

REVAN MACQUEEN

revanmacqueen.com

RESEARCH INTERESTS

Reinforcement Learning, Algorithmic Game Theory, 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*

Winner of departmental Outstanding MSc. Thesis award

GPA: 4.0

University of Alberta 2015–2020

Computing Science Major, BSc. Honors

First Class Honors

GPA: 3.8

WORK EXPERIENCE

Machine Learning Engineer, RL Core 2025–Present

Developing industrial reinforcement learning systems for real-time process control.

Machine Learning Resident, Amii 2024–2025

Developed and deployed reinforcement learning agent to control a mobile water treatment plant.

Machine Learning Intern, Amii September 2021–January 2022

Worked with industrial client in researching applications of reinforcement learning.

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 Miah, 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.

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 satisfiability 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.

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.

Teaching Assistant, University of Alberta

2022

- CMPUT 412: Experimental Mobile Robotics

First People's House Tutor, University of Alberta

2022

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

Teaching Assistant, University of Alberta

2021

- CMPUT 366: Intelligent Systems

Students Union Tutor, University of Alberta

2019–2020

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

HONOURS AND AWARDS

Outstanding MSc. Thesis Award

2024

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)	<i>\$7,000</i>
First Class Standing	<i>2016–2020</i>
University of Alberta	
Dean’s Honor Roll	<i>2018–2019</i>
University of Alberta, Faculty of Science	
Jason Lang Scholarship	<i>2017, 2018</i>
University of Alberta	<i>\$1,000</i>
Dean’s List	<i>2016–2017</i>
University of Alberta, Faculty of Business	
Alexander Rutherford Scholarship	<i>2015</i>
Government of Alberta	<i>\$2,500</i>

VOLUNTEERING

CSGSA Buddy Program	<i>2021</i>
<ul style="list-style-type: none"> • Help introduce new graduate students to the program and answer any questions they may have. 	
Ada’s Team Tutor	<i>2020</i>
<ul style="list-style-type: none"> • Tutored undergraduate computing science students. 	