Xin Lei Lin

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EDUCATION

University of Toronto – St-George (Trinity College) — Toronto, Ontario, CA

Bachelor of Science – Computer Science Specialist (COOP), and Molecular Genetics Major — *Aug. 2023 – May 2027*

- **Entrance awards**: C. David Naylor Scholar for Leadership ($20k) & Arts and Science Scholar ($7.5k)
- **Leadership**: Student Council President, Publication Director of *Le Manifeste* and *The Last Word* (160+ pages), MariHacks & BrébeufHx Vice-President (800+ hackers), competitive programming and Python tutor [YouTube]

EXPERIENCE

Vector Institute — August 2025 – December 2025

(Incoming) Machine Learning Research Intern with Prof. Michael Brudno — *Toronto, Ontario, Canada*

- Latent space optimization through dimensionality reduction for Genome-wide association studies (GWAS).

Amazon Web Services — May 2025 – July 2025

Software Developer Engineer Intern — *Vancouver, British Columbia, Canada*

- Working with Relational Database Service (RDS), S3 & Spark to optimize export performance.

MiDATA (University of Toronto) — September 2024 – Present

Machine Learning Researcher with Prof. Pascal N. Tyrrell — *Toronto, Ontario, Canada*

- Augmenting low-label segmentation datasets, through mask conditioning with Latent Diffusion Models (LDM).

KITE (University Health Network) and Vector Institute — April 2024 – Present

Computer Vision Researcher with Prof. Babak Taati — *Toronto, Ontario, Canada*

- Extending the context window of state-of-the-art image-by-image **ViTPose**-based models to 32-frames videos using **VideoMamba** and **InfiniAttention** for **SMPL human mesh recovery** and **2D keypoint pose detection**.

Kadist (a.k.a Artnow International) — August 2024 – April 2025

Machine Learning Engineer — *(Remote) – Paris, France*

- Deployed RSONART, an art chain of thought agent with vision and audio capacities. [https://www.rsonart.com/]
- Integrated Retrieval Augmented Generation (RAG) through history-aware & ensemble retrieval with GPT-4 API.
- Backend with Flask, vector database of **300k webscraped artists & exhibitions** on pgvector and PostgreSQL.

DIRO (University of Montreal) — October 2022 – September 2023

Machine Learning Researcher with Prof. Houari Sahraoui — *Montreal, Quebec, Canada*

- Represented **Team Canada** (top 12 projects at nationals) at **ISEF** 2023 in Dallas, Texas (**10 awards, $15k+**).
- Trained and compared four models (CNNs & LSTMs) for American Sign Language to English translation. [ISEF]

PROJECTS

Spydle – A real-time multiplayer word game — September 2024 – December 2024

- Game servers on GCP w/ Kubernetes, Docker, Agones and Redis DB. Java Swing & Springboot Frontend [Github]

Plasmid.AI – iGEM (Top 10 of 500+ teams & Best Model Worldwide) — March 2024 – Present

- Fine-tuned Evo (a Striped-Hyena sequence model) to generate plasmid DNA [GitHub]

Red Handed – MakeUofT (2nd for Qualcomm and Flow ($1200)) — February 2024

- **3 neural networks** and a robot arm to detect and counter drowsiness w/ Tensorflow & Arduino. [Devpost]

Re.Live – UofTHacks 11 (Cohere 1^{rst} Prize ($1500)) — January 2024

- **Stable diffusion** and **Cohere RAG** to create Harry Potter-like dancing albums from static images. [Devpost]

DriveSense – HackTheNorth (Winning Finalist Project) — September 2023

- Mobile app to assist drivers with **vision models** for car plates, traffic lights and road signs (PyTorch). [Devpost]

XChange – ConUHacks VII (Offered Interview at National Bank) — January 2023

- Density estimation for anomaly detection in banking data. Frontend in React & data analysis in C++. [Github]

TECHNICAL SKILLS

Languages: French (Native), English (Native), Mandarin (Fluent), Spanish (International Baccalaureate)
Programming Languages: C/C++, Python, R, Shell (Bash), Java, SQL, Dart (Flutter), JavaScript, HTML/CSS
ML/DS Tools: Torch, CUDA, DDP, Lightning, Tensorflow, OpenCV, Pandas, Numpy, Google Cloud, SciNet (slurm)
Other: Linux/Unix, Docker, Kubernetes, Tmux/Vim/VSCode, Git/GitHub, Flask/DJango, React, MongoDB/Postgres