REVAN MACQUEEN

University of Alberta
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RESEARCH INTERESTS

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

EDUCATION

University of Alberta *2020–2023*
MSc. Thesis in Computing Science
Thesis: *Guarantees for Self-Play in Multiplayer Games via Polymatrix Decomposability*
Nominated for best thesis
GPA: 4.0

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

PUBLICATIONS

Guarantees for Self-Play in Multiplayer Games via Polymatrix Decomposability. Revan MacQueen and James R. Wright. *Neural Information Processing Systems*, *2023*.

Resmax: An Alternative Soft-Greedy Operator for Reinforcement Learning. Erfan Miahi, **Revan MacQueen**, Alex Ayoub, Abbas Masoumzadeh, Martha White. *Transactions on Machine Learning Research*, *2023*.

Finding an Optimal Set of Static Analyzers To Detect Software Vulnerabilities. Jiaqi He, **Revan MacQueen**, Natalie Bombardieri, Karim Ali, James R. Wright, Cristina Cifuentes. *IEEE International Conference on Software Maintenance and Evolution*, *2023*.

PRE-PRINTS

Game Theoretic Malware Detection. Revan MacQueen, Natalie Bombardieri, James R. Wright, Karim Ali. *2020*.

PRESENTATIONS

Game Theoretic Malware Detection *2020*

- Presented work to Oracle Labs Australia.

Fixing Neural Networks with Solver-Aided Languages *2018*

- Poster presentation, ACM SIGPLAN conference on Systems, Programming, Languages, and Applications: Software for Humanity

RESEARCH EXPERIENCE

Graduate Research Assistantship Fellowship, University of Alberta, Amii *2021-2023*

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

Machine Learning Intern, Amii *September 2021-January 2022*

- Supervisor: Talat Iqbal
- Worked with industrial client in researching applications of reinforcement learning.

- Implemented reinforcement learning-based system that dramatically outperformed existing system.

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.

TEACHING EXPERIENCE

Machine Learning Facilitator, Amii *2023–Present*

- Deliver Amii's introductory machine learning course, ML Foundations.
- Part of Amii's Work Integrated Learning Opportunity (WILO) program.

Program Delivery Support - Facilitation, Amii *2022–Present*

- Facilitated breakout room discussion about ethics and AI for the Canadian Information Office Strategy Council's Ethics Workshop.
- Part of Amii's Work Integrated Learning Opportunity (WILO) program.

Teaching Assistant, University of Alberta *2022*

- CMPUT 412: Experimental Mobile Robotics

First People's House Tutor, University of Alberta *2022*

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

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.

HONOURS AND AWARDS

Alberta Innovates Graduate Student Scholarship *2022*

Alberta Innovates *$26,000*

Alberta Graduate Excellence Scholarship *2022*

Government of Alberta *$12,000*

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

CSGSA Buddy Program *2021*

- Help introduce new graduate students to the program and answer any questions they may have.

Ada's Team Tutor *2020*

- Tutored undergraduate computing science students.