

# REVAN MACQUEEN

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

## RESEARCH INTERESTS

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

## EDUCATION

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**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

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**Machine Learning Scientist Intern**, AMII *September 2021–January 2022*

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

**Graduate Research Assistantship Fellowship**, University of Alberta, AMII *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 satisfiability modulo theory (SMT) solvers to correct errors in neural networks.

## OTHER WORK EXPERIENCE

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**Teaching Assistant**, University of Alberta *2022*

- CMPUT 412: Experimental Mobile Robotics

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

- 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.

## PUBLICATIONS

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### **Fixing Neural Networks with Solver-Aided Languages**

2018

- Poster, 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

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**Resmax: An Alternative Soft-Greedy Operator for Reinforcement Learning** Erfan Miah, Revan MacQueen, Alex Ayoub, Abbas Masoumzadeh, Martha White. ICML 2022. *Under-review*

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

## PRESENTATIONS

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### **Game Theoretic Malware Detection**

2020

- Presented work to Oracle Labs Australia.

## HONOURS AND AWARDS

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### **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**

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**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.

**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.