

## AI Assignment 1:

### Part 1:

1. A robotic medical assistant that can assist a doctor or nurse. It communicates with patients, administers bloodwork, and takes vitals.
  - a. Dynamic because there are other things happening around it while it is trying to solve a task
  - b. Fully observable because it can take vitals to determine what kind of bloodwork it should administer and when it
  - c. Sequential because it needs to perform calculations before doing an action
  - d. Stochastic because it needs to anticipate different outcomes for the task it is doing.
2. An agent that plays poker against a human player. Assume that the cards are digital, and that the player interacts with the agent via a touchscreen.
  - a. Dynamic because as the game goes on things are changing; different cards are getting played and the odds shift around
  - b. Partially observable, although it does not know which card is next it can make an educated guess as to what to do with its current hand.
  - c. Episodic because it can only act in its turn
  - d. Stochastic because it needs to anticipate different outcomes to each hand that is dealt.
3. An agent that can select TV shows and movies for a user. It watches the user's choices, asks the user to rate shows, and gives new shows the user is predicted to like.
  - a. This one is tough, but I would say dynamic because every show that you spend time on it is trying to generate a list of ones you might like.
  - b. Fully observable because it is keeping track of everything we are watching
  - c. Episodic because it will always ask users how they like the show after they are done watching the show, and occasionally recommend shows.
  - d. Stochastic because watching a different genre of tv show might affect the sequential recommendations
4. A digital chatbot for diagnosing mental health issues. It interacts with the user via SMS and makes a prediction about their mental health based on responses.
  - a. Static because it has to wait until it receives new information over SMS
  - b. Partially observable because it only interacts over SMS and only gets part of the picture.
  - c. Episodic since it can only act based on what it receives over SMS
  - d. Deterministic because depending on the type of messages it receives it can arrive at the same diagnosis.
5. A robotic submarine for scientific exploration. It's able to autonomously travel to the ocean floor and collect samples.
  - a. Dynamic it is moving around the sea and a lot of things are happening while the machine is trying to figure out where to go.

- b. Fully Observable because it needs to know what to when it is diving down and collecting samples. If there is a large fish in the way, it should be able to move around it while it dives down.
- c. Sequential because it needs to know where to go next or what to do next. If it reaches the ocean floor it should take samples. If there is an object in the way move around it, etc...
- d. Stochastic since we won't know that if the sub stops while diving that it will continue to dive down

Part2:

Our initial state is: <!holdingStick, !chairInMiddle, !onChair>

- a. What is the goal state?
  - a. <holdingStick, chairInMiddle, onChair>
- b. Draw the state space for this problem
  - a. <holdingStick, !chairInMiddle, !onChair>
  - b. <holdingStick, chairInMiddle, !onChair>
  - c. <!holdingStick, !chairInMiddle, onChair>
  - d. <holdingStick, !chairInMiddle, onChair>
  - e. <!holdingStick, chairInMiddle, !onChair>

Part3:

At the very beginning it almost looks like it is replying too quickly and not at an anticipated pace. It also seems to forget previous responses Kuki has said. When asked about a previous statement it seemed to not remember. Kuki doesn't seem to be able to really explore and dive into a conversation it sounds very scripted. I think I broke Kuki, I asked how it could tell I wasn't an AI and it hangs at doesn't seem to respond.