

Shidu (Ryan) Ren

☎ (+1) 647 886 4639

✉ ryan.ren@mail.utoronto.ca

🔗 Ryan-Ren0330

🌐 LinkedIn

📁 Portfolio

EDUCATION

University of Toronto

Bachelor of Applied Science, PEY Co-op

Sept 2023 — Apr 2028

GPA: 3.81/4.0

Major: Computer Engineering Minor: Engineering Business & AI Engineering

Academic Achievement: UofT Engineering Dean's Honours List for Every Semester & ECE Top 30

EXPERIENCE

AI Researcher (Python, PyTorch, LLM, Transformers)

May 2025 — Present

Intelligent Sensory Microsystems Laboratory — University of Toronto

Toronto, ON

- Built a Python/PyTorch neural decoding framework improving a *Nature*-published speech neuroprosthesis benchmark by **20%**, and co-authored an *ISSCC 2026* submission under Prof. Roman Genov.
- Engineered a spike sorting pipeline using XGBoost, achieving **97%** accuracy with minimized latency for chips.
- Implemented a brain-to-text decoding pipeline using Transformer/Mamba with Connectionist Temporal Classification(CTC), yielding **~10%** higher accuracy than the *Nature* RNN+5-gram LM baseline.
- Integrated LLM reranking and RAG via **HuggingFace**, LangChain, and **OpenAI API**, enhancing contextual accuracy and reducing Word Error Rate.

Machine Learning Intern (React, Flask, Docker, Active Learning)

May 2025 — Sep 2025

Themis AI (MIT-founded startup)

Toronto, ON

- Built a modular active-learning framework for image classification integrating **uncertainty** sampling (entropy, BALD, CAPSA) and progressive relabeling (ProSelfLC), achieving **91%** accuracy on CIFAR-10 with only **5%** labeled data (*vs. ~70% from random sampling*) and strong robustness on CelebA.
- Developed a full-stack annotation platform with **React** frontend and **Flask** backend; implemented dataset management, result visualization, and YOLO-format export with **Docker** Compose for containerized development.
- Deployed the ML training platform to **AWS S3** and Vercel using Docker, integrating presigned URL uploads, secure environment variables, and NextAuth-based authentication for scalable cloud operation.

Team Lead / VP Internal (TensorFlow, CNN, Arduino, C++)

Jan 2025 — Present

Mersivity

Toronto, ON

- Developed a C++ and TensorFlow wearable EEG system on **ESP32** for real-time emotion classification using CNN and on-device inference; first author on a paper submitted to *ICAIIC 2026* under Prof. Steve Mann.
- **Supervised** student projects and organized technical workshops, streamlining operations to strengthen collaboration and ensure on-time delivery of research outputs for symposiums and conferences.

Software Engineer Intern (Java, JavaFX)

Jul 2024 — Sep 2024

Beijing Urban Construction Group

Beijing, China

- Built a JavaFX-based metro passenger flow simulator modeling density, speed, and flow rate across facilities.
- Analyzed simulation data to assess efficiency under varying scenarios and improve visualization accuracy.

PROJECTS

BirdCLEF 2025 — Kaggle Competition (Bronze Medal Top 10%)

May 2025 — Jun 2025

Machine Learning Engineer

Kaggle (remote)

- Built a Mel-spectrogram + deep learning pipeline (ConvNeXtV2, NFNet, SeresNext) with weighted ensemble inference; optimized using **OpenVINO** FP16 quantization and operator fusion.

Accessible Navigation System (REST API, MongoDB)

Jan 2025 — Apr 2025

Software Developer

Toronto, ON

- Led a team of 3 to develop an accessible navigation application with interactive map rendering, REST API integration, and route planning optimized for large-scale city datasets using **C++**.
- Implemented multi-threaded Dijkstra and A* pathfinding with Ant Colony Optimization for delivery routing, supported by **MongoDB** for dynamic data storage; achieved Top 15 performance in the university competition.

SKILLS

Languages: Python, Java, C/C++, JavaScript, HTML/CSS, MATLAB, Verilog, Bash, SQL

Technologies: PyTorch, TensorFlow, React, Docker, Git, Unity, Quartz, LLVM, JavaFX, Linux, MongoDB