

JONATHAN BREIDFJORD

Software Engineer

University of Calgary – GPA 3.8

EXPERIENCE

Software Engineer

May 2022 – Oct 2022

- Lead development of **iOS** and **Android** applications based on existing **React** web application
- Reduced deployment workload by **90%** through **CI/CD** automation
- Interacted with clients to understand and shape project growth
- Developed multiple web applications, gaining experience with many technologies, primarily **TypeScript**, **React**, and various packages

Polyfill Software

Software Team Lead

Oct 2021 – Current

- Designed **PostgreSQL** database for storing large amounts of timeseries sensor data collected from vehicles in real time
- Handled batched insertions for over **10,000** data points per second from **Redis** cache to database
- Utilized **Python** with **FastAPI** to implement backend routes for data processing and retrieval
- Used **TypeScript** and **React** to dynamically display data collections, handle **CRUD** operations, and to process data for analysis and export

Schulich Racing

VP Technology

May 2022 – Current

- Spearheaded initiative to modernize ESS systems through automation and digitization, improving council efficiency into the future
- Utilized **Python** to automate tasks related to organizing events, reducing workload for non-technical council members
- Lead technology portfolio in supporting council operations through website management and development

Engineering Students' Society

Software Systems Developer

Oct 2021 – May 2022

- Lead development of a **Python API** to store and retrieve sensor data in a **MongoDB** database
- Implemented socket connections to handle scalable, asynchronous data transfer with **ZeroMQ**
- Worked with multidisciplinary teams to understand requirements and priorities when designing routes and models

Relectric Car Team

Boatswain - Sailor 2nd Class

May 2016 – May 2021

Royal Canadian Navy

- Learned hands-on applied skills including small boats operations, weapons handling, communications, and maintenance of weapons & small boats
- Developed a high level of **discipline** and refined ability to work under pressure
- Built **leadership** skill by assisting in training and direction of junior members

PROJECTS

WiredMinds

- Web-based, collaborative circuit editor
- Real-time collaboration using **WebRTC**
- Combinational and sequential logic simulation
- React frontend with Go server for database connection

Evolution Simulation

- Neuroevolution built in Rust
[GitHub](#)
- Uses a genetic algorithm to evolve the weights of a neural network
- Simulation compiled with **WebAssembly**, frontend built with **React**
- Genetic algorithm and neural network written as standalone libraries, and generalized to be reused in other projects

Chess Engine

- Core search built with Rust, game connections handled in Python
- Monte Carlo Tree Search algorithm with evaluation function
- Threaded to search multiple trees in parallel

Music Data Visualization

- Built in **React** with **visx** used to create plots
[GitHub](#)
- Fetches user data via **Last.FM API**
- Caches data in **Firebase** to enable fast data fetching on return visits, creating an elevated user experience compared to similar sites

SKILLS

- | | |
|--------------------|--------------|
| • Python | • TypeScript |
| • React | • Rust |
| • Data Processing | • Automation |
| • Machine Learning | • SQL |
| • DevOps | • Git |
| • Neural Networks | • CLI |

AWARDS

1st Place	2022
Calgary Hacks	
Best User Experience	2022
Hack the Change	
Freshman of the Year	2022
Schulich School of Engineering	
1st Place - Jr. Programming	2021, 2022
Schulich Engineering Competition	