

## Education

### Bachelor of Science (Honours) in Computer Science, Minor in Mathematics, Grade: 84%

[St. Catharines, ON](#)

BROCK UNIVERSITY

Oct 2022

- Dean's Honour List Year One-Three — 2018-2021
- Brock Scholars Award — 2022
- Qualified for North America Division Championships in ICPC as a team of 3 students — 2021

## Experience

### Research Assistant | [📄](#) | [📁](#)

[St. Catharines, ON](#)

BROCK UNIVERSITY | PYTHON, STATISTICS, MACHINE LEARNING, LINUX, CONCURRENCY

Sep 2021 - Sep 2022

- Independently developed a new algorithm based on Merge, Decompose particle swarm optimization for training large-scale neural networks as an alternative to traditional back-propagation.
- Coordinated with the supervisor to clarify requirements and monitor progress and made sure the project stayed on track.
- Learned about handling large-scale data-sets, normalizing the data, handling missing values & developed a Neural Network from scratch used for the testing of the new algorithm.
- Learned about bash scripting to add the experiment jobs to the Linux cluster queue.
- Applied concurrency to run 30 seeds of multiple variants at the same time and compiled the results into CSV files. Used excel(xlstat) to check the significance of the results using the Friedman p-value test.
- Presented a detailed project report about the improvements in training time and accuracy.

### Research Assistant | [📄](#)

[St. Catharines, ON](#)

BROCK UNIVERSITY | PYTHON, ALGORITHMS, STATISTICS

July 2021 - Sep 2021

- Researched particle swarm optimization, cooperative-pso and its variants.
- Created a program to solve 3-dimensional linear equations.
- Compared the performance of pso and cpso in the program.

### Web developer & Executive | [📄](#)

[St. Catharines, ON](#)

BROCK COMPUTER SCIENCE CLUB | ANGULAR, SCSS, FIREBASE, DISCORDJS, PYTHON, C#, UNITY, PROBLEM SOLVING

Feb 2020 - Oct 2022

- Improved the UI of the Brock CSC Teams page and developed an executive application component, integrated google forms to store the information in google sheets. Finally, using discord webhooks sent the relevant information to the administration discord channel.
- Organized weekly events & workshops and developed an in-depth understanding of programming languages such as Java, JavaScript, Python and C++.
- Learned about GitHub workflow, pull requests and merge conflicts.
- Improved web development and UI skills.

## Projects

### Chat-Bot | [📄](#)

[Brock University](#)

TEAM LEAD & DEVELOPER | REACTJS, NODE.JS, SOCKET.IO, PYTHON, SELENIUM, CONCURRENCY, SQLITE, UNIT TESTING

Jan 2022 - May 2022

- Held bi-weekly meetings with the project supervisor following scrum methodology including sprints review and retrospectives.
- Created the System Design for the whole application (Full-Stack)
- Generated and organised user stories on Miro using the srs document and the system design.
- Scraping module using selenium to scrape from Canada Games websites for AI's data-set.
- Functions to load data into SQLite database and AI.
- Methods to handle user queries in Natural Language and implemented AI model using Google tapas.
- Admin component to check AI state and view/update data.
- Interface between Node.js and Python for handling user and admin requests.

### Share Portfolio | [📄](#) | [📁](#)

REACTJS, SCSS, FIREBASE

- Web App to help users share portfolios which include images, descriptions and links to source code and live deployment. Additionally, users have the ability to add their social, linked-in and GitHub links.

### Space Asteroids | [📄](#) | [📁](#)

UNITY, C#

- 3d Game inspired by classic game asteroids.
- Implemented collision and bullet simulation using Unity Scripting.
- Other features are persistent player storage keeping a record of a high score, skin selection, and audio settings.

### Tic Tac Toe | [📄](#) | [📁](#)

REACTJS, TAILWIND

- Web app implementing the traditional game of tic tac toe.
- The features are Single Player, Local Multiplayer, Multiplayer, Variable Board size, and Local Storage for settings.

### Chess | [📄](#)

JAVA, JAVA FX

- Chess GUI in JavaFX, engine built from scratch. Single-player and local multiplayer are supported. AI using alpha-beta pruning.

## Skills

C#, C++, Java, Python.

React, Angular, Vue, Socket.io, HTML5/CSS, JavaScript, Typescript, Jest.

Node.js, Firebase, MongoDB, SQLite, MySQL.

GitHub, Agile Methodologies, Data Structures, Object-Oriented Programming, Algorithms, Machine learning, UI Design