

SHAAN SUTHAR

3rd Year Mechatronics
Engineering Student

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SKILLS

Software Development

- Python
- C/C++
- C#
- Javascript / Typescript
- HTML
- CSS
- Java
- SQL (MySQL, MSSQL)
- React.js
- Node.js
- Azure
- Git
- Visual Studio Code
- Visual Studio

Other

- Solidworks
- Matlab
- MS Office
- Multisim

EDUCATION

McMaster University - B. Eng
Mechatronics Engineering

📅 September 2021 - April 2025

Awards

- Dean's List 2022
- FIRST Engineering Scholarship
- Engineering Research Experience Award Scholarship
- Faculty of Engineering: Award of Excellence

WORK EXPERIENCE

Software Engineering Intern

Microsoft

📅 May 2023 - August 2023

📍 Redmond, WA, USA

- Created diagnostic tool to exponentially reduce the time it takes backend developers to search for missing URLs in the Bing Search main index containing **400 billion** documents
- Analyzed log files in **Bing's main repository** to consolidate certain information to monitor when a document got deleted
- Deployed the **C#** code to production and optimized the algorithms to reduce memory utilization, runtime costs, and downtime to outages
- Developed an **API** and integrated it into a web portal to allow others to easily check the history of multiple URLs

Explore Intern (SWE / PM)

Microsoft

📅 May 2022 - August 2022

📍 Remote

- Redesigned wiki page for a big data analytics tool used internally
- Built wiki using Docusaurus, a **React**-based static site generator
- Integrated **Azure AAD** authentication, light/dark mode, a chatbot, search functionality, and a dynamic landing page that customized to the user by querying a **MySQL** database for info on the user
- Developed website and chatbot in a **CI/CD** pipeline running on **Azure DevOps**, hosted on Azure, released into production, and improved on it based on user feedback

Stock and Options Trader

Self-Employed

📅 June 2020 - August 2021

📍 Ajax, ON, Canada

- Grew portfolio by **50%** by analyzing trends and price action of stocks in the NYSE, NASDAQ, Russell 2000s, and Dow Jones
- Bought and sold puts, calls, and spreads to generate profit while managing risk
- Coded indicators in **Thinkscript for ThinkOrSwim** and **Pine Script for TradingView** to identify when specific strategies occurred and automated sending a signal for it in each trading platform

PROJECTS

3D Printed Arduino Quadcopter and Controller

📅 October 2019 - November 2019

- Led a group of 4 to create a drone from scratch
- Used **CAD** to design the drone frame and **3D printed** it
- Custom-made and coded a flight controller and transceiver using Arduinos, sensors (**IMU**), and **C/C++**
- Used **PID** feedback loops to ensure stable flights

HACKATHONS

Happy RecycleMore

Deltahacks IX

📅 January 13-15, 2023

- **Won 2nd overall** out of **120 teams** and **400+ participants**
- Developed a recycling lid that used ML to classify items as garbage or recycling and sort them accordingly
- Utilized a **Tensorflow** model and **OpenCV** to determine the material and then send a signal to a servo to sort the material accordingly

FoodSnaps

Hack Western 9

📅 November 18-20, 2022

- Developed a mobile app using **React Native** to enable users to get recipe recommendations based on the ingredients they take a picture of
- Leveraged the **Spoonacular API** to accurately classify food ingredients from images and provide recipe recommendations

EYEs.py

Hack the North 2022

📅 September 16-18, 2022

- Developed an **eye tracking system** to record eye positioning and map it to a **2D matrix** to monitor where a user focus the most on a webpage or ad
- Utilized Adhawk's Mindlink eye tracking glasses for hardware integration and leveraged Adhawk's **Python SDK** for seamless data acquisition
- Implemented data visualization techniques using **Matplotlib** to generate heatmaps based on the collected eye tracking data

EXTRACURRICULARS

Microsoft Student Ambassador

Microsoft

📅 October 2022 - Current

📍 Hamilton, ON, Canada

- Completed Microsoft Learn AI learning path
- Hosted an event for 40 high school students that taught them how to use Github Codespaces to code in the cloud and the basics of web development and how to host and deploy their website on Github Pages

Suspension & Steering Subteam Lead / Past Chassis & Ergonomics Subteam Member

MAC Formula Electric (FSAE Competition)

📅 October 2021 - Current

📍 Hamilton, ON, Canada

- **Promoted to lead** a team of 15 to design and manufacture the suspension and steering system for a 1/4 scale electric F1-style race car
- Collaborated with others to calculate ideal spring rate and travel for the suspension using **Excel**
- Optimized four bar suspension arm dimensions using **MatLab**
- Designed the front and rear bellcranks for the car to optimally transfer motion of the wheels to the spring-damper system
- Optimized bellcrank design for manufacturing and weight
- Validated design through **FEA** using **Solidworks Simulations**
- Manufactured carbon fibre panels and monocoque
- Completed various structural tests (ex. 3-point bend test) on parts to prove car safety

Current Mentor / Past Team Captain & Head Driver

FIRST Robotics Competition (FRC Teams 5076 and 6110)

📅 January 2019 - Current

📍 Ajax, ON, Canada

- **Mechanical lead** and head driver for the team of 30 for 2 consecutive years and **co-team captain** in 2020
- Designed using CAD, prototyped, manufactured, and tested the intake, indexer, and shooter on the robot
- Coded the robot's **autonomous** and **tele-operated** modes in **Java**
- Currently mentor high school students in the competition through workshops and weekly design reviews