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Artificial Intelligence Retrospective Essay

Artificial Intelligence is such a broad field that it is impossible to truly grasp all of the concepts over the course of one semester. My hands-on experience in this course was mostly through pucks. I believe I was somewhat successful at programming agents who were able to navigate their world and propose effective actions in order to stay alive. I also created three new types of pucks that are not part of the original program. The first two were the scout and the flag, the former which is able to "drop" the latter at a vent in order to "mark" it. Unfortunately, I was not able to fully flesh out my original plan which was to create a network of "pheromones" using the flags to show other agents the best way to go in order to survive the world. The next puck I created is called a blocker. This was also an idea I was not able to fully realize before the end of the course, but a blocker spawns stones near a zapper. Ultimately, I was hoping to be able to have pucks that protect each other, and themselves, by building a "fence" around a zapper. An example of the blocker and the scout exist in the included ai world5. My user agent pucks can be best seen in any world from world4 on.

Additionally, I did try my hand at logic programming. Due to a backup issue, I do not have to code to include in this portfolio (which I understand cannot be used for evaluation), but I went through my old homework from a Discrete Math course and worked through some of the problems in Prolog. While I am also interested in continuing work with pucks, I am definitely going to try to continue to learn more about logic programming. Just as Clojure opened my eyes to functional programming, Prolog opened my eyes to logic programming. I plan to re-build the logic problems I used in Prolog with Clojure's core.logic in order to learn more about how logic programming works.

Beyond the actual code I produced, this was the first time I really thought about AI concepts in a realistic way. Previously, my only real exposure to Artificial Intelligence was through Science Fiction. I didn't truly grasp the notion that AI could actually lead to the downfall of mankind. While we may still be many years (Decades? Centuries?) from creating this powerful an intelligent system, I now understand that the consequences of developing said system are something that need to be taken into account by those working on it.

While these consequences are extremely important to discuss, one of the aspects of AI that is used in real-world applications today is search. While I have technically used some search methods in the past, I did not think about the concept of performing a search. An agent, be it a program looking for the solution to a puzzle, a crab trying to find its way back to the ocean, or a human looking for their keys, uses search algorithms when it does not know what the solution looks like. This agent can only know what their current state is, what their goal state looks like, and what their current state looks like compared to their goal state. Now that I have learned numerous methods by which a search can be implemented, I hope to explore and implement these methods in the near future.

I hope to continue to explore these concepts and further my knowledge of AI.