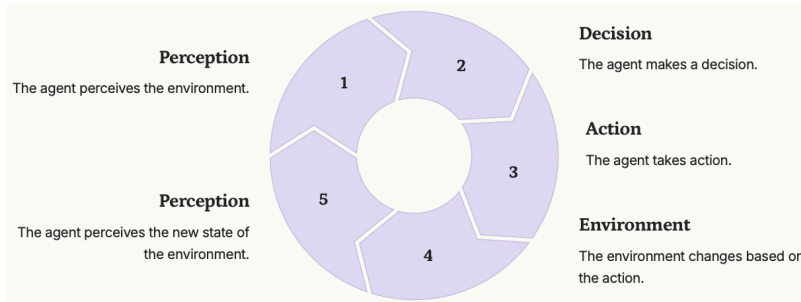


1. introdução

- **AI:** ability of a computer or machine to perform tasks typically requiring human intelligence, (learning, problem-solving, and decision-making)
- **AGENT:** entity that can perceive its environment, act upon it, and learn from its experiences. Software/hardware designed to behave autonomously
- **GENERAL AI VS NARROW AI:**
 - **GENERAL AI:** form of artificial intelligence that possesses the ability to understand, learn, and apply knowledge across a wide range of tasks, matching or surpassing human cognitive capabilities. There is no proof that Human Intelligence is General Intelligence
 - **NARROW AI:** developing systems that excel in a particular domain or task
- **GENERAL AI:** generalization, autonomy, self-improvement
- **CURRENT CHALLENGES:** complexity of cognition, ethics and safety, technical limitations (energy)
- **STRONG VS WEAK AI:** strong AI is AI that is not just capable of general intelligence but may also possess consciousness, self-awareness, and sentience
- **AGENT-ENVIRONMENT INTERACTION**
 1. PERCEPTION (INFO THROUGH SENSORS)
 2. INTERNAL REPRESENTATION (SENSORIAL STIMULI \neq PERCEPTION OF THE STIMULI)
 3. CONTROLLER ("BRAIN")
 4. EXTERNAL REPRESENTATION (FROM BRAIN TO ACTUATORS)
 5. ACTION (ACT ON ENV USING ACTUATORS)
- **ENVIRONMENTS**
 - *static vs dynamic*
 - *deterministic vs non-deterministic*
 - *accessible vs inaccessible:* accessible environments allow an agent to fully perceive its state
 - *real-world vs virtual*
- **DEFINING PERCEPTIONS**
 1. sensory input

2. signal processing
3. feature extraction
4. interpretation

- **FEEDBACK LOOP**



- **EVALUATING AGENT PERFORMANCE**

- task completion
- efficiency
- robustness

- **DESIGNING AGENTS: PEAS FRAMEWORK**

- **performance**: what is the performance measure?
- **environment**: modelling the environment
- **actuators**: define the agent's tools
- **sensors**: define the sensors

- **METAPHORS FOR AI**

- **SYMBOLIC AI**

- uses symbols and rules to represent knowledge and reason about the world

- **CONNECTIONIST AI**

- neural networks, inspired in biological brains

- **NATURE INSPIRED AI**

- inspired in nature it mimics the complex workings of biological systems or other natural phenomena