

# MARK BEDAYWI

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## EDUCATION

### University of California, Berkeley

PhD in Computer Science

Advised by [Nika Haghtalab](#) and [Stuart Russell](#)

Berkeley, CA  
Aug 2024 - May 2029 (Expected)

### University of Toronto

Honors Bachelors of Science *GPA: 3.97*

Specialist in Computer Science and Major in Mathematics.

Focus in Artificial Intelligence and the Theory of Computing.

Recipient of \$25,000 in scholarships and \$8,000 in grants.

Toronto, ON  
Sep 2020 - Jun 2024

## PUBLICATIONS AND MANUSCRIPTS

### Will an AI with Private Information Allow Itself to Be Switched Off?

Andrew Garber, Rohan Subramani, Linus Luu, Mark Bedaywi, Scott Emmons, Stuart Russell.

[Link to Paper](#)

### PID Accelerated Temporal Difference Algorithms

Mark Bedaywi, Amin Rakhsha, Amir-massoud Farahmand.

[Link to Paper](#)

### The Distortion of Public-Spirited Participatory Budgeting

Mark Bedaywi, Bailey Flanigan, Mohamad Latifian, Nisarg Shah.

[Link to Paper](#)

## RESEARCH EXPERIENCE

### Center for Human-Compatible Artificial Intelligence (CHAI)

*Research Intern*

Berkeley, CA  
June 2024 - Present

- Collaborating with [Scott Emmons](#) to build a theory of AI assistants. Wrote a manuscript identifying new safety failure modes of AI assistants.
- Designing algorithms for AI assistants to cooperate with humans in the typical setting.

### University of Toronto, Department of Computer Science

*Undergraduate Student Researcher*

Toronto, ON  
May 2023 - June 2024

- Collaborated with [Nisarg Shah](#) to analyse and design new participatory budgeting voting rules with provable fairness guarantees.

### Vector Institute

*NSERC USRA*

Toronto, ON  
February 2023 - August 2023

- Collaborated with [Amir-massoud Farahmand](#) to accelerate reinforcement learning algorithms using ideas from control theory.
- Built and managed a substantial code base, overseeing all aspects of its development and maintenance.

## SCHOLARSHIPS, AWARDS, AND HONOURS

### Finalist, Outstanding Undergraduate Researcher Award

2023

Awarded by the Computing Research Association to the top undergraduate computer science researchers in North America. Finalist is awarded to the top 20.

### NSERC Undergraduate Student Research Award

2023

Awarded by the National Science and Engineering Research Council of Canada to

### Victoria University In-Course Scholarships

2021 - 2023

Awarded the Friends Of Victoria University Library Scholarship, the Louis R Charpentier Scholarship, and the Katherine St John Scholarship, all awarded on the basis of GPA.

### Three Time Dean's List Scholar

2021 - 2023

Awarded on the basis of GPA.

### University Of Toronto Scholar - Beatty

2022

Given to the top performing students in the University of Toronto's Faculty of Arts and Science.

### Entrance Scholarship: University of Toronto Scholar

2020

Given to the top 700 students entering the University of Toronto's Faculty of Arts and Science out of 7000.

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## COMMUNITY SERVICE

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President of the CS Undergraduate Theory Society at the University of Toronto

Fall 2023 - Fall 2024

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## TEACHING

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### Course Content Editor and Developer

Toronto, ON

*Department of Computer Science, University of Toronto*

Summer 2021

- Assisted in the preparation and revision of course materials for blended offerings of introductory computer science courses.
- Coordinated with faculty instructors in the creation and editing of online content.

### Volunteer Mathematics and Science Tutor

Mississauga, ON

*St. Marcellinus*

2019 - 2020

- Assisted students with mathematics, physics, and chemistry.
- Planned tutoring sessions and monitored the growth of select students.

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## PROGRAMMING PROJECTS

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### Curious Transformers On Rubik's Cubes

(Python, PyTorch), 2023

An implementation of decision transformers, as well as an exploration into various novel variants of decision transformers that can take decisions and learn from feedback, performing online RL, tested on Rubik's cubes.

### Traversing Game Trees Intelligently

(Python, Scikit-Learn), 2021

Implementations of various algorithms to search through game trees of an assortment of games intelligently, including a minimax search with alpha-beta pruning, a MCTS with simulation, and a MCTS with a neural network that learns the value of moves through repeated self play.

### First Order Logic Verifier

(Racket), 2021

A utilization of lispy metaprogramming to formally specify mathematical proofs in Racket.

### Analysis of Global Warming Sentiment on Social Media

(Python, Twitter API, Plotly, Pygame), 2020

An application that aggregates over Twitter data and economic indicators to find relationships between public perception of global warming and government response.

### Julia Set Viewer

(JavaScript, p5.js), 2019

A fractal viewer that finds and plots the fixed points of any inputted equation.

All projects are available at [github.com/Supermac30](https://github.com/Supermac30).

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## TECHNICAL SKILLS

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Programming Languages	Python, C, Java, Javascript, Haskell, Racket
Python for ML and Data Visualisation	PyTorch, Numpy, Matplotlib, Weights and Biases, Tensorboard, Scikit-Learn, Keras, Plotly
Tools	Unix, Slurm
Formatting	L <sup>A</sup> T <sub>E</sub> X, HTML, Markdown