Will McIntyre

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Skills

Software
Languages: Python, C, C++, JavaScript, SQL (MySQL, SQLite), HTML5/CSS3, Java, C#
Tools: Vue.js, Nuxt.js, React.js, Supabase, Flask, Git, Bash/Shell, Linux, Agile Development, ASP.NET, GCP, AWS, Node.js, AJAX, jQuery

Hardware & Manufacturing
Tools: SOLIDWORKS, GD&T, PCB Construction, ERP Software, AutoCAD, PIC Microcontroller Programming
Methodologies: VSM, Process-Flow Analysis, LEAN Manufacturing

Professional Experience

Full Stack Developer, *Workplace Safety Insurance Board Innovation Lab* 09/2024 – 12/2024 │ Toronto, Ontario
- Led the **API design and development** of a document management system for WSIB's return to work specialists, handling over **12,000 accommodation documents.**
- Architected a relational database schema in **Microsoft SQL** on **Azure**, improving response time by **322%** through optimized query design.
- Integrated **image processing** and used **OpenAI API** to automate document parsing, reducing total processing times to **<10 seconds**.
- Developed a modular frontend **using React**, integrating the API to provide specialists with real-time access to documents and insights.

Software Developer, *Siteability* 02/2024 – present │ Waterloo, Ontario
- Supported early stage initiatives of a real estate development SaaS **startup** with **$40 000+** of pre-seed funding.
- Oversaw the development of an ADU drawing tool using **Mapbox GL** in a **Nuxt.js /Vue.js** web application that enables users to draw and customize **>100** ADU configurations.
- Implemented **15 external APIs** and internal data on over **47 000** homes to design an **algorithm** for displaying relevant parcel data to developers.

Performance Test Developer, *NCR Voyix* 01/2024 – 05/2024 │ Waterloo, Ontario
- Engaged with the Passport digital banking team, contributing to **30+** bug fixes and feature additions across various applications utilizing **Java**, **JSF**, and **React.js**.
- Conducted and developed **JMeter** performance test scripts in a Docker-Kubernetes environment, seeing CPU and memory performance metrics improve by **25%.**
- Automated performance test data collection using **Python**, significantly reducing manual effort and improving efficiency by **50%.**

Process Improvement and Design Engineer, *Metalumen Manufacturing Inc.* 05/2023 – 08/2023 │ Guelph, Ontario
- Overhauled manufacturing production workflows and mechanical designs, resulting in annual savings over **$85 000** and **2200** working hours.
- Implemented **LEAN** manufacturing principles and redesigned lighting fixture components in **SOLIDWORKS** for standardization.
- Led the design, scaling and deployment of an automation application using **Python** and **VBA**, resulting in a **350%** reduction in time study analysis.

Projects

Mindfuel, *Flask Web Application, CLI* 🔗 08/2023 – 09/2023
- Conceptualized, designed, and developed Mindfuel, a **Flask**-based web application with a back-end CLI hosted on the **PythonAnywhere** cloud that sends inspirational quotes daily to subscribers.
- Leveraged modular OOP principles and integrated the **SQLAlchemy ORM** with a **MySQL** database for scalability, currently in use by **20+** subscribers.

HTTP Web Server, *Lightweight Static Server* 🔗 11/2024 – 01/2025
- Implemented a **multi-process** HTTP server in **C**, supporting concurrent client handling and automatic zombie process reaping.
- Utilized **POSIX APIs** for socket programming and TCP/IP communication to serve static files with appropriate HTTP responses, achieving response times of **under 50 ms** per request.

Multi-Threaded RTOS, *STM32F401RE* 🔗 07/2024 – 08/2024
- Implemented a **real-time operating system (RTOS)** with multi-threading capabilities using **C** for an **STM32 Nucleo board**, enabling concurrent execution of tasks.
- Developed a hybrid **scheduler** combining **yielding** and **time-based pre-emptive** context switching, optimizing task prioritization and CPU utilization.
- Designed a custom **memory allocator** for efficient thread initialization, managing stack allocation and context storage in **Thread Control Blocks (TCBs)**.

Firefighter Robot, *TEJ4UI, Laurel Heights Secondary School* 01/2022 – 06/2022
- Modelled and produced a robot **from scratch** capable of detecting, approaching and extinguishing a flame while navigating a maze.
- Integrated **IR** sensors and **ultrasonic** modules for precise wall and flame detection, using **DC motors** for efficient movement, and incorporated a **16x2 LCD** screen for real-time output and feedback.
- Streamlined **PCB** development and soldering while programming **PIC16f887 microcontrollers**, increasing time efficiency navigating the maze by **200%**.

Education

Candidate for BASc, Mechatronics Engineering, *University of Waterloo* 09/2022 – 04/2027 │ Waterloo, Ontario
- Paul Craven Engineering and Athletics Excellence Award 🔗, RWDI Engineering and Athletics Excellence Award 🔗, Amar Varma Volleyball Award 🔗, Ken Davies Memorial Award 🔗, President's Scholarship of Distinction.
- Demonstrated **leadership** as assistant captain on the **Varsity Mens Volleball Team** while training **25+ hours** a week and balancing academic classes.
- 91.36 Cumulative GPA
- 2x Academic All Canadian, 2024 Dean's Honour List