

# Darsh Shah

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## Skills

**Languages:** Python, C, C++, JavaScript, SQL, HTML/CSS

**Frameworks/Libraries:** OpenCV, NLTK, TensorFlow, Transformers, NumPy, Pandas, scikit-learn, React, Bootstrap, Bulma

**Tools:** Git, Vercel, Firebase, GraphQL, MySQL, Arduino, Figma, Jupyter Notebook, Linux, Bash

## Education

### University of Waterloo

Sep. 2023 – Present

Bachelor of Software Engineering, Co-op | **3.93 GPA**


Waterloo, Ontario

- Guo Family Engineering Scholarship and President's Scholarship of Distinction
- Relevant Coursework: Intro to Data Structures and Algorithms, Data Abstraction and OOP, Methods of Software Engineering, Linear Algebra, Linear/Digital Circuits

## Experience

### Software Developer

June 2022 – Aug. 2022

Nu Vision Metals 

Scarborough, Ontario

- Revamped the company site by performing UI/UX research using industry metrics, increasing **website traffic by 27%**
- Architected a GitHub Pages CI/CD pipeline for streamlined version control, reducing **deployment time by >50%**
- Produced cross-platform wireframes with Figma and CSS, utilizing A/B testing protocols to reduce **bounce rate by 24%**

### Programming Instructor

Sep. 2022 – Sep. 2023

City of Brampton

Brampton, Ontario

- Designed an easy-to-follow curriculum for an Introduction to Python course and proctored assessments for **50+ students**
- Created **10 theory-based projects** for a hands-on learning experience, achieving a **96% participant satisfaction**
- Evaluated **500 code submissions** with PyTest for automated testing, ensuring adherence to project requirements

### President


June 2022 – June 2023

WolfHacks

Brampton, Ontario


- Led **25+ members** in a cross-functional team to organize the Peel Board's largest hackathon, WolfHacks
- Crafted and presented compelling sponsorship proposals, securing over **\$50,000** in funding from Rogers and the CSA
- Coordinated prizes, merchandise, and venues for **800+ participants**, growing interest in the SciTech program **12% YoY**

## Projects

**Vibe**  | Python, React, NumPy, Transformers, Whisper API, Spotify Web API

Dec. 2023 - Present

- Integrated the **Whisper API** and **Twitter RoBERTa** sentiment model for an audio-based mood detection platform
- Engineered a **data pipeline** with HTTP methods to transmit analysis results for scalable client-server communication
- Launched a **React app** that recommends mood-personalized playlists from over **100M songs** via the Spotify Web API

**DetectGPT**  | Python, HTML/CSS, Flask, PyTorch, spaCy, GPT-2

Feb. 2023

- Developed a **LLM-content detector**, incorporating **NLP techniques** to detect AI-generated text with **87% accuracy**
- Calculated sentence perplexity by comparing **GPT-2** next-word predictions with inputted text to quantify text variability
- Evaluated burstiness by calculating perplexity deviation across sentences, **reducing detection error by 21%**
- Deployed **Flask server** to handle requests between the web UI and Python-based backend, ensuring a seamless UX

**ASL+**  | Python, Tensorflow, OpenCV, Jupyter Notebook

Jan. 2023

- Built an ASL interpreter with a **500 image dataset**, optimizing data preprocessing with the **SSD MobileNet platform**
- Implemented transfer learning with the TensorFlow Object Detection API and OpenCV, achieving an **accuracy of 82%**
- Enhanced ASL recognition by **training a supervised model** on the alphabet and daily phrases, increasing accessibility

## Awards

**Recipient** | Governor General's Academic Medal: *Government of Canada*

June 2023

**Recipient** | Science and Technology Award: *SciTech North Regional Program*

June 2023

**Semi-Finalist** | Loran Scholarship: *Loran Scholars Foundation*

Oct. 2022