REVAN MACQUEEN

University of Alberta ⋄ Edmonton, Alberta, Canada
revan@ualberta.ca

RESEARCH INTERESTS

Algorithmic Game Theory, Reinforcement Learning, Machine Learning, Multi-agent Systems, Robotics

EDUCATION

University of Alberta *2020–Present*
MSc. Thesis in Computing Science
GPA: 4.0

University of Alberta *2015–2020*
Computing Science Major, BSc. Honors
First Class Honors
GPA: 3.8

RESEARCH EXPERIENCE

Graduate Research Assistantship Fellowship, University of Alberta *2021-Present*

- Supervisor: Dr. James R. Wright
- Researching thesis topic of machine learning through self-play in non-zero-sum, multi-player games.

Research Assistant, University of Alberta *Summer 2020*

- Developed game theoretic model of malware detection, and used model to find optimal detection strategies.
- Worked with Dr. Karim Ali and Dr. James R. Wright

Undergraduate Research Assistant, MAPLE lab, University of Alberta *Summer 2019*

- Funded by NSERC USRA.
- Researched using symbolic execution to verify the behaviour of neural networks.

Undergraduate Research Assistant, MAPLE lab, University of Alberta *Summer 2018*

- Researched using satisfiabililty modulo theory (SMT) solvers to correct errors in neural networks.

WORK EXPERIENCE

Teaching Assistant, University of Alberta *2021*

- CMPUT 366: Intelligent Systems

Students Union Tutor, University of Alberta *2019–2020*

- Tutor undergraduate computing science students.
- Provide assistance with difficult homework and explain challenging concepts to students.

PUBLICATIONS

Fixing Neural Networks with Solver-Aided Languages *2018*

- Poster Presentation, ACM SIGPLAN conference on Systems, Programming, Languages, and Applications: Software for Humanity
- Research into using satisfiability modulo theory (SMT) solvers to correct mispredictions in neural networks.
- Research was conducted in collaboration with Dr. Karim Ali (University of Alberta) and Julian Dolby (IBM Research).

PRE-PRINTS

***Resmax: An Alternative Soft-Greedy Operator for Reinforcement Learning** Erfan Miahi, Revan MacQueen, Alex Ayoub, Abbas Masoumzadeh, Martha White. NeurIPS 2021. *Under-review*

***Game Theoretic Malware Detection** Revan MacQueen, Nicholas Bombardieri, James R. Wright, Karim Ali. arXiv Pre-print, 2020.

PRESENTATIONS

Game Theoretic Malware Detection *2020*

- Presented work to Oracle Labs Australia.

NOTABLE COURSE RESEARCH PROJECTS

Evaluating Deep Recurrent Q-Learning On Fully Observable Tasks *2020*

- CMPUT 607: Empirical Reinforcement Learning
- Conducted a large-scale empirical study of the effectiveness of recurrent neural networks in reinforcement learning.

ZPD Learning From Human Demonstrations *2020*

- CMPUT 656: Interactive Machine Learning
- Investigated whether ordering of human-provided demonstrations on the Atari 2600 game Breakout can accelerate learning in a deep reinforcement learning agent.

HONOURS AND AWARDS

Alexander Graham Bell Canada Graduate Scholarship - Master's *2020*

Natural Sciences and Engineering Research Council (NSERC) *$17,500*

Walter H. Johns Graduate Fellowship *2020*

Faculty of Graduate Studies and Research, University of Alberta *$5,800*

Departmental Recruitment Scholarship *2020*

Department of Computing Science, University of Alberta *$5,000*

Undergraduate Student Research Award (USRA) *2019*

Natural Sciences and Engineering Research Council (NSERC) *$7,000*

First Class Standing *2016–2020*

University of Alberta

Dean's Honor Roll *2018–2019*

University of Alberta, Faculty of Science

Jason Lang Scholarship *2017, 2018*

University of Alberta *$1,000*

Dean's List *2016–2017*

University of Alberta, Faculty of Business

Alexander Rutherford Scholarship *2015*

Government of Alberta *$2,500*

VOLUNTEERING

Ada's Team Tutor *2020*

- Tutored undergraduate computing science students.

River Valley Cleanup *2016–Present*

- Worked with community members to clean up Edmonton's river valley.

German-Canadian Association of Alberta *2015–2016*

- Volunteered at the German pavilion at the Edmonton Heritage Festival.