

OSMAN SULTAN

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EDUCATION

BASc, Industrial and Systems Engineering, University of Toronto

Expected 2025

Minor in Artificial Intelligence, Business

Relevant Coursework: DSA, Data Analytics, Deep Learning, Probability, Stats, Systems Design, Databases, Operations Research I & II, Simulation Modelling, Supply Chains, Human-System Interaction

SKILLS

Languages	Python, Java, JavaScript, SQL, NoSQL, HTML, CSS
ML Libraries	Pandas, Scikit-learn, PyTorch, Langchain, Hugging Face
Data & Visualization	Matplotlib, Seaborn, MySQL, SQLite, PostgreSQL, MongoDB, Redis, Pinecone
Other Tools	Git, Bash, Docker, Linux (Ubuntu, WSL), Supabase, Postman

EXPERIENCE

Back End Infrastructure Engineering Intern

Sept. 2023 - PRESENT

Doctalk

Toronto, ON

- Deployed and served **secure type-safe API endpoints** for registration, alerts/notifications, and threads utilizing a **clean service-based architecture** with **zod** for robust validation, resulting in a 40% increase in infrastructure efficiency and enhanced scalability.
- Implemented a **Dockerized Express.js** server with **JWT authorization** for large file uploads, integrated **AWS S3** for storage, and used **Next.js** as an API gateway/proxy, ensuring optimized and secure data flow between client and server.
- Migrated from the deprecated **Redis graph** to a **Next.js** and **Supabase PostgreSQL** stack, enabling faster proof-of-concept developments and quicker product shipments, without compromising high-speed data retrieval and system scalability.

Software Developer Intern

June 2022 - Sept. 2022

Molex LLC

Waterloo, ON

- Transformed an **embedded software** CLI into a web client using **Python, FastAPI, and Jinja**, reducing testing times by 35% and enhancing system performance by 25%.
- Leveraged Python's **asyncio** for asynchronous multi-user testing on the provided testing device, achieving an 80% boost in efficiency. Further optimized tailored testing processes, resulting in a 20% increase in testing throughput.

PROJECTS

TerraSculpt. Developed a ML pipeline focused on synthesizing and classifying landscape images to assist with environmental monitoring and land-use planning. Utilized PyTorch to build and train 2 custom deep learning models, inspired by VAE and EfficientNetV2 architectures for generation and classification respectively. View the code here: github.com/osman-sultan/TerraSculpt

Underlying Factors in Soccer Injuries. Conducted a data-driven investigation into soccer injuries' impact on club success using Python, BeautifulSoup4, Pandas, Scikit-learn, and TensorFlow. Enhanced predictive accuracy via EDA, model engineering, and hyperparameter tuning of multiple models (Random Forest, Logistic Regression, ANN). View the code here: github.com/osman-sultan/Underlying-Factors-in-Soccer-Injuries

persona.ai. Developed a SaaS platform for AI chat personas using Next.js, TypeScript, TailwindCSS, Prisma, MySQL, Pinecone, and Redis. Delved into MLOps/LLMOps, optimizing LLM API interactions and memory management; leveraged edge computing and streaming, using Langchain for prompt engineering. Peronas powered by Llama-2-70b-chat via Replicate. Utilized Stripe for payments and Clerk for authentication. Enhanced frontend with ShadCN UI. Links: [live site](#) & [GitHub repo](#)