Ben Armstrong

Email: ben.armstrong@uwaterloo.ca
Website: https://www.benarmstrong.ca

Education

Ongoing	PhD in Computer Science, **University of Waterloo** 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., 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)

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 (pp. 31-38). International Joint Conferences on Artificial Intelligence.

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	IN PROGRESS. 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:

GRADUATE SEMINAR *F22, F21, F20, W20*	**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 *W23, S22, S21, W21, S19, S18, W18*	**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 *W22*	**Discrimination in Computing** Assist in running class discussions about ethical issues within modern computer science, mark essays, and track participation.
CS 486 *F22, F21, F20, W20*	**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).

Outside of an academic setting, I have also been an instructor at the University of Waterloo's Karate and Jujitsu club since April 2022 where I teach up to once a week!

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.

Reviewing

AAAI Conference on Artificial Intelligence (AAAI)
2023, 2024

Conference on Neural Information Processing Systems (NeurIPS)
2022, 2023

International Conference on Machine Learning (ICML)
2022, 2023, 2024

Games, Agents, Incentives Workshop (GAIW) at International Conference on Autonomous Agents and Multi-Agent Systems
2021, 2022, 2023, 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.
Sept 2014–Dec 2014	Software Developer, Democracy Link
	Developed mobile application to provide information on how, where, and when to vote in the 2015 Canadian federal election.
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