Thesis Progress Form
CHARLES DARWIN UNIVERSITY
College of Engineering, IT, and Environment

Name: Shane Reynolds

Unit: ENG720

Title: Automatic generation control of a two area power system using deep reinforcement learning

Supervisors: Charles Yeo & Stefanija Klaric

Time & Date: 19/8/2020 @ 1pm

1 Progress since last meeting

- Completed experiment in which agent memory was filled with tuned PID controller experience 50% of the time. The controller learned a useful policy much quicker; however, was unable to
- Developed stochastic demand profile to use in final experiments.

2 Discussion Points

- Outlined recent progress to CY, as described above.
- Outlined new experiments to CY, as detailed below.

3 Plan until the next meeting

- Run final experiments that will use a stochastic load demand profile to demonstrate that load frequency control can be achieved with a neural network using DDPG; however, this will not beat the current industry PID standard approach to control.

- Look at finding a way to present research with a narrative that shows training a neural network for load frequency control (and outperforming a PIC controller) is not possible. This would require some mathematical analysis.

Supervisor

August 24, 2020