

Ben Armstrong

EMAIL: ben.armstrong@uwaterloo.ca
WEBSITE: <https://www.benarmstrong.ca>

EDUCATION

- FEBRUARY 2025 PhD in Computer Science, **University of Waterloo**
Thesis: "The Power of Experimental Approaches to Social Choice"
GPA: 91/100 | Supervisor: Dr. Kate Larson
- OCTOBER 2018 Master of Mathematics in COMPUTER SCIENCE, **University of Waterloo**
Thesis: "Coordination in a Peer Production Platform"
GPA: 92/100 | Supervisor: Dr. Kate Larson
- MAY 2016 BSc Honours in COMPUTER SCIENCE, **University of Northern BC**
Thesis: "Software Tools for Agent-Based Evolutionary Modeling"
GPA: 4.02/4.33 during final two years | Advisor: Dr. Jernej Polajnar

PUBLICATIONS

- Armstrong, B., Alouf-Heffetz, S., and Talmon, N. (2024). Optimizing Viscous Democracy. In 33rd International Joint Conference on Artificial Intelligence, IJCAI 2024. (August 2024)
- Armstrong, B., Alouf-Heffetz, S., and Talmon, N. (2024). Optimizing Viscous Democracy. 6th Games, Agents, and Incentives Workshop 23rd International Conference on Autonomous Agents and Multi-Agent Systems. (May 2024)
- Armstrong, B., Larson, K. (2024). Liquid Democracy for Low-Cost Ensemble Pruning. In 23rd International Conference on Autonomous Agents and Multi-Agent Systems. Extended Abstract. (May 2024)
- Blair, C., Armstrong, B., Larson, K. (2024). Liquid Ensemble Selection for Continual Learning. In 37th Canadian Conference on Artificial Intelligence. (May 2024)
- Blair, C., Armstrong, B., Larson, K. (2024). Liquid Ensemble Selection for Continual Learning. 1st Social Choice and Learning Algorithms Workshop at 23rd International Conference on Autonomous Agents and Multiagent Systems. (May 2024)
- Alouf-Heffetz, S., Armstrong, B., Larson, K., and Talmon, N. (2022). How Should We Vote? A Comparison of Voting Systems within Social Networks. In 31st International Joint Conference on Artificial Intelligence, IJCAI 2022 (July 2022).
- Armstrong, B., Larson, K. (2021) On the Limited Applicability of Liquid Democracy. 3rd Games, Agents, and Incentives Workshop at 20th International Conference on Autonomous Agents and Multiagent Systems.
- Armstrong, B. (2021) Exploring the Relationship Between Social Choice and Machine Learning. Doctoral Consortium at the 20th International Conference on Autonomous Agents and Multiagent Systems.
- B. Armstrong, K. Larson, *Machine Learning to Strengthen Democracy*, AI For Social Good Workshop at the Neural Information Processing Systems Conference (December 2019).
- B. Armstrong, M. Beretta, E. Crothers, M. Karlin, D. Kim, J. Longo, L. Powell, T. Sanders. *Siri Humphrey: Design Principles for an AI Policy Analyst*, 2019 Summer Institute on AI and Society (published online) (2019).

E. Parson, R. Lempert, B. Armstrong, E. Crothers, C. DeChant, N. Novelli, *Could AI Drive Transformative Social Progress? What Would This Require?*, 2019 Summer Institute on AI and Society (published online) (2019).

B. Armstrong, K. Larson, *Approval in the Echo Chamber*, 4th Workshop on Exploring Beyond the Worst Case in Computational Social Choice at 16th International Conference on Autonomous Agents and Multiagent Systems (May 2017).

TEACHING

Certifications

UNIVERSITY MATHEMATICS TEACHING TECHNIQUES	A semester-long course aimed at upper level graduate students and new instructors. Covered many fundamental aspects of teaching, modern pedagogical styles, and delivery of lectures to undergraduate students.
--	---

FUNDAMENTALS OF UNIVERSITY TEACHING	A University of Waterloo program aimed at graduate students involving several seminars on a range of pedagogical topics and peer-to-peer practice lectures.
-------------------------------------	---

Teaching Assistant I have been a teaching assistant, often doing significant portions of the course delivery, for the following courses (across Fall, Winter, Spring terms):

GRADUATE SEMINAR <i>F23, F22, F21, F20, W20</i>	Ethics Seminar for Master's of Data Science and AI Deliver one third of ethics seminar to graduate students studying data science and AI. This involves preparing material from on a syllabus, delivering it to students, and moderating in-class discussion on the content.
--	---

CS 492 <i>S23, W23, S22, S21, W21, S19, S18, W18</i>	Social Implications of Computing Moderate in-class debates over various social issues within computing, assist students with essay-writing, mark essays, and track participation.
---	--

CS 497 <i>W22</i>	Discrimination in Computing Assist in running class discussions about ethical issues within modern computer science, mark essays, and track participation.
----------------------	---

CS 486 <i>F22, F21, F20, W20</i>	Introduction to Artificial Intelligence Mark assignments and aid students within the university's main undergraduate AI course.
-------------------------------------	--

SEPT 2015–APR 2016	Teaching Assistant, University of Northern BC Run lab and supervise student projects for CPSC 475 (Multi-Agent Systems). Mark assignments and midterms for Math 220 (Linear Algebra) and Math 320 (Abstract Algebra).
--------------------	--

ACTIVITIES

MAY 2024	Social Choice and Learning Algorithms Workshop at AAMAS The first iteration of this workshop. Along with co-organizers, I developed the workshop proposal, organized reviewers, and will run the workshop program.
2024	Workflow Chair at 33rd International Joint Conference on Artificial Intelligence (IJCAI) Support reviewers, meta-reviewers, and authors during the review process with all types of questions.
JAN 2018–DEC 2019	AI and Human Rights Advisory Board, Balsillie School I have served as a technical consultant to students developing methods of using artificial intelligence to further human rights and proposals to guide Canada's policies regarding the use of AI.

PROGRAM COMMITTEE

AAAI Conference on Artificial Intelligence (AAAI) 2023, 2024, 2025
Conference on Neural Information Processing Systems (NeurIPS) 2022, 2023, 2024
International Joint Conference on Artificial Intelligence (IJCAI) 2025
International Conference on Machine Learning (ICML) 2022, 2023, 2024, 2025
Games, Agents, Incentives Workshop (GAIW) at International Conference on Autonomous Agents and Multi-Agent Systems 2021, 2022, 2023, 2024, 2025
International Conference on Algorithmic Decision Theory (ADT) 2024

INDUSTRY WORK EXPERIENCE

JAN 2015–AUG 2016	Software Developer, Goldstream Publishing Developed iOS application to crowd-source tracking of moose populations in British Columbia. Developed iOS application to serve as online hub for the fishing community.
JAN 2014–MAY 2015	Research Assistant, Business Intelligence Research Group at UNBC Developed and analyzed performance of routing protocols in a real-time distributed database system. Developed business intelligence software for use by health care practitioners.

AWARDS

SEPT 2018–AUG 2020	David R. Cheriton Graduate Scholarship Value: \$10,000 / year
SEPT 2019–AUG 2020	Queen Elizabeth II Graduate Scholarship in Science and Technology Value: \$15,000
SEPT 2019	Teaching Assistant Excellence Award Value: \$500
SEPT 2019–AUG 2023	President's Graduate Scholarship Value: \$5,000 / year
SEPT 2020–AUG 2023	NSERC Postgraduate Scholarships – Doctoral program Value: \$21,000 / year

OTHER

APRIL 2022 – PRESENT	Volunteer Instructor at University of Waterloo Karate & Jujitsu Club I teach up to once a week, monitor student's overall progression, and help to develop club teaching priorities and delivery strategies for the short and long term.
----------------------	---