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*
- Design and conduct Large-scale experiments on **HPC clusters**; co-author **multiple manuscripts under review** (CVPR 2026, Nature Medicine), contributing experimental design, code, figures, and analyses
- Serve on the **Organizing Committee** for **MICCAI FLARE 2025**: define tasks, rules, and evaluation protocol; lead and release **3 finetuned models (qwen2.5&3-vl, medgemma)** with dockerized framework and **data preprocessing pipeline**
- Pretrain a **DINOv3** SSL model on **300M** pathology tiles on **H100** clusters, achieving **10–20% improvements** over SOTA pathology foundation models (CONCHv1.5, UNI v2); presented at **NeurIPS 2025 SLCPFM Competition**
- First author of an **educational framework paper** on medical vision–language model development (**MICCAI Educational Challenge top5**), providing **end-to-end "cookbook" guidelines** from architecture design to clinical deployment

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 Engineer *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