Carter Blair

Website | +1 (403) 505-3880 | cblair@uwaterloo.ca

Education

Master of Math, Computer Science (Thesis Based) — Waterloo, Canada
University of Waterloo — *September 2023 - Present*

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

B.Sc. Computer Science and Psychology, Minor in Philosophy — Victoria, Canada
University of Victoria — *Completed August 2022*

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

Professional Experience

Research Intern — January 2024 – Present
Vector Institute — *Toronto, Canada*

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

Founder, Technical Lead — May 2023 – September 2024
redy.ai

- 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 — July 2022 – May 2023
NannyML — *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

Canada Graduate Scholarship (CGS-D) — 2025 - 2028
National Science and Engineering Research Council of Canada — *$120,000*

- Awarded CGS-D (Highest ranked applicants).
- Declined the award to hold the PGS-D (valued at $120,000) at a US institution.

Presidents Graduate Scholarship (Declined) — 2025 - 2026
University of Waterloo — *$10,000*

Cooperative AI PhD Fellowship (Scholar) — 2025 - 2028
Cooperative AI Foundation

- Selected as one of the eight inaugural scholars from 177 applicants.

Research Dissemination Award — 2024
University of Waterloo — *$500*

Math Domestic Graduate Student Award — 2023
University of Waterloo — *$2,000*

Undergraduate Student Research Award — 2021
National Science and Engineering Research Council of Canada — *$8,000*

- Prestigious national award supporting undergraduate research in STEM fields.

Dean's Entrance Scholarship — 2017
University of Victoria — *$2,000*

Research Contributions

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

- *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

Teaching Assistant, CS 480 - Machine Learning — September 2024 – Present
University of Waterloo

Teaching Assistant, CS 137 - Programming Principles — September 2023 – December 2023
University of Waterloo

Teaching Assistant, CS 110 - Fundamentals of Programming I — September 2021 – December 2021
University of Victoria

Teaching Assistant, CS 115 - Fundamentals of Programming II — September 2020 – December 2020
University of Victoria

Community & Leadership

Reviewer — February 2024
Conference on Human Factors in Computing Systems (CHI) Late Breaking Work

Waterloo Team Lead — September 2013 – November 2023
Cooperative AI 2023 MeltingPot Competition

President — September 2019 – April 2020
UVic Neuro-Tech Club — *Victoria, BC*

President — September 2018 – December 2019
UVic Surf Club — *Victoria, BC*