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 Admission Scholarship
- Recipient of Edward S. Rogers Sr. Admission Scholarship

Experience

Vector Institute & University Health Network (WangLab) Toronto, ON
Undergraduate Researcher supervised by Prof. Bo Wang and advised by Dr. Jun Ma *May 2025 – Present*
- Train and refine **foundation models** with multitask and multi-modal learning on large-scale **2D and 3D medical datasets**, focusing on medical imaging representation learning.
- Developed and organized **Baseline models** & **data preprocessing pipelines** for the **MICCAI FLARE 2025** challenge.
- Developed **pathology report generation mllm framework** for **gigapixel whole-slide images**, implementing **multi-scale feature extraction** and **vision-language alignment** on **10,500+ multicenter cases**.
- Trained **DINOv3 SSL foundation model** on **300M pathology images** across **39 cancer types** via **distributed training on multi-H100 clusters**, achieving **state-of-the-art representation learning** for downstream tasks.
- Authored **educational framework paper** on medical vision-language model development (**finalist selection**), providing **end-to-end implementation guidelines with cookbook** from architecture design to clinical deployment.
- Design and Benchmark experiments on **multi-GPU clusters** and contribute findings, code, and figures to **lab publications**

The Institute of Automation, Chinese Academy of Sciences (NLPR Lab) Beijing, China
Research Assistant under Prof. Yang Yang, Prof. Jinlin Wu and Sr. PD 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
- Developed a **Multimodal evaluation framework** using **PyTorch**, benchmarking **SOTA MLLMs** in **clinical medicine** with metrics for **accuracy**, **robustness**, and **cross-modal consistency**.
- Spearheaded **weekly technical discussions** and authored comprehensive **research documentation**, facilitating knowledge transfer across interdisciplinary teams of **medical experts** and **ML researchers**

VolunTrack Org. Toronto, ON
President/Founder *Jun 2022 - Sep 2024*
- Founded and scaled a **Non-Profit Organization** through a structured **Five-tier management system**, growing the company to **50+ members** and establishing partnerships with **100+ global non-profits**.
- 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 engagement.

Project Experience

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 (MCP) servers** (**playwright_mcp, user_assistance_mcp, memory_mcp...**) providing specialized tools for browser control, database operations, and agent memory management.
- Built a scalable **FastAPI** backend with intelligent browser automation via custom **Playwright/CDP MCP server**, enabling precise web interaction and form filling across complex ATS platforms.
- 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*
- Winner of the BCG & Global Spark 'Hack the Globe' Hackathon (1st place in Canada, 2nd place globally) as sole developer, building an AI-powered mobile marketplace for sustainable second-hand fashion.
- Developed an **AI stylist agent** using **Open Router** and **RAG** for personalized recommendations, integrated with a **swipe-based discovery interface** powered by **GCP Analytics** and **Multimodal LLMs**.
- Implemented **Computer Vision-based product authentication** with custom algorithms for item verification and condition assessment, ensuring quality assurance across the platform.
- Built full-stack application using **React Native**, **Node.js/Express**, and **PostgreSQL** with **JWT** and **Zod validation**.

Skills

Programming Languages: **Python**, JavaScript, **C/C++**, C#, HTML, Swift, **MATLAB**
Frameworks & Libraries: **TensorFlow**, **LangChain, OpenCV, YOLO, PyTorch**, React, Node.js, Django
Cloud & DevOps: **Amazon Web Service**, **Google Cloud Platform**, Firebase, Git, CI/CD
Development Tools: **Vertex AI**, Github, Xcode, Unity, Fusion 360, Blender, AutoCAD