Brian Sun

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Education

University of British Columbia Sep 2019 – May 2024 (Expected)
Bachelor of Applied Science in Engineering Physics *Vancouver, BC*
Coursework: Applied Linear Algebra, Software Construction, Machine Learning, Math Proof, Instrument Design

Skills

Languages: Java, Python, C++, JavaScript, HTML/CSS, Bash, PowerShell
Frameworks: React, Node.js, Spring Boot, MongoDB, PyQt, ROS, OpenCV, JUnit, GTest
Tools/Environment: Git, Azure, Linux, VS Code, Visual Studio, IntelliJ, Jupyter, Arduino IDE

Experience

Software Engineer Intern (Incoming) May 2022 – Aug 2022
Amazon *Vancouver, BC*
- Scheduled to complete a 4-month internship at Amazon Web Services on the Elastic Container Services team

Site Reliability Engineer Intern Jan 2021 – Apr 2021
Oxford Properties Group *Toronto, ON*
- Developed scalable and well-tested automation code using Python and PowerShell and deployed on Azure DevOps
- Improved offboarding process efficiency by 200% using a PowerShell script with ServiceNow integration
- Revamped security across DevOps code base of over 8000 lines by implementing Azure Key Vault authentication
- Managed projects of 10 other developers following Agile principles, using Jira to organize work

Software Developer Sep 2020 – Present
UBC Thunderbots Design Team *Vancouver, BC*
- Developed soccer-playing AI in C++ and a simulation visualizer using PyQt while working with 15 students
- Designed a PyQtGraph visualizer in Python to watch robot AI play soccer in real-time, with features like toggleable layers and real-time logging messages
- Increased code coverage of firmware primitives by 35% by writing unit tests using Google Test framework
- Implemented a macro to duplicate tactic classes, reducing development time of new tactics by 100%

Projects

Self-Driving Car Simulation | *Python, ROS, OpenCV, TensorFlow, Linux* Jan 2022 - Feb 2022
- Developed algorithm in Python using OpenCV for lane following, traffic avoidance, and pedestrian detection
- Trained a convolution neural network using Keras framework against 1000+ data points to identify license plates
- Built robot model and simulation in ROS and implemented 3 plugins such as a camera
- Tested and evaluated over 15 PID and reinforcement learning driving algorithms in Gazebo

NwHacks 2022 | *React, Spring Boot, Node.js, MongoDB, Auth0* Jan 2022
- Developed full-stack web application serving as a learning platform while working in a team of 4
- Spearheaded front-end design with React and created over 10 components, including a multiple-choice quiz editor
- Developed RESTful APIs to serve the React front-end, and which interact with a MongoDB database
- Implemented Auth0 API to authenticate users, which allows for a personalized UI

Sample-Retrieving Robot | *C++, STM32 BluePill, VS Code, PlatformIO* May 2021 - Aug 2021
- Led a team of 3 in designing and fabricating a robot, including its embedded software, chassis, and circuits
- Developed a Finite State Machine software model in C++, allowing robot to transition smoothly between driving, pick-up, and drop off states
- Implemented a PID driving algorithm that takes input from 2 sensors and enables robot to follow a black line
- Placed 3rd place out of 16 teams in final competition based on robot performance

Virtual World Simulation | *Java, JUnit, IntelliJ* Sep 2020 - Oct 2020
- Built Java program that supports a virtual 2D world in which 10+ entities interact with one another
- Developed AI for fox and rabbit entity to maximize survival rate and scored in the top 25% of the course
- Wrote unit tests using JUnit for over 8000+ lines of code and used a GUI to visualize the world