Sina Haghighi

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Technical Skills

Software:

- C/C++, Python, JavaScript
- MATLAB: design process and data analysis
- LTSpice: Circuit design
- VHDL: Digital Logic Design
- Eagle and KiCAD: PCB development
- SolidWorks, AutoCAD
- OS: Windows, MacOS (OS X), Linux
- Libraries: PyQt5, Qt, Tkinter, SQLite3

Hardware:

- Understanding of electronic circuits
- Proficient with oscilloscopes, function generators and digital multimeter
- CV, EIS and FTP scan analysis
- PCB Assembly and Troubleshooting
- SMD and THT Soldering
- FPGA Design and Integration
- 3D Printing

Technical Projects

Vending Machine Controller — Aug 2020
Fundamentals of Digital Design & Logic, SFU Burnaby, BC

- Developed Controller using VHDL and programmed multiple modes for various functionalities
- Devised solution using FSM's and ASM's and tested thoroughly for efficiency

LED Dice — Dec 2019
Introduction to Electronics, SFU Burnaby, BC

- Constructed an LED dice using a pseudo-random number generator
- Manipulated surface-mounted and through-mounted components onto a PCB board

Page-Turning Book Scanner — Oct 2019 – Dec 2019
Engineering, Science and Society, SFU Burnaby, BC

- Designed a page-turning robot that can scan and digitize reading material using an Arduino
- Managed a group of students in teams and worked collaboratively with software and mechanical teams to ensure a smooth development of the product
- Developed a business plan comparing it to conventional digitization methods to emphasize the time and cost efficiency of the system

Technical Competition

Big Data Challenge - Finalist — May 2021 – July 2021
STEM Fellowship, Burnaby, BC

- Participated in assessing misinformation spread about infodemiology and to devise a solution
- Our solution analysed the effectiveness on preventative measures on the spread of misinformation regarding COVID-19 vaccines
- Characterised our findings using Python and created a manuscript that reached finals

Think Tech Case Competition — Oct 2019 – Nov 2019
Deloitte, Vancouver, BC

- Led a team of students from diverse backgrounds to develop an Open Banking solution for HSBC
- Designed an open banking interface where clients can view and manage all their financial information in a simple dashboard
- Modelled a business strategy to capitalise on the technology by implementing it within the HSBC online ecosystem and attracting a broader range of clients
- Became finalists in the HSBC-sponsored Case Competition and earned an honourable mention

Technical Extracurricular Activities

Unmanned Ground Vehicle – Team Captain and VP Operations Mar 2020 – Present
Team Guardian SFU, Burnaby, BC

- Configured ultrasonic sensor to signal drive controller on proximity and prevent collisions
- Led and managed the rover team of twelve engineers through assigning tasks and administering weekly meetings and communicating progress with cross-functional teams
- Designed a chassis and water-resistant body to house external sensors and other electronics

Aerial Camera – Software Team Nov 2019 – Feb 2020
Team Guardian SFU, Burnaby, BC

- Programmed a live feed from drone camera to a computer through a Bluetooth signal
- Completed the project in a timely manner and ensured the camera functioned reliably

Self-Directed Project

Engineer Tool App May 2021 - Present
Coquitlam, BC

- Designed and developed a cross-platform mobile application using React Native to receive information about an ESP-32 MCU

Work Experience

Software Developer Sep 2021 – Present
Ballard Power Systems, Burnaby, BC

- Designed the research team's Results Database Application to collect, store, and aggregate data from tests
- Developed using Python and the PyQt to handle GUI elements, and interfaces with database using SQLite driver
- Practiced a MVC design for the application and employed object-oriented design principles throughout development
- Extended functionality to visualize data with integrated plotting and crunching capabilities

Electrodes Research Co-op Jan 2021 – Aug 2021
Ballard Power Systems, Burnaby, BC

- Performing tests on cathode catalyst of STC fuel cells and characterizing properties using data CV and EIS scans and presenting to R&D team
- Specialized in the analysis of carbon corrosion and platinum dissolution on catalyst surface
- Design and develop database management system to store and aggregate data from benchmarking tests
- Increased testing capacity by automating stations using proprietary testing software

Education and Achievement

Bachelor of Applied Science — Engineering Science Sep 2019 – Present
Simon Fraser University, Burnaby, BC

- Expected Graduation — September 2023
- CGPA: 3.6/4.33

District Authority Award in Design and Technology Sep 2019
School District 43 (SD43)

Interests

Cooking

- Casted to appear on cooking show Chopped Canada Teens