

Mohammad Mahfooz

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Education

York University, Lassonde School of Engineering

Expected May 2025

Spec. Hons. Bachelor of Engineering, Software Engineering

Toronto, ON

- **Relevant Coursework:** Data Structures & Algorithms, Embedded Systems, Unix/C, OOP
- **Overall GPA:** 3.8/4.0

Experience

Software Engineer Intern

May 2023 - Present

Ontario Teachers' Pension Plan

Toronto, ON

- Designed and implemented an end-to-end transcription & insights service for incoming customer service calls using **OpenAI Whisper**, hosted on an **Azure Databricks** GPU cluster, resulting in enhanced call analysis accuracy and efficiency.
- Employed advanced **NLP** models/libraries including **GPT-4**, **BERTopic**, and **spaCy** to develop a microservice that extracted key insights and information from customer calls, enabling data-driven decision-making and improved customer support.
- Established a robust microservice architecture to orchestrate communication between the **GPU-clustered** transcription engine and the **AI-driven** insights extraction, ensuring high **scalability** and **reliability** for the transcription & insights service.

Software Engineer Intern

Oct 2022 - Jan 2023

YURide

Toronto, ON

- Implemented app front-end using **SwiftUI**, utilizing features such as custom gestures and animations.
- Developed app back-end using **Swift**, implementing custom data models and using **Core Data** for persistent storage.
- Built scalable server-side infrastructure using **JavaScript** and **Node.js**, and utilized **MongoDB** for efficient storage and retrieval of large volumes of data. Created custom **RESTful** APIs for seamless communication with the front-end.

Individual Contributor

Open Source Software

- Contributed patches to various **Linux** kernel drivers, improving stability with different hardware configurations. Reviewed and updated legacy code to incorporate modern coding best practices and to make the code more efficient and maintainable.
- Aided in porting **Solaar** (an open source device manager for Logitech devices) from Linux to macOS and Windows.

Projects

Cobra | Rust, LLVM, Cargo

- Developed **Cobra**, a robust and expressive statically typed programming language with a syntax inspired by **Python**.
- Implemented **LLVM** frontend compiler components including the lexer, parser, IR builder, JIT compiler, and driver in **Rust**.

CoverGPT | Python, LaTeX, GPT-3.5

- Developed an application that uses **GPT-3.5** to generate personalized cover letters for job applications.
- Implemented a user-friendly interface using **TKinter**, and **LaTeX** to format and compile the cover letter into a PDF.
- Received **10,000+** downloads on PyPi, a Python package repository.

YorkURMP | JavaScript, Node.js, GraphQL

- Developed a browser extension using **JavaScript** and **Node.js** to grab professor info (difficulty, rating, etc.) from RateMyProfessors and display it on VSB (Visual Schedule Builder) and the YorkU course portal.
- Implemented custom **GraphQL** schemas to pull professor data from the RateMyProfessors **API**.
- Received **1,000+** downloads across GitHub and the Chrome/Firefox Web Store.

Volunteer Experience

Team Lead

Sep 2017 – Jun 2021

VEX/FIRST Robotics #6977

Toronto, ON

- Oversaw controls development of the robot for the **Infinite Recharge** competition, using **C/C++**.
- Lead team to provincial semi-finals by developing a strategy to help compensate for a low budget.

Technical Skills

Languages: Python, C, C++, Rust, Go, Java, C#, JavaScript, TypeScript, Bash, SQL

Tools and Frameworks: Linux, Docker, K8s, Azure, Databricks, CUDA, Spark, Git, Flask, PyTorch, Transformers, Snowflake, Redis