

Senior Design (492) Biweekly Report 5

Team Name: sdmay21-proj033

Team Members: Karter Krueger, Joshua Kalyanapu, Matthew Phipps, Rithvik Menon, Ryan Howe, Thamir Al Harthy, and Zachary Mass

Report Period: 3/16/2021 - 3/29/2021

Summary of Progress in this Period

This period our team accomplished a good amount of tasks. Regarding the neural network, this week we managed to garner a lot of insight into the rest of the work we will be doing this semester. Specifically, we learned more about what Stable Baselines3 (SB3) is expecting to have put into the it's custom policy input. The feature extractor of SB3 is, as of our current understanding, going to pass off a 1D vector to our network when it is passed into the custom policy portion of the DQN.

Pending Issues

- Reshape the GNN so that it receives a 1D vector for input
- Need script for grabbing gnn binaries for docker

Individual Contributions

Name	Individual Contributions	Hours This Week	Hours Cumulative (Started tracking in report 4)
Zach Mass	Continued work on making codebase run in docker and troubleshooting unreal engine errors	10	25
Rithvik Menon	Working on getting the codebase to run in docker and fixing the dependency issues	9	18
Thamir Al-Harthy	Focused on running the algorithms and monitoring the drone's behavior.	5	11
Matthew Phipps	Started work on integrating GNN into SB3, as well as made considerable	11	22

	progress on the theoretical backdrop of the problem.		
Karter Krueger	I eliminated some bugs with our drone code that was causing the training to crash due to a missed depth frame. Additionally, I focused on reading about the SB3 custom policy and GNN chapter of a book on reinforcement learning.	10	23
Joshua Kalyanapu		3	5
Ryan Howe	Working on getting a script for getting binaries for RL algorithm in my continuation of getting the codebase to run in docker	8	18

Summary of Weekly Adviser Meeting

Discussed progress made this week. Then our advisor gave us a few more tasks...

- Talk more to the Stable Baselines dev to try and gain more insight into what the feature extractor is
- Discussed issues with docker and timeline for getting the project working in docker. Planning for finishing up within next week.

Plans for Upcoming Reporting Period

- Finish getting codebase working within docker
- Try to finish up integrating the GNN into stable baselines
- Run the CNN on the AnyDesk Alienware server