

MD RAHMAT ULLAH KHAN

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SUMMARY

Computer Engineer trained at York University's Lassonde School of Engineering, building AI-powered, full-stack software. Experienced in computer vision research with PyTorch and OpenCV, integrating LLM APIs into web applications, and shipping TypeScript and Python projects with automated testing and CI/CD.

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, C, C++, SQL

Frameworks: React, Next.js, Node.js, Tailwind CSS

AI/ML: PyTorch, TensorFlow, OpenCV, NumPy, Weights & Biases, TensorBoard, OpenAI API, LLM integration, prompt engineering

Data: PostgreSQL, MongoDB, Power BI, REST APIs

Cloud/DevOps: AWS, Azure, Vercel, Git, GitHub Actions (CI/CD), Playwright

EXPERIENCE

Capstone Project Lead, York University

Toronto, ON | Jan 2026 – Apr 2026

- Led a 5-member engineering team building a cloud-based sales analytics dashboard that tracked store-level inventory, revenue, and customer behavior using SQL, Python, and Power BI.
- Designed and automated forecasting models breaking down sales trends and inventory flow by location, improving scenario planning and territory coverage optimization.
- Presented executive-style reports and visual insights to professors and stakeholders, translating data into actionable sales intelligence.

Undergraduate Research Assistant, Vision & Image Processing Lab, York University

Sep 2025 – Dec 2025

- Implemented a PyTorch HRNet pose-estimation pipeline on a multi-camera sports dataset, improving PCK@0.2 by 12%.
- Automated camera calibration and homography validation using Python, OpenCV, and NumPy, reducing preprocessing effort by 30%.
- Conducted hyperparameter sweeps with TensorBoard and Weights & Biases, reporting reproducible experiments to the principal investigator.

PROJECTS

TTC Pulse: Real-Time Transit Tracker with AI Assistant

Next.js 14, React, GTFS-Realtime, OpenAI API

- Engineered a Next.js 14 Progressive Web App that consumes GTFS-Realtime feeds to track Toronto (TTC) buses and streetcars live on interactive MapLibre GL maps.
- Integrated an OpenAI GPT-4o-mini assistant that answers natural-language rider questions about routes and transit.
- Built a responsive dark-theme design system with Tailwind CSS and Framer Motion for mobile-first use.

VolleyVision: Computer Vision System Design Tutorial

TypeScript, React, Python, Playwright

- Designed a proposed computer vision pipeline for volleyball footage (court calibration, object detection, tracking, contact and rally inference, human review) and built an interactive React/TypeScript site teaching it.
- Implemented a Python reporting module with input validation, missing-data accounting, and geometric court binning, covered by unit tests.
- Configured GitHub Actions CI running ESLint, builds, Python unit tests, and Playwright end-to-end tests.

FinanceTracker: Student Budgeting Web App

React, TypeScript, Vite, Chart.js

- Developed a React/TypeScript budgeting app with a setup wizard, income and expense tracking, savings goals, and Chart.js spending analytics, deployed on Vercel with CI build checks.
- Designed a GPT-4 Vision receipt-extraction module returning validated JSON transactions, gated behind a server-side boundary to keep API keys out of the browser.

LEADERSHIP

- **Technical Mentor:** mentored junior engineering students one-on-one and in groups on coding best practices, debugging, and Git version control.

EDUCATION

BEng, Computer Engineering, York University (Lassonde School of Engineering)

Toronto, ON