

AISO Testat: Part 1

Rational Agents (22.5 points)

1. Give a **PEAS** (performance measure, environment, actuators, sensors) description for the following domains (12 points):

Domain	Performance measure	Environment	Actuators	Sensors
Group of people playing poker	+100 Units when round won + 10 Units per Dollar won - 10 Units per Dollar lost	- Table - Cards - Opponents	- Eyes - Hands - Arms	- Eyes - Hands - Arms
An intelligent autonomous car	+100 Units per for correct route +10 Units per correct rule -10 Units when ignore rule	- Road - Vehicles - Pedestrians	- Motors - Speakers	- Radar - Laser - Cameras
A software app for humans to learn a foreign language	+100 Units per human which learned new language +10 Units per correct word /sentence translated -10 Units per wrong translated word/sentence	- Servers - Mobile - Human - Network	- Fingers - Brain - Speakers - Display	- Eyes - Touchscreen

2. Classify and justify each of the domains above along the following properties (10.5 points):

	poker	autonomous car	language-app
Accessible vs. inaccessible	Inaccessible because other cards are not known	accesible by the sensors otherwise save	Accessible since everything is clear from language app point of view
Deterministic vs. stochastic	Stochastic since it's not possible to guarantee what happens	Deterministic since all actions happen as planned	Deterministic each action results in a known next state
Episodic vs. sequential	Episodic, each round starts from scratch. But behavior from opponents is has to be considered sequential	Episodic, actions depend on the current situation	Sequential, because the actions may depend on the correctness of questions before
Static vs. dynamic	Static, the environment is not changing. Unless new player joins or somebody leaves	Dynamic, since other vehicles are around or pedestrians	Static. Environment doesn't change.
Discrete vs. continuous	Discrete states can be used to model since the game follows always the same steps	Continuous. States are always changing	Discrete, the app will behave always the same - therefore the internal states are discrete
Single agent vs. multi-agent	Multi-Agent. Multiple agents are involved in this game	Multi-Agent. Probably autonomous cars are interacting with each other. If not it's a Single-Agent	Single-Agent. Only the user is a agent
Known vs. unknown	Unknown. Not everything is know (e.g Cards)	Unkown. Environment is changing continuously	Known. Environment is clear in any situation