Lucas Jin

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Education

University of Waterloo, Waterloo, Ontario　　　　　　　　　　　　　　　　　　　*Sept 2025 - Present*
BCS, Honours Computer Science with Co-op
- ○ **Clubs:** Biomechatronics Exo Software Lead, Wat.AI Machine Learning Engineer, CS Club Web Committee

Projects

Pixel Pets Plugin ↗　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　*Obsidian*
- ○ Developed a custom Obsidian plugin using **Typescript** that spawns animated pixel pets with **1600+** downloads.
- ○ Engineered **class-based** animation system with custom **CSS properties**, DOM manipulation, and **ESBuild** bundling for sprite sheet compatibility.
- ○ Created a lightweight **vector storage** and **retrieval system** with embedding indexing and similarity search over **IndexedDB** to support a **RAG** chatbot system.
- ○ Implemented a **deployment pipeline** with Github Actions to automate new update releases.

Lips Lips Revolution ↗　　　　　　　　　　　　　　　　　　　　　　　　　　*Hack the North 11*
- ○ Created a lip syncing game with over **50 users** using the **Symphonic Labs API** and **OpenAI embeddings**.
- ○ Reduced latency from **30** seconds to **7** seconds by **reverse-engineering** the Mamo API with websockets.
- ○ Utilized **Next.js** for rapid full stack development and QR codes and **MongoDB** for user authentication/tracking.

CNN-Based Chess Bot ↗　　　　　　　　　　　　　　　　　　　　　　　　　　*ChessHacks*
- ○ Designed residual CNN with SE attention blocks, scaling from baseline to 10-layer architecture with 256 channels and dropout regularization, reducing validation loss by **50%** while achieving **48.9%** move prediction accuracy.
- ○ Engineered chess parser for **6M+ positions**, employing **adaptive sampling** to avoid overfitting early-game states and flip augmentation to double dataset size while preserving game-level train/val splits.
- ○ Orchestrated **end-to-end ML** pipeline from Modal cloud training to Hugging Face deployment.

Drama Production Manager ↗　　　　　　　　　　　　　　　　　　　　　　　　　*OCDSB*
- ○ Built a **PERN** stack web application to automate attendance tracking and scheduling for drama productions, implementing **RESTful** routes following the **MVC** design pattern.
- ○ Led the end-to-end development of the application, including requirements analysis, system architecture design, and production deployment, supporting **100+ students**.
- ○ Utilized **Docker** and **Agile Development** for more efficient collaboration and quicker deployment.

Experience

Programming Intern ↗　　　　　　　　　　　　　　　　　　　　　　　　　　　　*Remote*
STEM-E　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　*Sept 2024 - July 2025*
- ○ Developed a full-stack application using a **FERN** stack to automate onboarding for 1000+ volunteers.
- ○ Automated timesheet creation for each volunteer via Sheets API, saving **5 hours** of manual setup per week.
- ○ Followed an **agile methodology** with user stories and **DoD** criteria to manage a quality project workflow.

Software Team Lead ↗　　　　　　　　　　　　　　　　　　　　　　　　　　*Ottawa, Ontario*
FRC Team 8729 - Sparkling Youth Robotics Club　　　　　　　　　　　　　　*June 2023 - June 2025*
- ○ Instructed **19** software members in the development of a command based robot using **Java** and **OOP** principles.
- ○ Integrated **computer vision** pipelines and **PID tuning** with hardware systems, improving response speed by **3x**.

Technical Skills

Languages: Javascript/Typescript, Python, SQL
Frameworks/Services: React.js, Next.js, Node.js, Express, Firebase, MongoDB, PostgresSQL, NumPy, PyTorch
Tools/Skills: Github, Git, VSCode, LaTeX, Docker, Agile development, Linux

Awards

- ○ René Descartes National Scholarship and President's Scholarship of Distinction ($22k)
- ○ Overall Track 1st Place - $1000 (*Hack404 - July 2025*) ↗
- ○ (Solo) Best Pitch (*Terrahacks 2025 - Aug 2025*) ↗
- ○ Best Use of MongoDB Atlas (*Hack the North 11 - Sept 2024*) ↗
- ○ (Solo) Best Home Track Project (*Lazy Hacks - Dec 2024*) ↗
- ○ FRC Team 8729 - Division Champion (*FIRST Ontario Provincial Championship Technology - Apr 2024*) ↗