

Summary of Skills

- Proficient in Python, C, Arduino, ROS, Git, Docker, Linux Systems, and Matlab.
- Experienced with Artificial Intelligence and Machine Learning in building Neural Networks, Statistical Models and Transformer Models.
- Experienced with physical prototyping, including CAD modelling, power tools, oscilloscope probing, soldering, and 3D printing.
- Skilled in business practice, from running a freelance business, working as an administrator, project management and competing internationally in DECA.

Education

- **Queen's University** Kingston, ON
Mechatronics and Robotics Engineering, BASc; GPA: 3.650 Sept. 2021 – Present
 - **1st & 2nd Year - Dean's Scholar:** Maintained a GPA greater than 3.50 for the duration of the school year.
 - **Queen's University Excellence Scholarship:** Awarded based on academic excellence to students entering the first year of a direct-entry undergraduate degree program at Queen's University.
 - **Relevant Courses:** Mechatronics and Robotics Design II, Computer Architecture, Signals and Systems, Electronics II, Digital Systems, Complex Analysis, Differential Equations, Data Structures and Algorithms
 - **Skills Obtained:** MatLab Coding, SolidWorks CAD, Fusion 360 CAD, ROS Integrations, Arduino Programming and Prototyping (ESP32), C Programming, Python Programming, Professional Report Writing, Documentation

Technical Projects

- **NEAT AI - Pong:** Built a genetic algorithm which learnt to play and master the game of pong. The algorithm took 18 hours to train and will win 98.2% of the time against human opponents.
- **Code Vulnerability Detection:** Built a Programming Language Processing project using transformer models and Machine Learning to detect vulnerabilities in code written in C or PHP. The model is 60% accurate on our test set.
- **Autonomous CO2 Monitoring System:** Created and programmed a rover that will map a room with LiDAR in 2D and create a heat map of the CO2 data to give an employer an idea of the indoor air quality. This was accomplished using ROS, Arduino, Python, Raspberry Pi, and a custom controller. The rover is semi-autonomous and can remotely map the space and display the results to the user over WiFi.
- **Worksheet Generator:** Automated the process of making worksheets using a Python script and LaTeX to generate word problems with variable parameters and a solution sheet. I used this software as a tutor to generate 100 worksheets and saved +75 hours.
- **Ambient Lighting:** Created a script that would sample the median colour on a desktop computer and send the hex code over an API to LED strips to make the room fit the theme of the monitor.
- **Camera Unloader:** Created an autonomous photo manager for my Canon camera. Once the SD card is inserted, it will grab the photos, organize by file type, and wrap them in a dated folder to match my personal organization structure. This project has been integrated with my personal NAS storage to create an autonomous photo backup server while my laptop is on my home network.

Experience

- **QMIND (Disruptive Technology Organization)** Kingston, ON
Project Manager June 2023 - Present
 - **Planning & Organization:** Developed multiple statements of work, a timeline for the project, contingency plans, and a method of execution to ensure project success.
 - **Leadership:** Taught my general members about AI and Python programming fundamentals, guided the project's development and aided the members' struggles.
 - **Modern NLP Techniques:** Developed the project using cutting-edge technologies. (Deep Learning, Transformers, Neural Networks, Generative Text-to-Text)

- **Formal Training:** Completed an Introduction to Machine Learning Fundamentals course by the University of Washington on Coursera.

- **QMIND (Disruptive Technology Organization)**

Kingston, ON

Innovation Design Team Member

Sept 2022 - Apr 2023

- **SciKit-Learn:** Used SKLearn to tokenize the code files, build, train, and implement Naive Bayes and Transformer models. SKLearn was also used in the earlier stages to build a Neural Network.
- **Data Parsing:** Built programs in Python which parsed a dataset of over 250,000 code files. The output included the file path, unique ID and tag for the training set.
- **Debugging:** Fixed problems regarding data fitting, model issues, and supervised training using strategies such as modular functions, collaborative efforts, and reading documentation.
- **Communication and Teamwork:** Coordinated tasks with group members to work effectively and distribute the workload in a way that played to the strengths of each member.

- **Freelance**

Toronto, Ontario

Marketing Consultant

Mar 2020 - Apr 2021

- **Websites:** Built and deployed websites using HTML, CSS, JavaScript and WordPress.
- **Photography:** Took personal headshots, product shots, corporate headshots, album covers, and industrial photography.
- **Graphic Design:** Created logos, branding schemes, social media posts, mailing list templates, and document templates.
- **Social Media Management:** Managed and automated social media pages, created content, and increased online client engagement.
- **Client Outreach:** Automated mailing lists using Python and MailChimp.

- **Physioactive Orthopaedic and Sports Medicine Clinic**

Thornhill, Ontario

Office Administrator

Summer 2019 and 2020

- **Customer Service:** Scheduled clients, booked appointments, and ensured customer satisfaction.
- **Digitization:** Converted physical medical files into digital files and created a digital COVID pre-screening form.

Informal Experience

- **Home Automation:** Used open-source technologies (HASS.io) to set up a home server using Linux and Docker, which manages, maintains, and automates smart devices and systems within a WiFi Network;
- **Custom PC Builds:** Assembled and configured custom PC builds for clients with varying difficulty and complexity to ensure clean wire management, efficient cooling and a clean aesthetic.
- **3D Printing Designs:** Created various projects in 3D CAD software, such as Fusion 360 and SolidWorks, to create custom parts and devices for personal use.
- **Computer Repair:** 8+ years of experience in computer repair ranging from hardware replacements, software repair, remote support, BIOS repair, component upgrades, virus cleaning, and data recovery.