Xander Naumenko

Software Developer · UBC Engineering Physics Student

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Summary

Languages: C, Python, C++, JavaScript/TypeScript, HTML/CSS, Java, Swift, C#

Tools & frameworks: Git, React, Electron, TensorFlow, Make, CMake, GDB, Altium

Education

University of British Columbia
Vancouver, BC

BASC in Engineering Physics — *September 2019 - May 2024 (expected)*

- Cumulative average of 91.7% (4.33/4.33 GPA equivalent) over all classes, expected graduation in May 2024
- Currently on track to complete a minor in honours math

Experience

Tesla
Palo Alto, CA

Firmware System Validation Intern — *May 2022 - December 2022*

- Led development of firmware of custom PCB enabling system level regression tests of vehicles, using C, Make, gdb and STM32 HAL
- Wrote driver code for onboard peripherals including I2C ADCs, digital potentiometers, servos, PWM outpus and others
- Reduced CAN bus load by 80% by refactoring firmware codebase and CAN interface, additionally making the system more modular

UBC Rocket
Vancouver, BC

Software & Electronics Team Lead — *September 2019 - May 2022*

- Directed a team of 5 developers to design software, firmware and electronics for rocket going to 100km high
- Wrote large scale firmware codebase completely from scratch in C, using FreeRTOS, MCUXpresso and CMake
- Developed ground station software responsible for communicated with onboard electronics over radio, written in Python using PyQt

Spot Solutions
Vancouver, BC

Software Development Intern — *May 2020 - August 2020*

- Singlehandedly recoded Bella Project app in Swift from Java to create iOS version with Unity plugin integration
- Designed a custom PCB and enclosure to record and report data back to above app, reducing space taken by apparatus by 60%
- Decreased internal process times by 10 hours per month by writing a .NET Core web application in C# to automate repetitive tasks
- Responsible for sysadmin duties including setting up Proxmox environment and migrating SQL databases across hosting platforms

TRIUMF Particle Accelerator
Vancouver, BC

Research Intern — *January 2021 - May 2021, July 2019 - August 2019*

- Conducted precision magnetic field maps of important components to reduce experimental uncertainty of the multi-year experiment
- Lowered magnetization uncertainty of components by 70% by implemented python models to reconstruct original magnetization
- Reduced magnetization reading times by 30% by writing graphical user interface with PyQt for a custom gradiometer

Technical Projects

Simulated Autonomous Driving Competition
Python, TensorFlow, Keras, ROS, Gazebo, OpenCV — *September 2021 - December 2021*

- Created an AI to drive a car around a simulated street and read license plates as part of a student competition, report here
- Trained CNN to recognize license plates using TensorFlow and custom data test data generation scripts
- Developed computer vision driving algorithm for navigating course as well as avoiding other cars and pedestrians using OpenCV

GoodKnight
TypeScript, Electron, React, Node — *July 2021 - January 2022*

- Chess database software made as a personal project with source code available on Github
- Used Electron and React to develop front end with a interactive game playback and chess engine analysis

smarty Neural Network Framework
C++, Make — *July 2022*

- A neural network written completely from scratch in C++ without any external libraries (even for linear algebra), guides or tutorials
- Project github page here, implements a feedforward neural network and backpropogation based gradient descent learning

tiaraOS (TiaraOS Is A Recursive Acronym Operating System)
C, x86 Assembly, Make, Bash, — *May 2022 - June 2022*

- Completely custom hobby operating system called tiaraOS targetting x86
- Implements VGA output, paging and higher half kernel and work on both QEMU emulator and physical x86 machines