

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

WORK 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 deploy **multimodal foundation models** with **multitask and multi-modal learning** on large-scale **2D and 3D imaging datasets**, focusing on representation learning, transfer learning, and cross-modal alignment optimization.
- Developed and organized **baseline models** and **comprehensive data preprocessing pipelines** for **MICCAI FLARE 2025** international challenge, implementing **data augmentation strategies**, **quality control workflows**, and **model fine-tuning protocols**.
- Architected an **end-to-end vision-language generation framework** for automated report generation from **gigapixel whole-slide images**, implementing **hierarchical multi-scale feature extraction**, **cross-attention mechanisms**, and **contrastive vision-language alignment** on **10,500+ multicenter cases** spanning **five countries**, handling **diverse imaging protocols** and **annotation standards**.
- Scaled **DINOv3 self-supervised foundation model training** on **300 million images** across **39 diverse categories** using **distributed data-parallel training** on **multi-H100 GPU clusters**, implementing **gradient accumulation**, **mixed-precision training**, and **custom data loading optimizations**, achieving **state-of-the-art representation learning performance** for downstream tasks including **classification**, **segmentation**, and **retrieval**.
- Authored **educational framework paper** on vision-language model development (ongoing finalist in international challenge), providing **comprehensive end-to-end implementation guidelines** with **code cookbook** covering **architecture design**, **training strategies**, **evaluation protocols**, and **production deployment best practices**, serving as a practical resource for researchers and practitioners.
- Design, implement, and benchmark **large-scale ML experiments** on **multi-GPU computing clusters**, utilizing **distributed training frameworks**, **experiment tracking tools**, and **performance profiling**, contributing **experimental findings**, **optimized codebases**, **visualizations**, and **technical documentation** to lab publications and open-source repositories.

The Institute of Automation, Chinese Academy of Sciences (CASIA)

Beijing, China

Research Assistant

Feb 2024 – Sep 2024

- Investigated **MLLM hallucination reduction** through **systematic literature review** and experimental design, contributing to methodology planned for **MICCAI 2025 publication**
- Developed **automated data pipeline** for MLLM benchmark creation using **Python** and custom annotation tools, reducing data processing time by **300%** and improving annotation accuracy by **40%**
- Streamlined research communication by delivering **weekly technical presentations** and detailed **progress report**, facilitating effective collaboration across the team.
- Conducted extensive model **experiments on SOTA MLLM architectures** using **PyTorch**, systematically evaluating hallucination reduction methods and identifying key improvement opportunities

VolunTrack Org.

Toronto, ON

President/Founder

Jun 2022 – Sep 2024

- Founded and scaled a **non-profit organization** through a structured **four-tier management system**, growing the team to **50+ members** and establishing partnerships with **100+ global non-profits**.
- Architected and developed a **full-stack volunteer management platform** using **React Native** and **React.js** for web/mobile applications, achieving **1000+ monthly active users**.
- Secured a partnership with **Google Cloud Platform**, receiving **cloud credits** and **technical training opportunities** for **20+ development team members**.
- Implemented a **CI/CD pipeline** with **Agile methodology**, leading to the successful deployment of **15+ major features**, **4 major revisions**, and reducing deployment time by **70%**.
- Designed a **scalable database architecture** using **Firebase Realtime Database** and **Cloud Firestore**, integrating with **GCP services** for efficient data management across **100+ organization profiles**.
- Established **tech mentorship program**, connecting students with real-world projects, resulting in **30+ successful project completions** and **10+ conference speaking engagements**.

PROJECT/SCHOOL EXPERIENCE

EZ-Career - Autonomous AI Job Application Agent <i>AI Engineer & Full Stack Developer</i>	Toronto, ON <i>Sep 2024 – Present</i>
<ul style="list-style-type: none">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_profile_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 (HITL) design to prevent hallucination and ensure factual consistency across applications.	
Echo - AI-Powered Sustainable Fashion Marketplace <i>Lead Developer</i>	Global <i>Jan 2025</i>
<ul style="list-style-type: none">Secured 2nd Place in Global Finals at BCG & Global Spark 'Hack the Globe' hackathon as sole developer, building an AI-powered mobile marketplace for sustainable second-hand fashion.Developed an AI stylist agent using OpenAI API 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 (Expo), TypeScript, Node.js/Express, and Supabase (PostgreSQL) with JWT authentication and Zod validation.	
YiXing - AI-Driven Personalized Travel Planner <i>Project Lead / Co-Founder</i>	Toronto, ON <i>Jun 2023 - May 2024</i>
<ul style="list-style-type: none">Led the development of an AI-powered travel planning platform, integrating Fine-Tuned GPT-based Models with React Native to generate personalized itineraries.Designed and implemented a Retrieval-Augmented Generation (RAG) system using LangChain and vector databases, optimizing travel recommendations based on historical user data.Built a scalable backend architecture with AWS Lambda and Node.js, employing RESTful APIs and microservices for high-efficiency data processing.Managed an agile development team of six, overseeing the full product lifecycle from concept to MVP launch, conducting code reviews, and optimizing system performance.	
ReassurED - LLM-Powered Emergency Care Guidance/Navigator <i>Project Lead</i>	Montreal, QC <i>Sep 2024</i>
<ul style="list-style-type: none">Led a team through a 24-hour hackathon, developed a cross-platform emergency healthcare app using React Native (Expo) and integrated real-time hospital data via Firestore.Implemented Dynamic triage and hospital Recommendations system using Few-shot Learning with Deepseek-v3 and Custom weighting recommendation algorithm.Built scalable backend with FastAPI for real-time hospital info, leveraging web scraping and auto data updates.Enhanced user experience with location-based hospital maps using React-native-maps and expo-location.	
IEEE UofT <i>Web Team Associate</i>	Toronto, ON <i>Jun 2024 - Present</i>
<ul style="list-style-type: none">Developed and maintained full-stack web applications with a React.js frontend and Django backend, enhancing IEEE UofT's main website and event platforms with a responsive, user-friendly design.Improved website performance by optimizing APIs and implementing caching strategies, reducing load times and enhancing overall user experience.Collaborated within an agile team to build and deploy new features, maintain platform stability, and ensure a seamless, cross-platform experience.	

SKILLS

Programming Languages:	Python, JavaScript, C/C++, C#, HTML, Swift, MATLAB
Frameworks & Libraries:	React Native, React.js, Node.js, Django, LangChain, OpenCV, YOLO, PyTorch
Cloud & DevOps:	AWS (Lambda), Google Cloud Platform, Firebase, Git, CI/CD
Development Tools:	VS Code, Xcode, Unity, Fusion 360, Blender, AutoCAD