

LARRIS XIE

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EDUCATION

University of Waterloo

Bachelor's of Computer Science

Nortel Institute Scholarship Recipient (\$1750)

President's Scholarship of Distinction Recipient (\$2000)

Sep 2024 - May 2028

4.0/4.0 GPA

SKILLS

Languages: C++, Python, JavaScript, TypeScript, Java, SQL, C#, R
Frameworks: React, NextJS, ExpressJS, NodeJS, Flask
Database: MongoDB/NoSQL, Firebase, SQLite, MySQL
DevOps/Tools: Docker, Git, GCP, AWS

EXPERIENCE

Undergraduate Research Assistant

University of Waterloo

Waterloo, CAN

Jan 2025 - Current


- Researching the topic **Security and Privacy in Machine Learning**, supervised by Dr. Florian Kerschbaum.
- Investigating vulnerabilities in machine learning processes and developing state-of-the-art defense mechanisms leveraging cryptography, differential privacy, and secure algorithm design.

Student Researcher

Lumiere Education

Remote

Aug 2022 - Feb 2023

- Analyzed a financial transaction dataset using Python and trained a XGBoost classification model to classify fraudulent organizations with **99.9315% accuracy** and a **0.001% false positive rate**.
- Published a peer-reviewed research paper in the **Journal of High School Science**  under the supervision of Dr. Maria Konte.

PROJECTS

The Fastest Root React, NextJS, ExpressJS, NodeJS

- Architected a full-stack web app that retrieves **real-time pricing data** from grocery stores through web scraping with Puppeteer.
- Designed a route optimization algorithm and visualized the cheapest grocery shopping route using the Google Maps API, delivering time and cost-saving insights to users.
- Winner at Ignition Hacks (**400+ participants**).

Autonomous Vision Systems for Self-Driving Cars Python, Tensorflow

- Developed and fine-tuned object detection pipelines for autonomous vehicles using techniques such as **neural networks, CNNs, transfer learning models (VGG16), and YOLO**.
- Conducted a comparative analysis of different model architectures, evaluating trade-offs between speed and accuracy in the context of autonomous driving.

Square Up React, Flask, AWS

- Built a Flask server leveraging WebSockets to seamlessly update mosaics as images are uploaded, ensuring a smooth and interactive UX.
- Designed and integrated a **scalable image storage and retrieval system** to create community mosaics from individual photo pieces using AWS S3.

Saving Christmas C#, Unity

- Engineered a 2D Platformer Game with fluid movement mechanics, dynamic camera tracking, and collision detection across multiple levels.
- Applied **OOP principles** to design modular and reusable components, such as interaction interfaces, dialogue systems, and player movement scripts.

AWARDS

Fermat Mathematics Contest: School Champion and Honour Roll (**Top 1%**)

Canadian Computing Contest: Distinction (**Top 20%**)