Andrey Karmanov *Honours Computer Science and Business Administration*

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Education

Honours Co-op Bachelor of Computer Science and Bachelor of Business Administration, 2021 – 2026
University of Waterloo, Wilfrid Laurier University Waterloo, Canada
Undertook advanced versions of computer science classes, where we **wrote compilers** and learned about advanced data structures, efficiency of programs, and digital logic.

Work Experience

Research Assistant, *University of Waterloo* May 2022 – present
- **Publishing** a **research paper** on a browser extension that classifies articles as reliable or unreliable
- Improved data processing pipeline, and created new features based on metadata, resulting in an **improvement of over 20%** in precision and recall
- Tested and created models using **Pytorch** using **CUDA** GPUs, with **HPC** techniques such as **parallelization** on supercomputers resulting in fast turnaround on testing and ideation
- Worked with **SQL** databases when collecting datasets, and interacted with them through Python.

Full Stack Developer, *Prof. Mei Naggapan* Jun 2020 – Sep 2020
- **Planned requirements and timelines** for improving an existing site with modern technology
- **Improved user experience** by updating site to use **Bootstrap** as well as **Elasticsearch** to add advanced search with more options for users
- **Improved site responsiveness** by updating and optimizing legacy code
- Documented and commented new and old code in order to improve maintainability

Lifeguard, *University of Waterloo* Sep 2021 – Sep 2022
- Worked with swimmers of all ages and abilities, upholding a fun and safe environment
- **Managed 60+ young campers** by enforcing rules, performing swim tests, and comforting

Skills

Languages	Tools	Libraries
Python - C++ - C - JavaScript - Java SQL - NoSQL	GCP - AWS - MongoDB - React - Bash GNU CLI - Office - JIRA - Confluence	Pytorch -Tensorflow - Numpy Pandas - Cuda - MPI - React

Projects

Netflix Prize Recommender System, *Tensorflow, Python, Pandas, Dask*
- Gathered and processed large quantities of data using **Dask**
- Created a custom autoencoder model with **TensorFlow**
- Created custom loss function which increased accuracy by 50%

DataFest 2022 Participant and Winner (Best Insight), *Python, R*
- Worked in a team of three on a large and **noisy dataset** of user data from a game about improving student's habits
- **Analyzed data** using **Pandas** and **R** to find trends and offered insights on how to potentially **increase efficacy by 20%**
- Gave a winning **presentation** with **insights** on pitfalls in the game and **offered step by step solutions** to improve

Co-Lead UWaterloo Alternate Fuels Team, *Python, bash*
- Collaborated with team members to create weekly sprints using **Jira**, working towards long-term goals
- **Automated** startup and testing sequence using **bash** scripts, saving about 5 minutes every time the car was started
- **Documented** changes using **Confluence** and methodologies to keep new members up to date

Maze search and Sorting Visualization, *Javascript, React* ↗
- Made an **interactive JavaScript React webapp,** where users create a custom maze for various algorithms to navigate
- Used advanced algorithms such as Dijkstra's, heap and quicksort which were all learned through self study
- Coded visualizations and algorithms from scratch to create an efficient and custom presentation

Automated Cover Letter (Hackathon), *JavaScript, Python, GCP*
Created an extension that scrapes data from job postings, and used NLP to automatically create relevant cover letters.
- Utilized GCP NLP in order to extract job technicalities from job description
- Led teammates in ideation, divvying up tasks to ensure we finished the project under strict time constraints.