Daniel Lu

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Education

Carleton University, B.Sc. in Computer Science, Honours Program (Co-op) — Ottawa, Canada

AI & Machine Learning Stream - Dean's Honours List - GPA: 3.9/4.0 — *Sep 2023 – Present*

- **COMP 4107** (Advanced Neural Networks, Transformers, Model Optimization)
- **COMP 3105** (Supervised/Unsupervised Methods, Gradient Boosting, DNNs)
- **COMP 3106** (LLMs, RAG, Agentic Systems, Embeddings, NLP, Graph & Vector Databases)

Experience

Software Developer — May 2025 – Aug 2025

Trend Micro — *Kanata, Ontario*

- Led development of a **digital twin PoC**, creating a **RAG system** with **LangChain**, **Neo4j**, **PGVector**, and **Model Context Protocol (MCP)** for predictive infrastructure security analytics.
  - Delivered an executive presentation to **Trend Micro CEO Office** in Taiwan; pitched its technical value to an audience of **70+** and securing approval from **C-suite stakeholders**.
- Enhanced system performance and scalability for **120+ active enterprise users** by architecting cloud infrastructure optimizations across **AWS/Azure** with **Kubernetes HPA** and **pod load balancing**.
- Engineered **CI/CD pipelines** for internal SDKs and database deployment systems serving **200+ developers and 10,000+ stakeholders**, reducing release cycles by **65%** from a whole day.

Software Test Developer — Jan 2025 – Apr 2025

Blackberry QNX — *Kanata, Ontario*

- Engineered automated test frameworks in **Python (Pytest)** for the **QNX RTOS**, increasing test coverage by **15%** in a safety-certified, regulated environment.
- **Boosted shipping speeds** and improved system validation accuracy by **20%** by developing reliable automation scripts and robust testing tools in **Python, C, and Bash**.

Projects

CloudQ | *Devpost* | *GitHub* — *Jan 2025, McGill University*

- Won **Best Web 3.0 Hack** at **McHacks 12** (competing against **500+ participants**).
- Decreased queue times by more than **50%** by deploying a **decentralized, virtual queue management system** powered by **blockchain and RAG technology**, ensuring **efficient line-free queues** for events.
- Developed a modern, responsive UI using **React.js**, **Vite**, and **TailwindCSS**, integrating **Auth0**, **Starknet**, and **Hugging Face** for authentication, smart contracts, and AI-powered features.

TRACY: Real-Time Tennis Analysis System | *Devpost* | *GitHub* — *Feb 2024, Queen's University*

- Secured **3rd place overall** at **QHacks 2024** (competing against **250+ participants**).
- Developed a **deep learning** analysis tool using **TensorFlow** and **OpenCV** to provide real-time, data-driven performance insights for tennis players.
- Engineered a **convolutional recurrent neural network (CRNN)** to track high-speed ball and player movements with **90% accuracy** from a single camera viewpoint.

Automatic Speech Recognition Neural Network | *Academia* | *GitHub* — *Jun 2022 - Jan 2023, IB Diploma*

- Published a **machine learning research paper** (achieving a perfect score) on automatic speech recognition, investigating advanced feature extraction and neural network architectures.
- Trained a **deep bidirectional GRU network** with **TensorFlow**, leveraging principles from **Transformer and embedding models** to improve transcription accuracy from **65%** to **95%**.

Technical Skills

Languages: Python, C/C++, Ruby, Java, JavaScript, TypeScript, C#, Rust, SQL

Libraries and Frameworks: TensorFlow, PyTorch, Scikit-learn, LangChain, PGVector, Neo4j, Node, Express

Platforms & Technologies: AWS, Azure, Docker, Kubernetes, Hugging Face, Jenkins, Terraform, CI/CD Pipelines