Shivansh Khullar

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Education

University of Waterloo — Expected April 2030
Bachelor of Applied Science in Computer Engineering — *Waterloo, ON*

Technical Skills

Programming Languages: Python, C++, JavaScript, TypeScript, SQL, HTML/CSS
Frameworks & Libraries: React, Node.js/Next.js, FastAPI, Flask, Tailwind, OpenCV, YOLOv8, Pandas, NumPy, Tensorflow
Tools: AWS, Google Cloud Platform, Docker, Git/GitHub, MongoDB, Railway, PostgreSQL, GraphQL

Experience

Founding Engineer — Aug. 2025 – Present
Rayat and Company Inc. — *Toronto, ON*

- Improved CRM data accessibility by **35%** through secure **Node.js**, **TypeScript**, and **GraphQL** API integrations, unifying data pipelines across **3+** dealership systems.
- Reduced preprocessing time from hours to minutes by optimizing **PostgreSQL** schema design and developing automated **XLSX validation scripts**, cutting duplicate records by **40%**.
- Deployed scalable backend services on **AWS Lambda** with RBAC and logging to enable real-time KPI tracking for **50+** dealerships, with infrastructure designed to scale to **100+** active users.

Autonomy Software Developer — Sept. 2025 – Present
Waterloo Aerial Robotics Group — *Waterloo, ON*

- Enhanced object detection accuracy by up to **20%** by researching and fine-tuning computer vision models using **Python**, **OpenCV**, and **ROS** for autonomous navigation in **SITL** simulations.
- Accelerated testing by **30%** through developing **sensor and GPS emulation modules**, improving the reliability of simulation-based validation for autonomous algorithms.
- Collaborated with **5+** subteam members to document findings and integrate validated perception modules into the autonomy stack, strengthening flight reliability and supporting scalable mission development.

Software Engineer Fellow — July 2024 – Sept. 2024
Headstarter AI — *Remote*

- Built multiple AI-driven web applications using **Flask**, **OpenAI APIs**, and REST architecture, including a task-classification platform that improved accuracy by **30%** across **6+** real-time endpoints.
- Optimized backend **API pipelines** for **1,000+** simulated requests by integrating preprocessing and caching workflows, achieving consistent sub-**200ms** latency during performance testing.

Projects

WatEats | *React, Tailwind, FastAPI, PostgreSQL* — Nov. 2025

- Developed a full-stack web app for Waterloo students that supports natural-language craving search using lightweight **NLP models** and **semantic similarity** techniques, improving menu accessibility for **1,000+** potential students.
- Automating ingestion of **90+** daily menu items via an **ETL pipeline** that scrapes, cleans, and refreshes data automatically, powering personalized, real-time menu recommendations.

SentinelAI | *Next.js, FastAPI, PostgreSQL, PyTorch, Docker* — Oct. 2025

- Built an AI-driven anomaly detection system analyzing **50,000+** log and network events to identify unusual login activity, traffic spikes, and file/process anomalies, improving early threat detection accuracy by **27–35%**.
- Developed a full-stack monitoring platform with real-time log ingestion, alerting APIs, and interactive dashboards, reducing manual security review workload by **40%** and enabling security teams to audit incidents **2x** faster.

PredictPL | *Python, Pandas, NumPy, Scikit-learn, Matplotlib* — Sept. 2025

- Designed an end-to-end ML pipeline analyzing **1,300+** Premier League matches using rolling averages and feature encoding to enhance predictive reliability and data insights.
- Trained and tuned ensemble models achieving **∼61%** accuracy, visualizing feature importance and match outcomes through interactive dashboards for data-driven evaluation.

Certifications

Machine Learning Engineer (**Google**) — Oct. 2025
Advanced Generative AI for Developers (**Google**) — Sept. 2025
Cloud Practitioner Essentials (**AWS**) — Sept. 2025
CS50's Introduction to Programming with Python (**Harvard University**) — Aug. 2024