



Autonomous Agents: Ethical Issues in our Society

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Topics

- ❑ What is an autonomous agent?
 - ❑ What ethical questions do they raise?
- ❑ Background
 - ❑ How are autonomous agents developed?
 - ❑ How are they tested?
 - ❑ What are the industry norms/perspectives?
- ❑ Ethical perspectives
 - ❑ Consequentialism
 - ❑ Deontology
 - ❑ Virtue Ethics
- ❑ Conclusion & questions

What is an autonomous agent?



“[An] autonomous agent is a system situated within and a part of an environment that senses that environment and acts on it, over time, in pursuit of its own agenda and so as to effect what it senses in the future.”

~Franklin & Graesser, 1997

Further characteristics

- ❑ Context/environment awareness
- ❑ Learning
- ❑ Ability to reason
- ❑ Adaptation



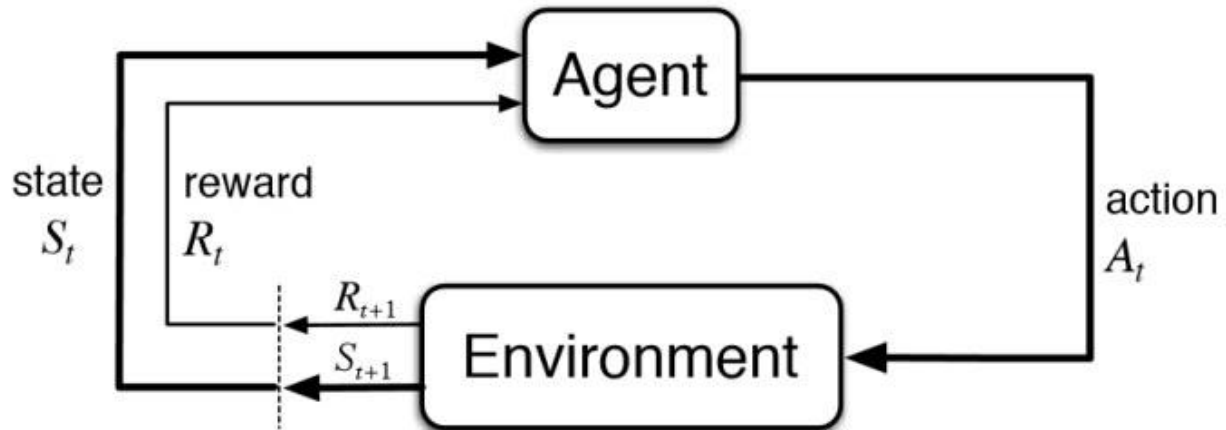
How are autonomous agents developed?

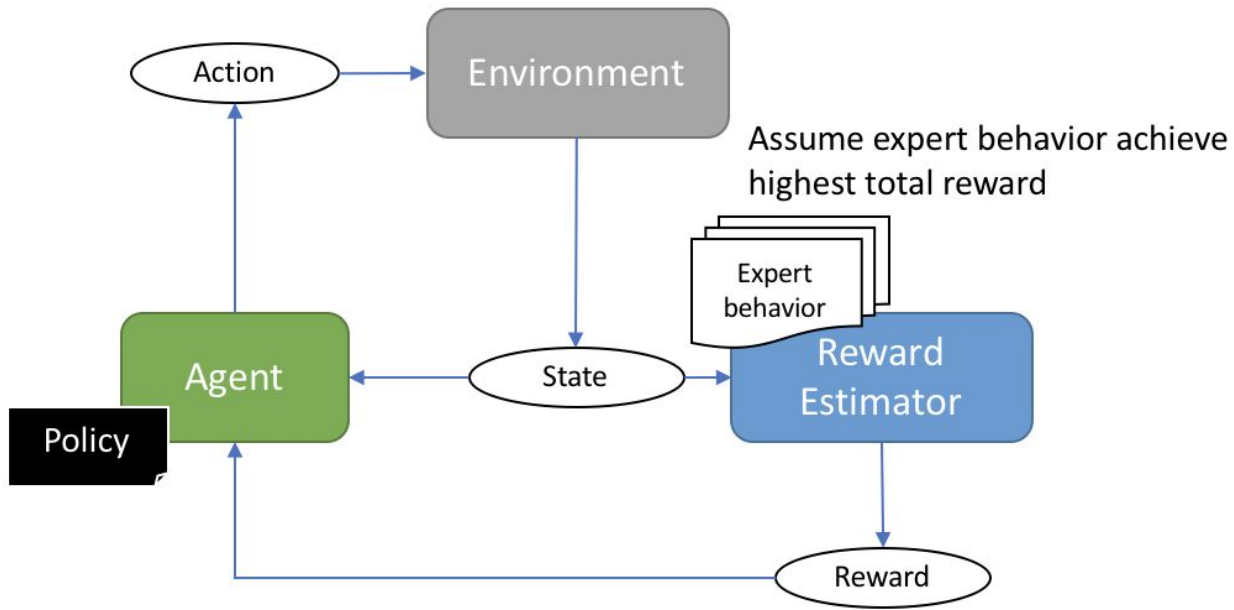
- ❑ Historically simpler methods
 - ❑ Increasing levels of autonomy
 - ❑ Basic movement
 - ❑ Programmed reactions to sensors
 - ❑ Learning
- ❑ Currently machine learning dominates
 - ❑ Reinforcement learning
 - ❑ Imitation learning



Figure 1 - W. Grey Walter and one of his robots



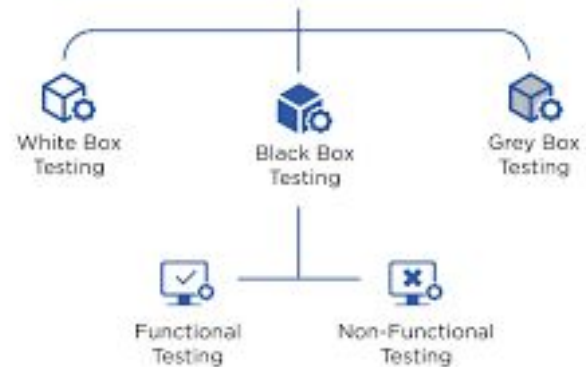




Testing

- ❑ Basic testing
- ❑ Simulations
- ❑ Monitoring deployment
- ❑ Fundamental issues with testing

Approaches to Software Testing





Company Roles & Ethics

- ❑ Tesla
 - ❑ safety
- ❑ Boston dynamics
 - ❑ Non-weaponization
- ❑ Google

Ethical Perspectives

- ❑ Who is responsible?
- ❑ What systems should/should not be deployed?
- ❑ How should these systems behave?



Ethical Perspectives - cont.

- ❑ Consequentialism
- ❑ Virtue Ethics
- ❑ Deontology





Overview

- ❑ Current systems & ethical perspectives
- ❑ What would you do if you were making decision about an autonomous system?

Questions