Isaac von Riedemann

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OBJECTIVE

Looking for a collaborative job environment with opportunities to improve my skills, as well as learn new ones.

SUMMARY OF SKILLS

- Strong problem solving skills and a strong ability to apply learned information to novel situations
- Experienced with many programming paradigms including OOP, Event Oriented and Functional programming
- Experience with following programming languages: C/C++, Python, Matlab, R, Java
- Experience developing in and for multiple OS including: Mac, Windows, Ubuntu, Fedora, Rasbian
- Experienced with version control like Git and bug tracking software like Jira
- Strong troubleshooting ability and ability to compartmentalize large systems into small pieces to hunt down bugs
- Can communicate efficiently and effectively within a fast paced and complex environment
- Experience with microcontrollers and development board like esp32, arduino, pc104
- Proficient in Electrical assembly using techniques like Soldering and Crimping as well as testing with multimeters
- Proficient in various communication protocols such as Serial, CAN, UDP/TCP as well as reading electrical sensors and driving small electrical components such as motors, leds, temperature sensors and various others

Education

SFU Undergraduate Computer Science student | 2020-Current
BC Achievement Scholarship | 2020
High school diploma from Saint Thomas Moore with honours | 2020

Relevant Experiences

- Tested, ran and improved custom microscope system using microcontrollers |BC Cancer
- Leveraged AI specifically GAN's and various mathematical distributions to create simulation system |BC Cancer
- Tested embedded software system on custom Underwater Autonomous Vehicle | Cellula Robotics
- Designed Image Analysis QC pipeline for large data image set (>100GB) in Python | BC Cancer
- Wrote checksums and encoding using NMEA serial protocol to control Microfluidics system | BC Cancer
- Various personal projects including building an electric skateboard, refurbishing and building several PC's

Previous Work and Volunteer Experience

- B.C. Cancer Research| Co-op May-Dec 2022, Part-time Jan-April 2023
  - Lead engineering development on novel gene imaging technique
- Cellula Robotics | Co-op Summer 2021
  - Helping to build and troubleshoot new company autonomous underwater robot
- STMC Cansat
  - Worked on Electrical; soldering and testing
  - Made it though design phase and were in fundraising when Covid happened
- Pedalheads Bike Camps | Volunteering Summer 2016-17 Working 2018-19
  - Supervising and teaching children how to ride bicycle
- STMC Yearbook | Sept. 2019-Jun. 2020
  - Was a graphic design artist in charge of creating several yearbook pages about school clubs
  - Interviewed The club leaders and members to create write ups about the clubs

References can be provided on Request.
In depth Summary of Skills with focus on projects on next page

Electric SkateBoard

In grade 10 a friend and I decided that we really hated walking and our lives would be improved by having electric skateboards. Instead of paying $1500 each to get brand new prebuilt boards, we decided that it would be more economical to build the boards ourselves. It was a great learning experience and we succeeded in our goal of building the board for much cheaper: roughly $500, a third of the cost of the prebuilt. Since this was both my first electronics and engineering project, I learned a lot about specifically:

- Communicating problems and possible solutions effectively and efficiently
- the difficulty of balancing cost with performance
- Problem solving and learning and thinking on my feet
- Testing and a project you built and deciding where improvements could be made

Currently my friend and I are working on a heavy redesign focusing on increasing the torque of our motors and adding off-road skateboarding trucks to facilitate a smoother ride on the hilly and bumpy vancouver roads. I'm focused on the software side and am designing an arduino based control system for the skateboard.

Testing and Assembling Custom Robot at Cellula Robotics

At my first Co-op I was part of a team of three doing integration testing of the mechanical, electrical and software system of a custom robot designed for inspecting and measuring the degradation of oil/gas tanks. The technologies in question we were testing include:

- Network and ethernet communications including
    - UDP data for data acquisition and diagnostic information from the robot
    - Network video including a POE camera system modifying a consumer product
    - A timekeeping system using the Network Time Protocol
- Distributed computer communication
    - Serial communication between various microcontrollers and full OS on SBC
    - Maintaining Maritime communication protocol standard
    - Syncing and maintaining time between computers down to the microsecond
- Controlling motors and different sensor systems
    - Calibrating and communicating with different sensors and radar system
    - Sending correct PWM and reading hall effect sensors for motor speed and position
    - Testing output of all systems to ensure it matches customer targets

The testing workflow was that we would test the system in parts, narrowing down bugs and strange behavior and then categorize them into the teams that would be best suited to fix them. I represented the software team and worked closely with the electrical team as well. So for any software bug I would coordinate with the software team and discover the cause of the bug and find a solution which I would then implement and re-test the system. The big skills I took away from this project were recording and maintaining a database of all found issues and whether they were solved and logically trying to isolate a problem and solving it without damaging the stability of the product.