Alex Shi

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Skills

Languages

C, C++

Java, Kotlin

Python

JavaScript, HTML, CSS

Frameworks / Tools

Node.js, React, Express

MongoDB, MySQL

Spring, Angular

Pandas, NumPy, Flask

CUDA, OpenMP, OpenGL

Other Skills

Git, Linux, Docker

Adobe Creative Suite

Awards

Canadian Computing
Competition Senior

50th / 2144 Competitors

Hack the North

Winning Team

York U Hacks

WolframAlpha Prize

ECOO-CS

Finalist Award

Experience

Software Engineer Intern - Deloitte

May 2019 - August 2019

- Built **blockchain** applications in **Kotlin** and **RESTful** backend services with **Spring** Framework, **Hibernate** ORM, and **H2** database
- Developed a highly-scalable **React** application using **Redux** and **React Router**
- Designed and implemented **Flask APIs** for **anomaly detection** using custom **machine learning** models in Python
- Maintained **npm** production builds and constructed a new deployment pipeline, resulting in a **700% wait time reduction**

Path Planning Engineer - Watnomous

April 2019 - July 2019

- Worked in a student team aimed at building a **level 4 autonomous vehicle**
- Created simulation input modules for **costmap** parameter tuning in **C++**
- Managed ROS (Robot Operating System) packages with **Git**

Hackathon Executive - Bloor Computer Science Club

September 2017 - May 2018

- Prepared students for ongoing hackathons and programming contests
- Taught lessons on **design thinking** and rapid prototyping techniques

Projects

N-Body Simulation | C++, OpenACC, OpenGL

- Built **GPU-intensive** heterogeneous applications with **OpenACC**
- Developed a physics engine for particle simulations rendered with **OpenGL**
- Achieved a **3300% performance improvement** compared to serial code

Node.js Chat Application | React, Bootstrap, Socket.IO

- Developed a modern, live chat application with **Node.js**
- Utilized **React** and **Bootstrap** for front-end development
- Enabled communication across multiple chatrooms with **Socket.IO**

Tetris Genetic Algorithm | C, Game Theory

- Developed a Tetris game engine and a Tetris playing AI from scratch
- Discovered **optimizing agents** and features using **multivariate testing**
- Trained a model capable of **clearing thousands of lines** in classic Tetris

FoodyRoomies | Node.js, Express.js, MongoDB

- Developed an app that allows roommates to share chores and grocery items
- Implemented Slack integration and receipt scanning for shared expenses
- Created **global pings** and **nagging UI** for scheduled deadlines

Education

Candidate for BA - Honours Computer Science (Co-op)

University of Waterloo

2018 - 2023