

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 & Stefaniya Klaric

Time & Date: April 29, 2020 @ 2.30pm

1 Progress since last meeting

- Continuing to revise and work on literature review. Have included additional sections on Reinforcement Learning, Neural Networks, and Deep Reinforcement Learning to provide adequate background to present approach and experiments.
- Implementing test versions of DRL learning algorithms on classical control problems — emphasis on DDPG for continuous action spaces

2 Discussion Points

- Nothing to discuss at this point in time — need continue writing (discussion of draft thesis would be more beneficial the following Wednesday)

3 Plan until the next meeting

- Complete thesis chapter Introduction
- Complete thesis chapter Literature Review



- Write thesis chapter on Approach
- Encapsulate power system model in OpenAI gym class environment and test to ensure that this works appropriately
- Implement classical controller for OpenAI gym class power system environment
- Implement DDPG controller for power system and train agent
- Test agent on unseen scenarios
- Commence thesis chapter on experiments

Supervisor

April 29, 2020