

# Carter Blair

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## EDUCATION

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### Master of Math, Computer Science (Thesis Based)

*University of Waterloo*

Waterloo, Canada

September 2023 - Present

- Supervised by Kate Larson and Edith Law
- Thesis: Representative AI Alignment

### B.Sc. Computer Science and Psychology, Minor in Philosophy

*University of Victoria*

Victoria, Canada

Completed August 2022

- Supervised by Nishant Mehta and George Tzanetakis
- Thesis: Regret Bounds for Online Positive Unlabelled Learning

## PROFESSIONAL EXPERIENCE

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### Research Intern

*Vector Institute*

January 2024 – Present

Toronto, Canada

- Supervised by Gillian Hadfield
- Developed methods for AI alignment which rely on existing normative infrastructure and institutions.

### Founder, Technical Lead

*redy.ai*

May 2023 – September 2024

- Conducted user research with real estate agents (n=75) to refine the problem definition.
- Developed a full-stack prototype with React, Django, and an LLM-based agent for task automation.

### Junior Data Scientist

*NannyML*

July 2022 – May 2023

Leuven, Belgium

- Developed novel, linear time multivariate drift detection methods based on the Maximum Mean Discrepancy.
- Implemented standard drift detection methods in our open-source library, including Earth Mover's distance, Hellinger distance, Jensen-Shannon distance, and L-Infinity distance.

## AWARDS AND HONORS

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### Cooperative AI PhD Fellowship, Scholar

*Cooperative AI Foundation*

2025 - 2028

>\$100,000

- Selected as one of the inaugural scholars from 177 applicants, covering three years of PhD tuition and stipend top-up funding plus research support, including compute resources and travel funding.

### Research Dissemination Award

*University of Waterloo*

2024

\$500

### Math Domestic Graduate Student Award

*University of Waterloo*

2023

\$2,000

### Undergraduate Student Research Award

*National Science and Engineering Research Council of Canada*

2021

\$8,000

- Prestigious national award supporting undergraduate research in STEM fields.

### Dean's Entrance Scholarship

*University of Victoria*

2017

\$2,000

## RESEARCH CONTRIBUTIONS

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### a. Articles published or accepted in peer-reviewed conferences and journals

**Blair, C.,** Wang, X., & Perin, C. (2024) Quantifying Emotional Responses to Immutable Data Characteristics and Designer Choices in Data Visualizations. *IEEE Transactions on Visualization and Computer Graphics*, accepted in August 2024. (Work done in Undergraduate)

**Blair, C.,** Armstrong, B., & Larson, K. (2024) Liquid Ensemble Selection for Continual Learning. *Proceedings of the 2024 Canadian Conference on Artificial Intelligence*, accepted in April 2024. (Work done in Master's.)

### b. Other peer-reviewed contributions

Trivedi, R., **Blair, C.,** Chandak, N., Sarkar, A., Weltman, T., Hadfield-Menell, D., Hadfield, G.K. (2024) Altered Environments: The Role of Normative Infrastructure in AI Alignment. *Agentic Markets Workshop at ICML 2024*, oral presentation. (Work done in Master's.)

Sarkar, A., Muresanu, A., **Blair, C.,** Sharma, A., Trivedi, R.S., & Hadfield, G.K. (2024) Normative Modules: A Generative Agent Architecture for Learning Norms that Supports Multi-Agent Cooperation. *Foundation Models and Game Theory Workshop at Economics and Computation (EC) 2024*, oral presentation. (Work done in Master's.)

**Blair, C.,** & Wyeth, C. (2024) Decision Theoretic Planning with Language Models. *Foundation Models and Game Theory Workshop at Economics and Computation (EC) 2024*, poster. (Work done in Master's.)

### c. Non-peer-reviewed contributions

**Blair, C.,** Larson, K., & Law, E. (2024) Democratizing Reward Design for Personal and Representative Value-Alignment. *arXiv Preprint*, submitted to CHI 2025 in September 2024. (Work done in Master's.)

## PRESENTATIONS

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- *Representative Preference Learning*, Google DeepMind, June 2024
- *Delegative Voting Based Methods for Continual Learning*, Workshop on Social Choice and Learning Algorithms at AAMAS 2024, May 2024

## TEACHING EXPERIENCE

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<b>Teaching Assistant, CS 480 - Machine Learning</b> <i>University of Waterloo</i>	September 2024 – Present
<b>Teaching Assistant, CS 137 - Programming Principles</b> <i>University of Waterloo</i>	September 2023 – December 2023
<b>Teaching Assistant, CS 110 - Fundamentals of Programming I</b> <i>University of Victoria</i>	September 2021 – December 2021
<b>Teaching Assistant, CS 115 - Fundamentals of Programming II</b> <i>University of Victoria</i>	September 2020 – December 2020

## COMMUNITY & LEADERSHIP

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<b>Reviewer</b> <i>Conference on Human Factors in Computing Systems (CHI) Late Breaking Work</i>	February 2024
<b>Waterloo Team Lead</b> <i>Cooperative AI 2023 MeltingPot Competition</i>	September 2013 – November 2023
<b>President</b> <i>UVic Neuro-Tech Club</i>	September 2019 – April 2020 Victoria, BC
<b>President</b> <i>UVic Surf Club</i>	September 2018 – December 2019 Victoria, BC