

Xin Lei Lin

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EDUCATION

- University of Toronto – St-George, affiliated with Trinity College** Toronto, Ontario, CA
Bachelor of Science in Computer Science, and Molecular Genetics – CGPA 3.94 Aug. 2023 – May 2027
- Awards: **C. David Naylor Scholarship**: for a first-year student with **outstanding leadership**. (20000\$)
Arts and Science Scholar: for students who have maintained **high academic standing**. (7500\$)
(Deferred) **UWaterloo President's Entrance scholarship for Software Engineering** (\$2000)
 - Relevant courses: Analysis 1, Linear algebra 1 (enriched) and 2, Enriched Theory of Computing, Intro. CS 1 and 2, Bio 1 and 2, Organic Chem. (Took 6 courses per semester (maximum course load allowed), for two majors.)
- Collège Jean-de-Brébeuf (Secondary), and Marianopolis College (CÉGEP)** Montreal, Quebec, CA
International Baccalaureate, and Honours Pure and Applied Science Aug 2017 – May 2023
- Leadership Award** for **5-time elected in student council and president**, editor-in-chief of 2 newspapers (40 writers – 160 pages), and Vice-President/organizer of 3 hackathons (combined 800 participants). (500\$)
 - Nomination for the Jean-Bernard-Jouthe full-ride Scholarship** for a student-athlete who achieved high academic standing while maintaining high ranking in national competition (fencing).

EXPERIENCE

- Visiting Research Project Intern** | *Vim, Linux, and Tensorflow-GPU* May 2023 – September 2023
Université de Montréal - Département d'informatique et de recherche opérationnelle Montreal, Quebec, CA
- Further development of Artificial Sign Language with Tensorflow-GPU through Professor **Houari Sahraoui**.
- Artificial Sign Language** | *LSTM, CNNs, DNNs, and Computer Vision* November 2022 – May 2023
Regeneron International Science and Engineering Fair – More than 15000\$ in awards! Dallas, Texas, US
- Trained deep learning models (including Dense Neural Networks, CNNs, transfer learning w/ YOLO + ResNet, and LSTM w/ Tensorflow) to translate American Sign Language to English.
 - Implemented an algorithm to detect and encode body signs into skeleton (with OpenCV and MediaPipe).
 - Web scraping tutorials of American Sign Language (using BeautifulSoup and C++) to extract 1000 hand signs (**30 gb of videos**, treated w/ OpenCV, Numpy and C++!)
 - Performed data augmentation (**by a factor of x128**) (with C++, Numpy and Pandas) to obtain the largest dataset for ASL in the world.
 - Awards**: Science Fair **winner** and other medals (2x), Hydro-Quebec **First Prize** for Science Fair, Ministry of Economy, Innovation and Technology prize, IEEE **Best Project in IT**, OCTAS Cegep award in IT, and other
 - [Visit the ISEF Project Board!](#) [GitHub Repo!](#) [Demo Video!](#)
- Frontend Developer** | *JavaScript, HTML, CSS, and Bootstrap* May 2022 – September 2022
HauteTechOrientale | <https://hautetechorientale.com/> Montreal, Quebec, CA
- Designed and deployed from scratch the company's website using JavaScript, HTML and CSS with Bootstrap.
- Competitive Programming Tutor** | *C++, and Python* January 2022 – February 2023
[GitHub Repository with 300+ problems.](#) [View the first tutorial \(in French\)!](#)
- Taught C++ and Python through 5 online tutorials (2 hours) and in-person sessions w/ 25 students and 300 views

PROJECTS

- Re.Live – UofTHacks 2024 (Cohere 1st Prize (1500\$))** | *React, Stable Diffusion and OpenPose* January 2024
- Integrated Cohere RAG, and classification to sift through a dataset of songs and images based on the user's mood.
 - Implemented a Stable Diffusion Algorithm with openPose which transposes dance moves onto people in static images, making them dance! Frontend was created with React. [Visit Devpost!](#)
- SpaCey – UTRA (Best use of Flow & Starknet (1000\$))** | *Tensorflow, C++ and React* January 2024
- Created a 3000 datapoint database, with 3 hand gestures. Reduced the dimensionality of the data w/ mediapipe for pose-tracking (96% accuracy in less than 1 hour for 150 epochs with 2 dropout layers, and 3 DNN layers!)
 - Implemented bluetooth control of the rover w/ hand signs and a decentralized exchange for task distribution. [Visit Devpost!](#)

DriveSense – HackTheNorth 2023 (Finalist Project) | *PyTorch, React Native, Streamlit* September 2023

- Fine-tuned YOLOv5 and YOLOv8 with PyTorch for 3 computer vision models (1) car plate detection, (2) traffic light colours, and (3) road sign detection. Implemented a backend with Django, hosted on Repl.it.
- Developed a novel car speed algorithm detection with Computer vision, based on the size of the car plate, correlated with GPS data from a React mobile app. Secondary frontend with Streamlit. [Visit Devpost!](#)

Classif.ai – STEMistHacks | *React, HuggingFace LLMs* [Visit Devpost!](#) June 2023

- Fine-tuned HuggingFace LLMs to summarize videos, and notes into Flash Cards w/ React.

XCHANGE – ConUHacks | *C++, Anomaly Detection* January 2023

- Animated banking data through React, HTML, and CSS. Data analysis and summarization through C++. Usage of density estimation (unsupervised learning) for anomaly detection in banking database. [Github Repo!](#)

AIBERT – Science Fair | *Naive Bayes, LSTM, BERT + Flutter (Dart) + SQL* September 2021 – May 2022

- **(1000\$ in awards)** Implemented ML models w/ 10000 messages to detect spam messages.
- Binary search for spam numbers. Mobile dev w/ Flutter. Speech Recognition w/ Python.
- Flutter mobile application which can receive messages, and calls. Flask as REST API on Repl.it. [Github Repo!](#)

TECHNICAL SKILLS

Languages and Libraries: C++, Python (Jupyter, Tensorflow, OpenCV, MediaPipe, PyTorch, Pandas, Numpy, Matplotlib, HuggingFace), Dart, JavaScript, HTML/CSS, Java

Tools: Linux, Vim, Git, Flutter, Flask, Django, React, Bootstrap