Brian Sun

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Education

University of British Columbia Vancouver, BC
Bachelor of Applied Science in Engineering Physics *Sep. 2019 - May 2023 (expected)*
Coursework: Engineering Instrument Design, Software Construction, Signal Processing, Laboratory Electronics

Skills

Programming: Java, C, C++, Python, JavaScript, PowerShell, Matlab
Tools/Environments: Git, Azure, JUnit, GTest, Node.js, Visual Studio, VS Code, PyCharm, IntelliJ, PlatformIO
Electrical: Microcontrollers, Circuit Design, Soldering, Oscilloscope, Multimeter, Prototyping
Mechanical: SolidWorks, Hand Tools, 3D Printing

Experience

Site Reliability Engineer Co-op Jan. 2021 – April 2021
Oxford Properties Group *Toronto, ON*
- Developed and maintained automated scripts using Python and Powershell and deployed on Azure DevOps.
- Automated employee off-boarding using a script to improve process efficiency by up to 200%.
- Renovated 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++ on Linux OS while collaborating with over 15 developers.
- Built unit testing frameworks using GTest for firmware primitives to increase code coverage by 35%.
- Implemented a view reset button for robot simulator, improving debugging efficiency by 25% for software team.
- Revamped playing tactics to follow competition rules, making robots drive slowly when referee stops game.

Projects

Sample-Retrieving Robot | *C++, STM32 BluePill, VS Code, PlatformIO* May 2021 - Aug 2021
- Designed and fabricated 3 autonomous robots including writing software, designing and soldering controller boards, and manufacturing mechanical parts.
- Developed a Finite State Machine software architecture, allowing robot to drive, operate arm, and drop-off cans.
- Implemented and tuned a PID driving algorithm to read from 2 sensors and make robot follow a tape path.
- Placed 3rd place in final competition out of 16 teams based on robot performance.

Discord Bot | *JavaScript, Node.js, VS Code* Dec 2020
- Developed a Discord bot using JavaScript on VSCode to interact with the Discord API and moderate 2 servers.
- Incorporated over 5 functionalities such as displaying menus, math calculations, and custom replies.
- Analyzed documentation of discord.js library to debug and ensure the implementation is correct.

Virtual World Simulation | *Java, JUnit, IntelliJ* Sep 2020 - Aug. 2020
- Built Java program that supports a virtual world in which 10+ entities interact with one another on a 2D field.
- Developed artificial intelligence for fox and rabbit entity to maximize survival rate in simulation, scoring in the top 25% of the competition.
- Wrote unit testing frameworks using JUnit for over 8000+ lines of code and used a GUI to visualize the world.

Analog to Digital Converter | *MATLAB, Oscilloscope, Wave Generator, Multimeter* Oct 2020 - Nov 2020
- Designed, prototyped, and constructed a voltage analog to digital converter circuit using discrete electronics components.
- Utilized electronic lab tools to troubleshoot circuit and record over 8 measurement samples.
- Recorded lab data and design process on a 22 page document on MATLAB Live Editor.

Interests

Robotics • Travelling • Badminton • Hiking • Musical Instruments