Sriram Ganapathi Subramanian

sriramsubramanian@cunet.carleton.ca, s2ganapa@uwaterloo.ca

Research Website, LinkedIn, GitHub, Bitbucket, Google Scholar

EDUCATION

University of Waterloo, Waterloo, Ontario, Canada

- Doctor of Philosophy (PhD) in Electrical and Computer Engineering   Sep 2018 – Jul 2022
  - Research Thesis: "Multi-Agent Reinforcement Learning in Large Complex Environments"
  - **Canada AI Association's Best Doctoral Dissertation Award, 2023**
  - Supervisors: **Mark Crowley**, Department of Electrical and Computer Engineering and **Kate Larson**, Cheriton School of Computer Science
  - Focus: Multi-Agent Reinforcement Learning, Game Theory, and Reinforcement Learning

- Master of Applied Science (MASc) in Electrical and Computer Engineering   Sep 2016 – Apr 2018
  - Research Thesis: "Reinforcement Learning for Determining Spread Dynamics of Spatially Spreading Processes with Emphasis on Forest Fires"
  - Supervisor: **Mark Crowley**, Department of Electrical and Computer Engineering
  - Focus: Reinforcement Learning, Deep Learning, and Image Processing

College Of Engineering Guindy, Anna University, Chennai, Tamil Nadu, India

- Bachelor of Engineering in Geo-Informatics   Jul 2012 – Jul 2016
  - **Governor's Medal for Academic Excellence**
  - Research Thesis: "Cartographic View of Cancer"
  - Supervisor: **S.Jayalakshmi**, Department of Remote Sensing
  - Focus: Remote Sensing, GIS, and Algorithms

RESEARCH EXPERIENCE

Carleton University, Ottawa, Ontario, Canada   Jul 2025 – Present

- **Assistant Professor** at the School of Computer Science & **Canada Research Chair** (Tier II) in Artificial Intelligence.
  - I am just starting my research lab at Carleton where the focus will be on Multi-agent Systems, Reinforcement Learning, Deep Learning, AI Safety, and Generative AI.
  - I am also a **Faculty Affiliate** at the **Vector Institute for Artificial Intelligence**, Toronto and the **Schwartz Reisman Institute for Technology and Society**, Toronto.

Vector Institute, Toronto, Ontario, Canada   Sep 2022 – Jun 2025

- Distinguished Postdoctoral Fellow
  - I conducted fundamental research on several sub-fields within reinforcement learning and deep learning. Particularly, I contributed to the fields of Inverse Constraint Reinforcement Learning (ICRL), Multi-agent Reinforcement Learning (MARL), Reinforcement Learning (RL) in non-Markovian environments, and Reinforcement Learning applications to Chemistry and Drug Discovery. My contributions included providing a confidence-aware algorithmic framework for ICRL, relaxing neighbourhood limitations in Mean Field multi-agent algorithms, establishing principled theoretical properties for RL algorithms in non-Markovian environments and environments containing humans-in-the-loop. I explored applications of RL in autonomous driving, robotics, and scientific discovery.
  - Supervisors: **Pascal Poupart**, Faculty Member at the Vector Institute and Professor at the University of Waterloo. **Sheila McIlraith**, Faculty Member at the Vector Institute and Professor at the University of Toronto.
  - Focus: Multi-Agent Reinforcement Learning, Reinforcement Learning, and Game Theory

Machine Learning Lab, University Of Waterloo, Waterloo, Canada   Sep 2018 – Jul 2022

- PhD Student, Electrical and Computer Engineering Department
  - I considered two fundamental problems in multi-agent reinforcement learning (MARL) that prevent its wide application in complex real-world problems. The first is the issue of sample efficiency, and the second is the issue of scaling MARL to large environments. My contributions included relaxing a number of limiting assumptions in prior work in this area and providing new algorithms that are more applicable to real-world environments. Further, I designed and open-sourced a Gym-style environment for training autonomous agents to run chemistry laboratories.
  - Supervisors: **Mark Crowley**, Associate Professor, University of Waterloo, and **Kate Larson**, Professor, University of Waterloo
  - Additional Collaborators: **Pascal Poupart**, Professor, University of Waterloo, **Matthew E. Taylor**, Associate Professor, University of Alberta, **Isaac Tamblyn**, Associate Professor, University of Ottawa, and **Colin Bellinger**, Research Officer, National Research Council (NRC) of Canada
  - Focus: Multi-Agent Reinforcement Learning, Reinforcement Learning, and Game Theory

Borealis AI (Royal Bank of Canada), Waterloo, Canada   Sep 2018 – May 2019

- Machine Learning Researcher (Part-time)
  - Project: Mean field Multi-Agent Reinforcement Learning Applied to Dynamic Financial Environments.

- This project involved developing highly scalable reinforcement learning algorithms for financial applications. My role included designing the learning algorithms, implementing and testing them in open-source and proprietary test beds, and deriving necessary theoretical guarantees to prove that the algorithms are principled.
- Supervisors: **Pascal Poupart**, Research Lab Director, Borealis AI, Waterloo and **Matthew E. Taylor**, Research Lab Director, Borealis AI, Edmonton
- Focus: Multi-Agent Reinforcement Learning, Deep Learning, and Fintech

Borealis AI (Royal Bank of Canada), Edmonton, Canada   May 2018 – Aug 2018

- Research Intern - Machine Learning
  - Project: Stock Market Trading using Reinforcement Learning.
  - This project involved exploring the applicability of reinforcement learning (RL) for stock trading. I was tasked with modeling the stock trading scenario as a Markov decision process, implementing and testing a number of state-of-the-art RL algorithms, and designing a novel algorithm for this context.
  - Applied Research Team
  - Supervisor: **Nidhi Hegde**, Applied Research Team Lead, Borealis AI, Edmonton
  - Focus: Reinforcement Learning and Fintech

Machine Learning Lab, University Of Waterloo, Waterloo, Canada   Sep 2016 – Apr 2018

- Master's Student, Electrical and Computer Engineering Department
  - In this research, I bench-marked existing reinforcement learning algorithms on a novel domain pertaining to wildfire prediction using real-world datasets. Additionally, I designed a new reinforcement learning algorithm that combines the advantages of existing algorithms and outperforms the state-of-the-art physics-based simulators in the wildfire domain.
  - Supervisor: **Mark Crowley**, Associate Professor, University of Waterloo
  - Focus: Reinforcement Learning, Deep Learning, and Image Processing

Denso International America, Detroit, United States and **University of Waterloo**, Waterloo, Canada

- Researcher (at University of Waterloo)   Apr 2017 – Jan 2018
  - Project: Predictive Collaborative Automated Drive for Crash Avoidance.
  - This project involves enabling an ensemble of self-driving cars to learn predictive collaborative driving alongside human-driven cars for navigation and crash avoidance. My role in the project involved using RL algorithms like Deep Q-Learning to make the learning modules for the vehicles. The project was showcased as a demonstrative display at the Consumer Electronics Show (CES)-2018 in Las Vegas (from 8th January to 12th January).
  - Supervisors: **Sebastian Fischmeister**, Associate Professor, University of Waterloo
    William Melek, Professor, University of Waterloo
    Mark Crowley, Assistant Professor, University of Waterloo
  - Focus: Reinforcement Learning and Autonomous Driving

Wilfrid Laurier University, Waterloo, Canada   May 2017 – Aug 2017

- Research Assistant
  - Project: Spatial Pattern Comparison Statistics.
  - This project involved the research and development of various spatial pattern comparison statistics as a package in R. My role consisted of implementing the package and reproducing results from the corresponding research publications.
  - Supervisor: **Colin Robertson**, Associate Professor, Wilfrid Laurier University
  - Focus: Spatial Statistics, Pattern Comparison, and Geo-computation

Wilfrid Laurier University, Waterloo, Canada   Apr 2015 – Aug 2015

- Research Intern (Mitacs Globalink)
  - Project: Geo+Social Analytics for Healthy Urban Environments
  - This project involved finding important influences of the spatial environment a person interacts with, on his/her mental health. My role comprised implementing the computational tools and statistical functions needed in the project as an API. C++ was used as the language of development. Additionally, I also worked on developing visualization modules to represent the derived results.
  - Supervisor: **Colin Robertson**, Associate Professor, Wilfrid Laurier University
  - Focus: Cartography, Geographic Modelling, and Geo-computation

AWARDS & **SCHOLARSHIPS**	NSERC Discovery Grant (200,000 CAD)	Jul 2025
	Canada Research Chair (Tier II) in Artificial Intelligence (600,000 CAD)	Jul 2025
	Canadian AI Association (CAIAC) Best Doctoral Dissertation Award (2000 CAD)	May 2023
	Waterloo AI Scholarship (5000 CAD)	May 2022
	University of Waterloo Research Excellence Award (2000 CAD)	Feb 2022
	Vector Institute Postgraduate Affiliation (12000 CAD)	Apr 2021

- S.P. Pasupalak Scholarship in Robotics and Artificial Intelligence (1500 CAD) — Sep 2020
- AI for Earth Microsoft Grant (15000 USD) — May 2018
- Faculty of Engineering Award, University of Waterloo. (1500 CAD, multiple times) — May 2017
- Hackathon - EngHacks (2000 CAD) — Mar 2017
- Hackathon - HackforHealth (2000 CAD) — Jan 2017
- Mitacs Graduate Fellowship (15000 CAD) — May 2016
- Mapp your way, Environmental Systems Research Institute (ESRI) (75000 INR) — Jan 2016
- Governor's Medal, Anna University — Aug 2015
- Mitacs Global Link Research Award (6000 CAD) — May 2015

JOURNAL PUBLICATIONS

[1] Guiliang Liu, Sheng Xu, Shicheng Liu, Ashish Gaurav, Sriram Ganapathi Subramanian, and Pascal Poupart, "A Comprehensive Survey on Inverse Constrained Reinforcement Learning: Definitions, Progress and Challenges", *Transactions on Machine Learning Research (TMLR)*, Dec 2024.

[2] Chris Beeler, Sriram Ganapathi Subramanian, Kyle Sprague, Mark Baula, Nouha Chatti, Amanuel Dawit, Xinkai Li, Nicholas Paquin, Mitchell Shahen, Zihan Yang, Colin Bellinger, Mark Crowley, and Isaac Tamblyn, "ChemGymRL: An Interactive Framework for Reinforcement Learning for Digital Chemistry", *Digital Discovery*, Feb 2024.

[3] Su Zhang, Srijita Das, Sriram Ganapathi Subramanian, and Matthew E. Taylor, "Two-Level Actor-Critic Using Multiple Teachers", *Transactions on Machine Learning Research (TMLR)*, Oct 2023.

[4] Ken Ming Lee, Sriram Ganapathi Subramanian, and Mark Crowley, "Investigation of Independent Reinforcement Learning Algorithms in Multi-Agent Environments", *Frontiers in Artificial Intelligence*, Sep 2022.

[5] Sriram Ganapathi Subramanian, Matthew E. Taylor, Kate Larson, and Mark Crowley, "Multi-Agent Advisor Q-Learning", *Journal of Artificial Intelligence Research (JAIR)*, 74 (2022), 1-74, May 2022.

[6] Piyush Jain, Sean Coogan, Sriram Ganapathi Subramanian, Mark Crowley, Stephen Taylor, and Mike Flannigan, "A review of machine learning applications in wildfire science and management", *Environmental Reviews*, Canadian Science Publishing, Volume 28, Number 4, Dec 2020.

[7] Sriram Ganapathi Subramanian and Mark Crowley, "Using Spatial Reinforcement Learning to Build Forest Wildfire Dynamics Models from Satellite Images" *Frontiers in ICT*, Apr 2018.

HIGHLY REFEREED CONFERENCE PUBLICATIONS

[1] Smith, Chandler, et al. "Evaluating Generalization Capabilities of LLM-Based Agents in Mixed-Motive Scenarios Using Concordia", *Neural Information Processing Systems (NeurIPS) - Datasets and Benchmarks Track 2025*, San Diego, USA (Acceptance Rate: 25%), Dec 2025.

[2] Shuhui Zhu, Baoxiang Wang, Sriram Ganapathi Subramanian, and Pascal Poupart, "Learning to Negotiate via Voluntary Commitment", *Artificial Intelligence and Statistics Conference (AISTATS 2025)*, Mai Khao, Thailand (Acceptance Rate: 30%), May 2025.

[3] Sriram Ganapathi Subramanian, Galen Liu, Mohammed Elmahgiubi, Kasra Rezaee, and Pascal Poupart, "Confidence Aware Inverse Constrained Reinforcement Learning", *International Conference on Machine Learning (ICML 2024)*, Vienna, Austria (Acceptance Rate: 27%), Jul 2024.

[4] Sriram Ganapathi Subramanian, Matthew E. Taylor, Kate Larson, and Mark Crowley, "Learning from Multiple Independent Advisors in Multi-agent Reinforcement Learning", *International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS 2023)*, London, UK (Acceptance Rate: 23%), May 2023.

[5] Sriram Ganapathi Subramanian, Matthew E. Taylor, Mark Crowley, and Pascal Poupart, "Decentralized Mean Field Games", *AAAI Conference on Artificial Intelligence (AAAI 2022))*, Vancouver, BC, Canada (Acceptance Rate: 15%), Feb 2022.

[6] Sriram Ganapathi Subramanian, Matthew E. Taylor, Mark Crowley, and Pascal Poupart, "Partially Observable Mean Field Reinforcement Learning", *International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS 2021)*, London, UK (Acceptance Rate: 24%), May 2021.

[7] Sriram Ganapathi Subramanian, Pascal Poupart, Matthew E. Taylor, and Nidhi Hegde, "Multi Type Mean Field Reinforcement Learning", *International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS 2020)*, Aukland, New Zealand, (Acceptance Rate: 23%), May 2020.

OTHER CONFERENCE PUBLICATIONS

[1] Agustinus Kristiadi, Felix Strieth-Kalthoff, Sriram Ganapathi Subramanian, Vincent Fortuin, Pascal Poupart, and Geoff Pleiss, "How Useful is Intermittent, Asynchronous Expert Feedback for Bayesian Optimization?", *Sixth Symposium on Advances in Approximate Bayesian Inference*, Vienna, Austria, Jul 2024.

[2] Sriram Ganapathi Subramanian, Matthew E. Taylor, Kate Larson, and Mark Crowley, "Multi-Agent Advisor Q-Learning (Extended Abstract)", *International Joint Conference on Artificial Intelligence (IJCAI 2023), Journal Track*, Macao, SAR China, Aug 2023.

[3] Su Zhang, Srijita Das, Sriram Ganapathi Subramanian, and Matthew E. Taylor, "Two-Level Actor-Critic Using Multiple Teachers", *International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2023)*, London, UK *(Extended Abstract)*, Aug 2023.

[4] Sushrut Bhalla, Sriram Ganapathi Subramanian, and Mark Crowley, "Deep Multi Agent Reinforcement Learning for Autonomous Driving", *Canadian Conference on Artificial Intelligence*, Ottawa, Canada, May 2020. Best paper award nominee

[5] Sushrut Bhalla, Sriram Ganapathi Subramanian, and Mark Crowley, "Training Cooperative Agents for Multi-Agent Reinforcement Learning", *International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2019)*, Montreal, Canada *(Extended Abstract)*, May 2019.

[6] Sriram Ganapathi Subramanian, Jaspreet Singh Sambee, Benyamin Ghojogh, and Mark Crowley, "Decision Assist for Self-driving Cars", *Canadian Conference on Artificial Intelligence*, Toronto, ON, Canada, May 2018.

[7] Sriram Ganapathi Subramanian and Mark Crowley, "Combining MCTS and A3C for Prediction of Spatially Spreading Processes in Forest Wildfire Setting", *Canadian Conference on Artificial Intelligence*, Toronto, ON, Canada, May 2018.

[8] Sriram Ganapathi Subramanian and Mark Crowley, "Learning Forest Wildfire Dynamics from Satellite Images using Reinforcement Learning", *Conference on Reinforcement Learning and Decision Making (RLDM 2018)*, Ann Arbor, MI, USA, May 2018.

WORKSHOP PAPERS

[1] Chris Beeler, Sriram Ganapathi Subramanian, Kyle Sprague, Mark Crowley, Colin Bellinger, and Isaac Tamblyn, "Demonstrating ChemGymRL: An Interactive Framework for Reinforcement Learning for Digital Chemistry", *AI for Accelerated Materials Design - Neural Information Processing Systems (NeurIPS 2023)*, New Orleans, USA, Dec 2023.

[2] Chris Beeler, Sriram Ganapathi Subramanian, Kyle Sprague, Colin Bellinger, Mark Crowley, and Isaac Tamblyn, "ChemGymRL: An Interactive Framework for Reinforcement Learning for Digital Chemistry", *AI for Science - Neural Information Processing Systems (NeurIPS 2023)*, New Orleans, USA, Dec 2023.

[3] Volodymyr Tkachuk, Sriram Ganapathi Subramanian, and Matthew E. Taylor, "The Effect of Q-function Reuse on the Total Regret of Tabular, Model-Free, Reinforcement Learning", *Adaptive Learning Agents Workshop - International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS 2021) (long talk)*, London, UK, May 2021.

[4] Sai Krishna Gottipati, Yashaswi Pathak, Rohan Nuttall, Sahir, Raviteja Chanduru, Ahmed Touati, Sriram Ganapathi Subramanian, Matthew E. Taylor, and Sarath Chandar, "Maximum Reward Formulation in Reinforcement Learning", *Neural Information Processing Systems (NeurIPS)* workshop on Deep RL (Oral), Vancouver, Canada, Nov 2020.

[5] Sriram Ganapathi Subramanian and Mark Crowley, "A Complementary Approach to Improve Wild Fire Prediction Systems" *Neural Information Processing Systems (NeurIPS)* workshop on AI for Social Good, Montreal, Canada, Dec 2018.

PATENTS

[1] Sriram Ganapathi Subramanian, Pascal Poupart, Matthew E. Taylor and Nidhi Hegde; Patent Number: US20200279136A1, "System and method for multi-type mean field reinforcement machine learning", US Patent, Owner: Royal Bank of Canada, Filing Date: Mar 2019.

[2] Zhiyuan Du, Joseph Lull, Rajesh Malhan, Sriram Ganapathi Subramanian, Sushrut Bhalla, Jaspreet Sambee and Mark Crowley; Patent Number: US11131992B2, "Multi-Level Collaborative Control System With Dual Neural Network Planning For Autonomous Vehicle Control In A Noisy Environment", US Patent, Owner: DENSO International America, Filing Date: Nov 2018.

[3] Sriram Ganapathi Subramanian, Keshav Pameshwaran, Sivakumar Senthilkumar, Parthipan Muthu; Patent Number: 11581/2015-CO/L, "Mine closure using remote sensing aid", Indian Software Copyright, Filing Date: Feb 2016.

TEACHING EXPERIENCE		
Reinforcement Learning Bootcamp, Instructor, Vector Institute	Mar 2024 – Jun 2024
Introduction to Artificial Intelligence, Instructor, University of Waterloo	May 2023 – Aug 2023
Reinforcement Learning, Teaching Assistant, University of Waterloo	Aug 2021 – Dec 2021
Reinforcement Learning, Teaching Assistant, Vector Institute	Mar 2021 – Jun 2021
Reinforcement Learning, Teaching Assistant, University Of Waterloo	May 2020 – Aug 2020
Fundamentals of Programming, Teaching Assistant, University Of Waterloo	Sep 2019 – Dec 2019
Data and Knowledge Modelling, Teaching Assistant, University Of Waterloo	Jan 2018 – Apr 2018
Algorithms and Data Structures, Teaching Assistant, University Of Waterloo	Jan 2017 – Apr 2017

PROGRAM COMMITTEE MEMBER/ REVIEWER

- AAAI conference on Artificial Intelligence (AAAI) - PC Member - 3 times, Area Chair - 1 time
- International Conference on Machine Learning (ICML) - PC Member - 3 times
- Conference on Neural Information Processing Systems (NeurIPS) - PC Member - 4 times
- Conference on Autonomous Agents and Multi-Agent Systems (AAMAS) - PC Member - 3 times
- International Joint Conference on Artificial Intelligence (IJCAI) - PC Member - 3 times
- Journal of Artificial Intelligence Research (JAIR) - Reviewer - 3 times
- Journal of Autonomous Agents and Multi-agent Systems (JAAMAS) - Reviewer - 3 times
- International Journal of Wildland Fire - Reviewer - 3 times
- Neural Networks - Reviewer - 2 times
- Transaction on Machine Learning Research (TMLR) - Reviewer - 5 times
- Various workshops in ICML, NeurIPS, ICLR, AAMAS, AAAI and IJCAI - PC Member - Multiple times

STUDENTS MENTORED

Shuhui Zhu, Doctoral student at the University of Waterloo.
- Research project: Communication in Multi-agent Reinforcement Learning — Sep 2023 – Present

Kateryna Nekhomiazh, Master's student at the University of Toronto.
- Research project: Reward Machines — Sep 2023 – Present

Cynthia Huang, Doctoral student at the University of Waterloo.
- Research project: Multi-agent Reinforcement Learning in Fintech — Nov 2022 – Present

Yanting Miao, Doctoral student at the University of Waterloo.
- Research project: Offline Reinforcement Learning — Nov 2022 – Present

Kyle Sprague, Undergraduate student at the University of Ottawa.
- Research project: Algorithmic development in ChemgymRL — Sep 2022 – Aug 2023

Su Zhang, Doctoral student at Washington State University.
- Research project: Two-level Actor-Critic Using Multiple Teachers — Feb 2022 – Jul 2023

Nouha Chatti, Master's student at the University of Waterloo.
- Research project: Curriculum learning in Chemgym RL — Oct 2021 – Apr 2022

Vlad Tkachuk, Undergraduate student at the University of Waterloo.
- Research project: Effect of Q-function Reuse on Tabular, Model-Free Reinforcement Learning — Oct 2021 – Apr 2022

Ken Ming Lee, Undergraduate student at the University of Waterloo.
- Research project: Investigating independent reinforcement learning algorithms in multi-agent environments — Aug 2020 – Aug 2021

Zihan Yang, Undergraduate student at the University of Waterloo.

- Project: Software development of Chemgym RL   Sep 2019 – Apr 2020

Mark Baula, Undergraduate student at the University of Waterloo.

- Project: Software development of Chemgym RL   May 2019 – Apr 2020

Amanuel Dawit, Undergraduate student at the University of Waterloo.

- Project: Software development of Chemgym RL   May 2019 – Apr 2020

Xinkai Li, Master's student at the University of Waterloo.

- Project: Software development of Chemgym RL   May 2019 – Apr 2020

INVITED TALKS (SELECTED)	- Accelerating training in multi-agent reinforcement learning through action advising - U.C. Berkeley: Multi-Agent Learning Seminar (Aug 2023) - Multi-agent Reinforcement Learning in Large Complex Environments - Canadian AI, Montreal, 2023 (Doctoral Dissertation Award talk - June 2023) - Decentralized Mean Field Games – University of Alberta – Alberta Machine Intelligence Institute (Amii) AI seminar (Aug 2022) - Multi-agent Reinforcement Learning in Large, Complex Environments – Vector Institute (Aug 2022) - Multi-agent Advisor Q-learning – Vector Institute (Feb 2022) - Recent Advances in Mean-Field RL Methods – University of Alberta – Alberta Machine Intelligence Institute (Amii) AI seminar (May 2021). - Multi Type Mean Field Reinforcement Learning – A.I. Socratic Circles (AISC), Toronto (Sep 2020) - Reinforcement Learning in SSP Domains – Borealis AI Toronto (Apr 2018) - Algorithmic Analysis and Improvements in Multi-Agent Reinforcement Learning for Partially Observable Setting – University of Waterloo AI Seminar (Mar 2018)
MEDIA	- Waterloo News: Transforming CO2 into valuable products (Dec 2023) - Waterloo News: Recent electrical and computer engineering grad, Sriram Ganapathi Subramanian, wins Canadian Artificial Intelligence Association's Best Doctoral Dissertation Award. (Jun 2023) - Alberta News: Scaling Up AI for Success (Feb 2022) - The Record: Waterloo professor says AI is a useful tool to help fight wildfires. (Dec 2019) - The Scientist: Artificial Intelligence Tackles a World of Images. (May 2019) - Waterloo News: Fighting wildfires with artificial intelligence. (Nov 2018) - Wired: How Supercomputers Can Help Fix Our Wildfire Problem. (Nov 2018) - Digital: AI for Earth: Microsoft's Most Compelling Environmental Projects. (Sep 2018) - Waterloo News: Waterloo Innovation Summit addresses climate change at Vancouver event. (Nov 2018)
EDI INITIATIVES	**Mentor - Indigenous and Black Engineering and Technology PhD Project Canada (IBET PhD Project)**,

Mentor - Indigenous and Black Engineering and Technology PhD Project Canada (IBET PhD Project),

- Mentoring PhD students from underrepresented communities in STEM.   Oct 2022 – Present

Instructor - Each One Teach One (EOTO) Campaign - India,

- Teaching and creating opportunities for underprivileged children in India.   Sep 2012 – Feb 2016