

peas analysis for ai agents

Fundamentals of AI



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1. **AI in finance**

Finance is one of sectors that uses artificial intelligence to maximize profit, minimize cost and risk and there are a lot of multibillion dollar fintech companies that provides these systems to multinational corporations and banks. But how is an AI system’s performance measured in finance world, what is the environment, actuators and sensors be like?

**Performance measures:**

The performance of an AI system in the finance world can be measured by:

* **How accurate the analysis is**: an AI system’s performance is measured by the accurateness of the data it provides. A good AI system gives data that is accurate and usable by the management. Some aspect of finance where accurate data is need is listed below
  + Under writing: when analyzing an asset to provide a loan for a customer, a lot of factors should be considered. And a good AI system analyzes factors related to the situation and provides good insight to the management team for decision.
  + Purchase: when purchasing a company, stock, share or bond an accurately analyzed data can be useful to help companies answer Is it a good deal? what to do next?
  + Risk assessing: investors really want an AI to give them an accurate an unbiased data on what they are investing which is very difficult to find from people now a day. Therefore, a good AI system provides accurate risk assessment for decision makers.
* **Future prediction:** in finance future prediction is very important. So the performance of an AI agent can be measured by how accurately it can predict the future.
* **How fast it analyzes data**: time is money. Therefore, a second wasted worth millions so a good AI isn’t expected to just be accurate it also has to be fast.
* **How secure the system** **is**: a good AI agent performance can be measured by how secure it is, how it much is it vulnerable to attackers or other competitors.
* **How timely the data provided is**: a good AI system provides a timely information to the users if it is out dated then it is irrelevant.

**Environment:**

financial AI system’s environment is virtual, but in its virtual realm there are a lot of components i.e. different actors in finance sectors like investors, bankers, managers, customers, competitors, attackers (hackers) and so on. All this changes that happen in its environment and actors affects the system.

**Actuators:**

an actuator to a finance AI agent can be screens to display results, voice.

**Sensors:**

Financial AI agents takes data from touchscreen, keyboard data, via network, voice and so on.

Summary:

|  |  |  |  |
| --- | --- | --- | --- |
| Performance | Environment | Actuators | Sensors |
| Speed | Attackers | Display screens  Voice (speech) | Touchscreen |
| Timeliness | Competitors | Keyboard data |
| Accuracy | Bankers | Network input |
| Security | investors | Voice recognition |
| reliability |  |  |

1. **AI in healthcare**

Health care is another sector that can highly benefit from the AI world in different aspects. Example: disease prevention and treatment like (cancer, diabetes) and also in medical procedures (operations). From the above example it is clear that we can divide the AI agents in to two

1. Fully Software AI agent
2. Robotic AI agent

**Fully software AI agent:** these agents doesn’t require any extra device or gadget they can be used on smart phones. The main purpose of this agents is to keep their clients wellbeing intact.

**Performance measure:** the performance of these agents is measured by:

* **How well they can assess the state of their client:** a good agent assesses and gather data of the client and provides it in a helpful way for the health care professionals when needed.
* **Their reaction in case of emergency:** the reaction of agent to medical emergency situation also a performance measure

**Environment:** the environment of the agent is the client and health care professionals

**Actuator:**  the main actuators for the agent are screen and voice

**Sensors**: sensors include touchscreen, voice commands etc …

**Robotic AI agent:** the health sectors also makes use of robotic AI agents’ in surgery.

**Performance measure:** the performance of these agents is measured by:

* **How accurate they are:** these agents operate on human body where the cost of the slightest margin of error is fatal so an agent is measured on how accurately it performs a medical procedure
* **How secure they are:**  the security of these agents is also crucial. If the agent is vulnerable to attacker or the security is compromised it could become a killing machine

**Environment:** the environment of the AI agent is mainly the patient body and health care professionals

**Actuators:** actuators of the agent include limbs(arm), screen, light

**Sensors:**  temperature, distance pressure, camera, motion sensor