Ishan Shah

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Education

University of Waterloo **Sep. 2025 – Apr 2030**
Bachelor of Computer Science

Experience

IPMD **July 2025 – Sept 2025**
Software Engineer | Python, Flask, React *San Mateo, CA*
- Replaced custom auth logic with **Flask-JWT-Extended**, centralizing token management across **10 endpoints** and resolving registration edge cases.
- Modularized frontend by extracting **5+ reusable components**, reducing code duplication by **30%** and accelerating future feature development.
- Built a **React chat interface** integrated with an **AI emotion analysis endpoint**, enabling real-time sentiment visualization and smoother user interaction in demo interactions.

The Knowledge Society **Sept 2021 – Jun 2022**
Innovator | Python, Tensorflow *Toronto, ON*
- Built and deployed **CNN models** for image classification (e.g., rock-paper-scissors), achieving **92% accuracy** and validating models on multiple datasets.
- Partnered with Walmart to analyze supply chain challenges and identify optimization strategies, delivering a presentation with actionable solutions for inventory and logistics improvements.
- Developed prototypes in hackathons using **computer vision and NLP**, including a drowning detector, enhancing skills in quick ML deployment.

Technical Skills

Languages: Python, JavaScript, TypeScript, C++, SQL
Frameworks/Libraries: React, Next.js, Node.js, FastAPI, Flask, PyTorch, TensorFlow
Tools/Deployment: PostgreSQL, MongoDB, Redis, Docker, Azure, Linux, Git

Projects

Study Buddy ↗ | *React, FastAPI, MediaPipe, MongoDB, Redis* **Code**
- Improved study focus by building an **AI distraction tracker** using **MediaPipe** for real-time detection.
- Generated **personalized AI summaries** via Gemini API and implemented **MongoDB + Redis caching**, reducing data retrieval time by **80%** and enabling smooth real-time feedback.
- Delivered a **secure full-stack system** with React, FastAPI, **JWT authentication**, and **AI pipelines**.

OperAid ↗ | *Next.js, FastAPI, Supabase* **Code**
- Enabled **instant access** to patient records via **natural voice commands**, simulating **real-world hospital workflows**.
- Built a **real-time voice-to-data pipeline** with **FastAPI**, **OpenAI**, and **Eleven Labs**, enabling transcription, voice command execution, and annotation management.
- Designed to reduce **patient lookup time by 70%+**, demonstrating potential **efficiency gains** in clinical environments.

Social Media Backend | *FastAPI, SQLAlchemy, PostgreSQL, Docker* **Code**
- Developed a **RESTful API** with **FastAPI**, implementing **JWT authentication** and **secure password hashing**, supporting secure user login, registration, posts, and likes.
- Engineered a **PostgreSQL** database with **SQLAlchemy ORM**, optimizing schema design and managing migrations with **Alembic** to support scalable data growth.
- Containerized the backend using **Docker** & **Docker Compose**, reducing deployment setup time and ensuring consistent environments across development and production.

Extracurricular / Achievements

Machine Learning Certification **July 2024 – August 2024**
Inspirit AI | Python, Tensorflow *Toronto, ON*
- Built a **CNN-based model** to detect pneumonia from X-ray images achieving **89% accuracy**.
- Implemented additional image classification projects using CNN/KNN models to strengthen ML pipeline and data analysis skills.