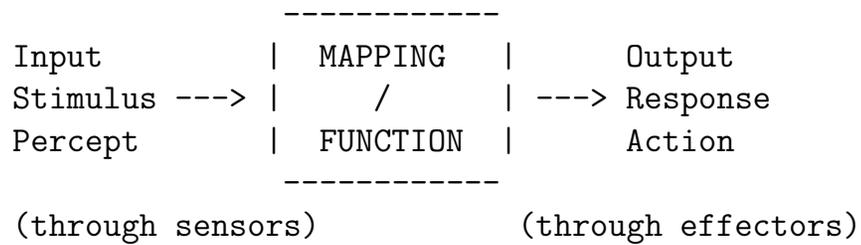
- This mapping/function is implemented using a **program** that runs on an architecture.