Shuolin (Leo) Yin

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Education

University of Toronto — Toronto, ON
Bachelor of Applied Science and Engineering in Computer Engineering + PEY Co-op — *Sep 2023 – Apr 2027*

- Recipient of Faculty Of Applied Science And Engineering Scholarship
- Recipient of Edward S. Rogers Sr. Scholarship

Experience

Vector Institute & University Health Network — WangLab — Toronto, ON
Undergraduate Researcher (supervised by Prof. Bo Wang; advised by Dr. Jun Ma) — *May 2025 – Present*

- Pretrain and finetune **foundation models** for **multi-task, multimodal** learning on **large-scale 2D/3D medical** datasets.
- Serve on the **Organizing Committee** for **MICCAI FLARE 2025**: define tasks, rules, and evaluation protocol; lead and release **3 baseline models (qwen2.5&3 -vl, medgemma)** with dockerized framework and **data preprocessing pipelines**
- Develop an **MLLM framework** for **pathology report generation** on **gigapixel whole-slide images**, implementing **multi-scale feature extraction** and **vision–language alignment** over **10,500+** multicenter cases
- Pretrain a **DINOv3** SSL model on **300M** pathology tiles across **39** cancer types on **H100** clusters (DDP/NCCL/Slurm), yielding **strong downstream gains** for retrieval and report tagging.
- Author an **educational framework paper** on medical vision–language model development (**MICCAI Educational Challenge finalist**), providing **end-to-end "cookbook" guidelines** from architecture design to clinical deployment
- Design and **benchmark experiments** on **HPC clusters**; contribute **code, figures, and findings** to **lab publications**

The Institute of Automation, Chinese Academy of Sciences — NLPR — Beijing, China
Research Assistant (supervisors: Prof. Yang Yang, Prof. Jinlin Wu; Prof. Zhen Chen) — *Feb 2024 – Sep 2024*

- Streamlined research on **Medical multimodal large language models (MLLMs)** through systematic literature review and novel experimental design, developing methodology for **TPAMI submission**
- Engineered an **end-to-end data pipeline** for medical imaging **benchmark creation**, incorporating automated quality checks and custom annotation tools, resulting in **75%** reduction in processing time and **40%** improvement in annotation accuracy
- Built a **PyTorch-based multimodal evaluation suite** for **clinical VLM** (accuracy, robustness, cross-modal consistency) and automated report scoring, cut manual evaluation time by **30%** and enabled weekly model iteration
- Facilitated **cross-functional collaboration** between **medical experts** and **ML researchers** through technical discussions

VolunTrack Org. — Toronto, ON
President/Founder — *Jun 2022 – Sep 2024*

- Founded and scaled a **non-profit organization** with a structured **five-tier management system**;grew to **50+ members** and partnered with **100+** non-profits; reached **500+ MAU**.
- Architected an **AI-powered volunteer matching system** using **TensorFlow** and **scikit-learn**, achieving **85% matching accuracy** and reducing manual matching time by **70%**
- Implemented **real-time analytics** using **Firebase**, **Cloud Firestore**, and **TensorFlow.js**, deploying **ML models** for volunteer engagement prediction and churn analysis across **100+ organizations**
- Established **AI innovation program**, leading to **30+** successful ML projects and **10+** conference speaking engagements

Projects

EZ-Career – Autonomous AI Job Application Agent — Toronto, ON
AI Engineer & Full Stack Developer — *April 2024 – June 2024*

- Architected a **state-of-the-art multi-agent AI system** using **OpenAI Agents SDK** with an **Agent-as-Tool** pattern, orchestrating specialized agents for end-to-end job application automation
- Developed **multiple custom Model Context Protocol servers** (**playwright_mcp, user_assistance_mcp, memory_mcp. . .**) providing specialized tools for browser control, database operations, and agent memory management
- Engineered a **RAG memory system** using **Sentence Transformers** and **Supabase RPC** with **Human-in-the-Loop** design to prevent hallucination and ensure factual consistency across applications

Echo – AI-Powered Sustainable Fashion Marketplace — Global
Lead Developer — *March 2025*

- Sole developer; **won BCG & Global Spark *Hack the Globe* (1st in Canada, 2nd globally)** with an AI-powered mobile marketplace for sustainable second-hand fashion within 48 hours
- Developed an **AI stylist agent** using **OpenRouter** and **RAG** for personalized recommendations, integrated with a **swipe-based discovery interface** powered by **GCP Analytics** and **Multimodal LLMs**
- Shipped **vision-based item verification & condition grading** using **YOLOv11n** (defect detection: stains/tears/pilling), automating quality assurance and flagging brand/label mismatches, achieved **90%** accuracy on verification set
- Built full-stack application using **React Native**, **Node.js/Express**, and **PostgreSQL** with **JWT** and **Zod validation**

Skills

Programming Languages: **Python**, **C/C++**, **MATLAB**, JavaScript, Typescript, C#, HTML, Swift, SQL, Bash, LaTeX
ML/DL Frameworks: **PyTorch**, **TensorFlow**, **Hugging Face**, **OpenCV**, **YOLO**, **LangChain**, **scikit-learn**
Cloud Infrastructure: **GCP**, **AWS**, **HPC clusters**, **Multi-GPU Clusters**, **Docker**, Firebase, Git, CI/CD
Research/Dev Tools: **Vertex AI**, **Weights & Biases**, **Jupyter**, **MLflow**, Xcode, React/React Native, Node.js/Express