

EDINBURGH NAPIER UNIVERSITY

SCHOOL OF COMPUTING

PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 21/09/17

Last diary date:

Objectives:

- Create a draft of the Initial Project Overview (IPO) document and send it to Simon to review it at the next meeting
- Look over NeuroEvolution of Augmenting Topologies (NEAT) library
- Read slides Simon sent me over the summer

Progress:

- ✓ Create a draft of the Initial Project Overview (IPO) document and send it to Simon to review it at the next meeting
- Look over NeuroEvolution of Augmenting Topologies (NEAT) library
- Read slides Simon sent me over the summer

Supervisor's Comments:

Objectives for next week:

- Read and take notes from lecture slides Simon sent
- Read about NeuroEvolution of Augmenting Topologies (NEAT) library
- Find some sources (and add them to the IPO)
- Research neural networks
- Research evolutionary algorithms
- Research multi-layer perceptrons

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PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 28/09/17

Last diary date: 21/09/17

Objectives:

- Revise draft of the Initial Project Overview (IPO) document and send it to Simon to review it at the next meeting
- Look over NeuroEvolution of Augmenting Topologies (NEAT) library
- Read slides Simon sent me over the summer

Progress:

- ✓ Revise draft of the Initial Project Overview (IPO) document and send it to Simon to review it at the next meeting
- Look over NeuroEvolution of Augmenting Topologies (NEAT) library
- Read slides Simon sent me over the summer

Supervisor's Comments:

Objectives for next week:

- Revise draft of the Initial Project Overview (IPO) document and send it to Simon to review it at the next meeting
- Send Simon rules to Switch
- Make a start on finding sources

EDINBURGH NAPIER UNIVERSITY

SCHOOL OF COMPUTING

PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 05/10/17

Last diary date: 28/09/17

Objectives:

- Revise draft of the Initial Project Overview (IPO) document and send it to Simon to review it at the next meeting
- Send Simon rules to Switch
- Make a start on finding sources

Progress:

- ✓ Revise draft of the Initial Project Overview (IPO) document and send it to Simon to review it at the next meeting
- ✓ Send Simon rules to Switch
- ✓ Make a start on finding sources

Supervisor's Comments:

Objectives for next week:

- Start looking at literature for week 9 report
- Written evidence of having looked at literature

EDINBURGH NAPIER UNIVERSITY

SCHOOL OF COMPUTING

PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 16/10/17

Last diary date: 05/10/17

Objectives:

- Start looking at literature for week 9 report
- Written evidence of having looked at literature

Progress:

- ✓ Start looking at literature for week 9 report
- ✓ Written evidence of having looked at literature

Supervisor's Comments:

Objectives for next week:

- Make a start on the barebones version of the game
- Upload IPO
- Read up on neural networks maths
- Read previous dissertation
- Continue literature review

Comments:

We could start with one agent that plays against a hardcoded strategy in the beginning and not worry about a human yet, then potentially move on to co-evolving two agents playing against each other in latter stages to further improve their learning.

Rules like forcing to play a certain card could be difficult to implement, so start with just the black queen and jack rules for now and add others in later if it goes well.

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PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 20/10/17

Last diary date: 16/10/17

Objectives:

- Make a start on the barebones version of the game
- Upload IPO
- Read up on neural networks maths
- Read previous dissertation
- Continue literature review

Progress:

- ✓ Make a start on the barebones version of the game
- ✓ Upload IPO
- ✓ Read up on neural networks maths
- ✓ Read previous dissertation
- ✓ Continue literature review

Supervisor's Comments:

Objectives for next week:

- Expand background section and write literature review

I showed Simon my thin, weak attempt at a literature review. I explained to him that I'd been looking at other dissertations and they all seem to have completely different ways of doing literature reviews, and so I really had no idea what I was doing. We discussed what I had and concluded that what I had, albeit lackluster, was a background section. Simon said that he preferred that style of dissertation where they lay out a description of what things that are going to be used are and how they work, before going on to critique how others have used them in other work in the literature review.

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PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 26/10/17

Last diary date: 20/10/17

Objectives:

- Expand background section and write literature review

Progress:

- ✓ Expand background section and write literature review

Supervisor's Comments:

Objectives for next week:

- Expand background section and literature review

Comments:

- Add AI for Games section to background – particularly card games but also board ones
- Neural networks – point out it's a control problem rather than pattern classification
- Look up RoboSoccer
- Sections – why neural networks | why evolve neural networks | why co-evolve topologies as well as weights
- PacMan and Mario examples
- How intelligent are they?

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SCHOOL OF COMPUTING

PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 02/11/17

Last diary date: 26/10/17

Objectives:

- Expand background section and literature review

Progress:

- ✓ Expand background section and literature review

Supervisor's Comments:

Objectives for next week:

- Expand background section and literature review

Comments:

- We want around 30 references and 10 to 15 pages
- Neural networks section is good but it needs more references – I won't be only one to have said these things
- Really likes PacMan part but wants it expanded to look at non-games controllers for robots etc
- Look at Google TensorFlow

EDINBURGH NAPIER UNIVERSITY

SCHOOL OF COMPUTING

PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 09/11/17

Last diary date: 02/11/17

Objectives:

- Expand background section and literature review

Progress:

- ✓ Expand background section and literature review

Supervisor's Comments:

Objectives for next week:

- Finalise literature review and attach it in an email to Kevin and Simon to set up review meeting

Comments:

- Fill in intro/aims and objectives sections
- Add methodology and results with subheadings to explain what kind of experiments and results we are expecting
- Add critical evaluation section and gantt chart(s)
- Other minor suggestions

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SCHOOL OF COMPUTING

PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 15/11/17

Last diary date: 09/11/17

Objectives:

- Finalise literature review and attach it in an email to Kevin and Simon to set up review meeting

Progress:

- ✓ Finalise literature review and attach it in an email to Kevin and Simon to set up review meeting

Supervisor's Comments:

Objectives:

- Get on with game development

Comments:

- This was the meeting with both markers, and all parties were satisfied with the project progress

EDINBURGH NAPIER UNIVERSITY

SCHOOL OF COMPUTING

PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 23/11/17

Last diary date: 15/11/17

Objectives:

- Get on with game development

Progress:

- ✓ Get on with game development

Supervisor's Comments:

Objectives:

- Download NEAT and have a look at it
- Continue game development

Comments:

- Discussed a lot of ideas and concerns surrounding a lack of understanding/clarity

EDINBURGH NAPIER UNIVERSITY

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PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 09/01/18

Last diary date: 23/11/17

Objectives:

- Download NEAT and have a look at it
- Continue game development

Progress:

- ✓ Continue game development
- Download NEAT and have a look at it

Supervisor's Comments:

Objectives:

- Download NEAT and have a look at it
- Continue game development

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SCHOOL OF COMPUTING

PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 16/01/18

Last diary date: 09/01/18

Objectives:

- Download NEAT and have a look at it
- Continue game development

Progress:

- ✓ Continue game development
- ✓ Download NEAT and have a look at it

Supervisor's Comments:

Objectives:

- Persevere with NEAT and try to get it working
- Connect game to NEAT

Comments:

- Ran into compile issues with NEAT before I'd even added my own work. Simon sent a couple of links to look at and hopefully find a solution

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PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 23/01/18

Last diary date:16/01/18

Objectives:

- Persevere with NEAT and try to get it working
- Connect game to NEAT

Progress:

- Persevere with NEAT and try to get it working
- Connect game to NEAT

Supervisor's Comments:

Objectives:

- Persevere with NEAT and try to get it working
- Connect game to NEAT

Comments:

- Still dealing with issues – Considering switching to Mac-compatible version of NEAT

EDINBURGH NAPIER UNIVERSITY

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PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 07/02/18

Last diary date:23/01/18

Objectives:

- Persevere with NEAT and try to get it working
- Connect game to NEAT

Progress:

- ✓ Persevere with NEAT and try to get it working
- Connect game to NEAT

Supervisor's Comments:

Objectives:

- Connect game to NEAT

Comments:

- Switched over to Mac which brought with it many issues regarding my code and the new programming environment and compiler
- Now having problems trying to connect the two

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PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 13/02/18

Last diary date:07/02/18

Objectives:

- Connect game to NEAT

Progress:

- Connect game to NEAT

Supervisor's Comments:

Objectives:

- Connect game to NEAT

Comments:

- Simon is suggesting that a plan B needs to be considered, but I'm not ready to throw in the towel just yet as I feel like I'm close to a breakthrough

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SCHOOL OF COMPUTING

PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 20/02/18

Last diary date:13/02/18

Objectives:

- Connect game to NEAT

Progress:

- Connect game to NEAT

Supervisor's Comments:

Objectives:

- Fix problems and start gathering results

Comments:

- Finally managed to link NEAT to my game (to an extent) but there's some kind of memory leak or something.

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PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 27/02/18

Last diary date: 20/02/18

Objectives:

- Fix problems and start gathering results

Progress:

- Fix problems and start gathering results

Supervisor's Comments:

Objectives:

- Fix problems and start gathering results

Comments:

- Got Simon to take a look at the segmentation error I was getting and we were unable to locate it but suggested means to do so

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PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 07/03/18

Last diary date: 27/02/18

Objectives:

- Fix problems and start gathering results

Progress:

- Fix problems and start gathering results

Supervisor's Comments:

Objectives:

- Get properly set up and start gathering results

Comments:

- Fixed the memory leak issues – needed to set the singleton to NULL.
- Discussed some of the variables for NEAT.

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PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 14/03/18

Last diary date: 07/03/18

Objectives:

- Get properly set up and start gathering results

Progress:

- Get properly set up and start gathering results

Supervisor's Comments:

Objectives:

- Get properly set up and start gathering results

Comments:

- Still learning how to use NEAT and trying to set up my own experiments
- Discussed details and variables for experiments and what results should be gathered

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SCHOOL OF COMPUTING

PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 21/03/18

Last diary date: 14/03/18

Objectives:

- Get properly set up and start gathering results

Progress:

- Get properly set up and start gathering results

Supervisor's Comments:

Objectives:

- Get properly set up and start gathering results

Comments:

- Simon showed me the error of my ways with the creation of the network, so we've arranged another meeting in a few days to ensure things are working

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PROJECT DIARY

Student: Ryan O'Flaherty

Supervisor: Simon Powers

Date: 27/03/18

Last diary date: 21/03/18

Objectives:

- Get properly set up and start gathering results

Progress:

- ✓ Get properly set up and start gathering results

Supervisor's Comments:

Objectives:

- Gather real results

Comments:

- Finally managed to get the whole thing set up and the network is playing legally available cards every time.
- Discussed rough fitness function ideas and dissertation structure/content