

Rayan Ahsan

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EDUCATION

University of Toronto (St. George)

Toronto, ON

Bachelor of Applied Science in Computer Engineering + PEY Co-op

Expected Graduation Apr. 2028

Relevant Coursework: Object-Oriented Programming (C++), Data Structures and Algorithms (C++, C), Digital Logic Circuit Design (Verilog, FPGAs), Computer Organization (Assembly), Linear Algebra (MATLAB)

TECHNICAL SKILLS

Languages: Python, C++, C, JavaScript, TypeScript, HTML, CSS, MySQL, PostgreSQL, Assembly, Verilog

Frameworks and Libraries: React, Next.js, Tailwind CSS, Framer Motion, Redux Toolkit, Node.js, Flask, Django, pandas, OpenCV, TensorFlow, Keras, MATLAB

Developer Tools: Git, Firebase, Prisma ORM, Firebase, Microsoft Azure, Jupyter Notebooks, Figma, Intel Quartus Prime

EXPERIENCE

Project Manager, Engineering Strategies and Practice II

Toronto, ON

University of Toronto

Jan. 2024- Apr. 2024

- Designed a Google Home-based smart home system for P. Eng Client, integrating **15+ IoT** devices to automate **80%** of daily household tasks in a 3-story residential property.
- Led a 6-member team using **Agile methodologies**, achieving project milestones within a 4-month timeline, and developed detailed documentation to cut future installation time.

PROJECTS

IntelliCane – MakeUofT 2023 Hackathon Winner | [GitHub](#) | [Devpost](#)

- Developed an AI-powered smart cane to **assist the visually impaired**, achieving **81% object detection accuracy** by integrating **Arduino UNO**, **Raspberry Pi**, and Computer Vision technologies for real-time audio feedback.
- Programmed ultrasonic sensors on Arduino to detect obstacles within up to **4 meters**, triggering real-time alerts via piezo buzzers and portable speakers to **improve situational awareness** and prevent collisions.
- Implemented a **YOLOv8 Computer Vision Model** and trained a custom **Convolutional Neural Network (CNN)** on the Raspberry Pi's camera using **Python** to identify objects accurately.

RayStock – Full-Stack Inventory Management Dashboard | [GitHub](#)

- Built a **full-stack** inventory management web application with a focus on managing users and products and advanced data visualization.
- Employed **Next.js**, **Tailwind CSS**, and Recharts for a dynamic dashboard, implemented efficient state management and data fetching with Redux Toolkit, and developed a backend with **Node.js** and a **PostgreSQL** database using **Prisma ORM**.
- Delivered a scalable, visually appealing, and highly responsive application that streamlined inventory management processes, enabling seamless **CRUD operations** and insightful data analytics.

Pokedex – Full-Stack Interactive Pokemon Encyclopedia | [GitHub](#)

- Built a **full-stack** Pokedex application that enables users to view, compare Pokémon, and create custom lists
- Leveraged **React**, **TypeScript**, and SCSS for a dynamic front-end, implemented secure **Google Authentication through Firebase**, stored user data in Firestore for real-time updates, and used Axios to fetch and display Pokémon data efficiently from **external APIs**.

Speech Bot – Full-Stack Transcription and Translation Application | [GitHub](#)

- Developed a **full-stack** application that integrates advanced machine learning models for real-time speech-to-text transcription and multilingual text translation for **200+ languages**.
- Leveraged **OpenAI's Whisper-tiny.en ML model** for transcription and **Xenova's NLLB-200-distilled-600M ML model** for translation
- The application enables users to transcribe lectures, meetings, etc., download them into PDF/TXT formats and translate it to their preferred language, all through a responsive front-end built with **React and Tailwind CSS**.

CERTIFICATIONS

- Microsoft Certified: Azure AI-900 Certification
- IBM Applied AI Professional Certification (7 courses specialization)
- MATLAB Certified