JACOB FOSTER

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Education

McMaster University, Hamilton, ON   **Sep. 2022 - May 2027**
Bachelor of Mechatronics Engineering   *cGPA - 3.86/4.00*

- **Relevant Coursework:** Data Structures and Algorithms, Embedded Systems and Microcontrollers, Analog and Digital Circuits, Software Development and Design
- Accolades: Faculty of Engineering Award of Excellence Scholarship 2022, Dean's Honours List 2022-2024.
- Involvement: McMaster SumoBot 2024 Group Champion, Deltahacks X, McMaster CAD Designathon Unified Engineering Challenge, Google Developer Student Club Member.

Experience

L3Harris Technologies - Wescam Division   **May 2024 - August 2024**
Manufacturing Engineering Co-op   *Waterdown, ON*

- Developed a software/firmware comparison web tool to capture current and previous build components of a WESCAM imaging device and automatically determine build status for repairs, **decreasing effective labour time from 20 mins to 1 min**. Built using **C#, .NET Framework, HTML, CSS.**
- Automated several test processes using **C#** to load, save, and unload calibration values onto devices and into test directories.
- Implemented an improved tooling management system for a lab of **100+ manufacturing technicians** using housing assemblies designed in **SOLIDWORKS.**

Decathlon   **December 2021 - April 2024**
Sales Associate   *Burlington, ON*

- Responsible for online sales management and verification, maintaining and ordering inventory, and providing knowledgeable and proactive customer service.

Projects

AllergyPal | *Python, Tensorflow, HTML, CSS, Javascript, Flask*   **September 2024**

- Designed a website that allows users input a list of dietary restrictions and use machine learning to detect potential hazards in their food.
- Trained a **machine learning model to detect over 100 different dishes** based on an image taken by the user in the site.
- Utilized the ChatGPT 4.0 API to retrieve common ingredients and food risks present in any given dish, which was then cross referenced with a user's dietary restrictions.
- Created a **REST API using Flask and Python** to call upon the image recognition model in real time upon a user's request.

Spinnick SumoBot | *Arduino, C++, Autodesk Inventor, Embedded Systems, Soldering*   **January 2024**

- Engineered and automated battle robot capable of perceiving environment features, attacking opponents, and evading attacks.
- **Developed C++ control algorithms for attack and evasion** based on various sensor readings.
- Assembled the bot's control mechanism using an **Arduino micro-controller, ultrasonic and colour sensors, and DC motors.**
- CAD designed and printed the bot's body using Autodesk Inventor.

OnTime – Student Scheduling Aid | *Python, Google Cloud Console*   **December 2023**

- Developed an automated script using **Python and Google Cloud Console** to notify myself of optimal time of departure for lectures based on real time traffic data.
- Utilized Google Maps and Google Calendar API to collect traffic data and calculate commute duration based on current position and location of lectures.
- Created a Twilio platform to send SMS messages to a user to ensure timely departure.

Technical Skills

Computing: Python, C, C++, C#, HTML, CSS, Javascript, Tailwind, React.js, MATLAB
Developer Tools: Git, GitHub, .NET, Tensorflow, VS Code, Visual Studio, JetBrains IDE, Node.js
Technologies: SOLIDWORKS, Autodesk Inventor, LaTeX, Adobe Photoshop, Microsoft Office
Manufacturing: Soldering, 3D printing, Drill press, Hand and power tools