**Report**

**Project 4: The Imitation Game**

Parvathi Mahesh Hedathri: pm850

Kavya Kavuri: kk1069

Harish Udhayakumar: hu33

December 15 2021

1. How should the state space (current information) and action space (action selected) be represented for the model? How does it capture the relevant information, in a relevant way, for your model space? One thing to consider here is local vs global information.
2. How are you defining your loss function when training your model?
3. In training, how many episodes on how many different grid worlds were necessary to get good performance of your model on the training data?
4. How did you avoid overfitting? Since you want the ML agent to mimic the original agent, should you avoid

overfitting?

1. How did you explore the architecture space, and test the di\_erent possibilities to \_nd the best architecture?
2. Do you think increasing the size or complexity of your model would o\_er any improvements? Why or why not?
3. Does good performance on test data correlate with good performance in practice? Simulate the performance of your ML agent on new gridworlds to evaluate this.
4. For your best model structure, for each architecture, plot a) performance on test data as a function of training rounds, and b) average performance in practice on new gridworlds. How do your ML agents stack up against the original agents? Do either ML agents over an advantage in terms of training time?