Ryan Shar

https://github.com/rShar01, Machine Learning Graduate Student
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Work Experience

Undergraduate Researcher, University of British Columbia Systopia Lab (May 2023 - May 2024)

- Contributed featurization and model tuning on an ElasticSearch reinforcement learning model to reduce load-balancing latency by 20%
- Analyzed system resource usage with causal models to answer counterfactual questions on a per-request basis
- Simulated workflow testing of ElasticSearch environments with user data and analyzed the long-term trends and effects of the RL algorithm
- Wrote honors thesis on statistical learning theory to improve the error bounds of computationally efficient and sparse weighted decision tree methods (GOSDT models)

Firmware Developer, Motorola Solutions (Sep 2021 - Aug 2022)

- Contributed performant C++ code to multiple codebases in active Motorola video solutions projects, refactoring legacy code as needed
- Implemented features and fixed software bugs at all levels of the computing stack, focusing on performant networking
- Investigated customer-reported bugs to fix problems with real-time video processing and integration

DevOps Engineer, Motorola Solutions (Mar 2022 - June 2022)

- Improved testing pipeline efficiency by up to 25% with Pytest workflow optimizations
- Created a shell using Lua GRPC bindings to interact with C++ firmware runtimes

Teaching Assistant, University of British Columbia Computer Science Department (Dec 2020 - May 2024)

- Courses taught: CPSC 110 (Introduction to Recursive Programming), CPSC 210 (Software Construction), CPSC 213 (Introduction to Computer Systems), CPSC 317 (Introduction to Computer Networking)
- Lead labs and tutorials for 60-100 students per semester, communicating complex concepts in comprehensive sessions with applied examples to earn an average 4.9/5 student review rating
- Created assignment and exam questions based on student and instructor feedback to maximize student success and evaluation efficiency

Volunteer Experience

Research Volunteer, Undergraduate Research Opportunities Club (Sep 2019 - Jan 2020)
Mentor, Women in Computer Science (Sep 2023 - May 2024)
Travel and Safety Officer, UBC Quadball Team (Sep 2022 - May 2024)

Education

M.S. Machine Learning – Carnegie Mellon University (2024 - 2025)
B.Sc. Honors Computer Science – University of British Columbia (2019 - 2024)
94% culminated average

Project

Class Based Variational Autoencoders

- Novel generative model with improved representation for underrepresented labels in training data
- Outperforms traditional VAEs on classification and reconstruction

Awards

- ❖ Undergraduate Student Research Awards, NSERC
- ❖ Charles and Jane Banks Scholarship, University of British Columbia
- ❖ J. Fred Muir Memorial Scholarship, University of British Columbia
- ❖ Dean of Science Scholarship, University of British Columbia
- ❖ ECOO Programming Competition Finalist, York University
- ❖ Mathematics Distinction Award, UWaterloo CEMC