Charles Panter COS-451-OL-009 Artificial Intelligence Writing Assignment 1

Exercise 1.2

Read Turing's original paper on AI (Turing, 1950). In the paper, he discusses several objections to his proposed enterprise and his test for intelligence. Which objections still carry weight? Are his refutations valid? Can you think of new objections arising from developments since he wrote the paper? In the paper, he predicts that, by the year 2000, a computer will have a 30% chance of passing a five-minute Turing Test with an unskilled interrogator. What chance do you think a computer would have today? In another 50 years?

I believe Turing's paper to be very thought out. I think the objects still carry weight today. The objection that I don't think weight is the "Lady Lovelace's Objection". If we think of "the order" in a specific term then yes Lovelace is right but if we think of the term as something abstract then there are some systems today the do more then what they are ordered to do. Of course these are learning machines and are in the infancy but there are systems today that do more then their original programming.

I think the change of a computer passing the five-minute test is pretty high, about 80% I think. There are times when scammers use Google's voice assistance software to call me. The first time it called me I spoke to it for a couple of minuets before the though creped in to my thoughts that I was talking to a computer. I can't say it was five minutes but I can see it getting someone unskilled. In the next 50 years I think there is 100% chance of a system passing he five-minute test.

Exercise 1.7

To what extent are the following computer systems instances of artificial intelligence:•Supermarket bar code scanners.•Web search engines.•Voice-activated telephone menus.•Internet routing algorithms that respond dynamically to the state of the network.

I think there is no extent that a supermarket bar code scanner or a web search engine is an AI. These two softwares literally make a calculation and retrieve data. They only difference between the two is the data type. Voice-activated telephone menus I can see as have a little bit of AI. They have to distinguish the voice, make a decision on what is said, then produce an output. The same for internet routing algorithms, they have to respond to a change a make a decision, that does show a small level of intelligence.

Exercise 1.14

Examine the AI literature to discover whether the following tasks can currently be solved by computers:

a. Playing a decent game of table tennis (Ping-Pong).

Computers can play a decent game of table tennis. With the senors we have today they might be able to beat the most skilled players.

b. Driving in the center of Cairo, Egypt.

Theoretically yes. But I don't think we have the algorithms perfected to the point of being able to drive in a highly populated area.

c. Driving in Victorville, California.

Yes, computers today can drive in Victorville, California. In fact there are story of vehicles doing just that, maybe not in Victorville but in other cities of similar population density.

d. Buying a week’s worth of groceries at the market.

Definitely, that is a calculation of the amount of food consumed in a week and then purchasing the food. The computer could judge quality off a set of programmed variables.

e. Buying a week’s worth of groceries on the Web.

Yes! This currently happens.

f. Playing a decent game of bridge at a competitive level.

This can happen as well. The computer can be programmed with the variables and strategies of the games. This was done recently with the game "Go."

g. Discovering and proving new mathematical theorems.

I don't believe a computer today could do this. Math is how a computer works. Having variables in its base in reality might cause failures.

h. Writing an intentionally funny story.

I believe the can be done. Again it is a set of circumstances and characteristics that can be programmed. Even the mistakes would be funny.

i. Giving competent legal advice in a specialized area of law.

I would say no on this one. By the letter of the law yes a computer could do that all day but our legal system works off case law and a lawyers can make an augment to go against the law to essentially make a new law.

j. Translating spoken English into spoken Swedish in real time.

Yes. There are devices today that do just that.

k. Performing a complex surgical operation.

I don't think a computer could do this one. The environment inside of the human body is unique to each individual. Most surgeons work by feel from years of experience. I do believe that the next generation of learning machine could to this though.

Exercise 2.3

For each of the following assertions, say whether it is true or false and support your answer with examples or counterexamples where appropriate.

a. An agent that senses only partial information about the state cannot be perfectly rational.

False. Rational agents must have a complete picture of the environment to make decisions.

b. There exist task environments in which no pure reflex agent can behave rationally.

True. A pure reflex agent has no perception of history. There are environment where history can dictate reflex responses.

c. There exists a task environment in which every agent is rational.

True. An environment with nothing in it and no task to accomplish would render all agents rational.

d. The input to an agent program is the same as the input to the agent function.

False. Agent programs implement agent functions. Agent functions can receive inputs from other functions.

e. Every agent function is implementable by some program/machine combination.

True. Agent functions are in response to agents.

f. Suppose an agent selects its action uniformly at random from the set of possible actions.There exists a deterministic task environment in which this agent is rational.

True. If the environment to be acted upon is specific enough that any action would result in a rational action, than any random action could be selected.

g. It is possible for a given agent to be perfectly rational in two distinct task environments.

False. The agent would need two distinct action sets for each environment to be perfectly rational.

h. Every agent is rational in an unobservable environment.

False. Any agent is neither rational or irrational in an unobservable environment.

i. A perfectly rational poker-playing agent never loses.

True. A perfectly rational poker-playing agent would have all variables determined and therefore could never loose.