

# Lucas Liao

647-806-8306 | [l26liao@uwaterloo.ca](mailto:l26liao@uwaterloo.ca) | [in/lucas-liao-570a19278](https://in/lucas-liao-570a19278) | [liaolucas.com](https://liaolucas.com) | [github.com/lucasliao0403](https://github.com/lucasliao0403)

## SKILLS

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**Languages:** Python, Ruby, Javascript/Typescript, Rust, C/C++, Java

**Frameworks:** React/React Native, Ruby on Rails, Next.js, Node.js, Flask, LangChain, FastAPI, GraphQL, Rocket

**Tools:** MongoDB, PostgreSQL, SQLite, Figma, Git, Excel, AWS, Google Cloud, Docker, Vercel

## EDUCATION

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**University of Waterloo**

Expected August 2028

*Bachelor of Software Engineering (BSE)*

*Waterloo, Canada*

- **CGPA: 88.6/100 (3.9)**

- Relevant Coursework: *ECE (FPGA, VHDL, RISC-V), Data Structures/Algorithms, Statistics, Formal Methods*

## EXPERIENCE

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**Software Engineer Intern**

Jan 2026 – April 2026

*WindBorne Systems*

*Palo Alto, California*

- Optimized inference for state-of-the-art weather forecasting model, achieving **7x speedup** via caching and sparse techniques improving parallelization & VRAM efficiency, **enabling on-demand forecasting**
- Deployed flagship models using Docker and Apache Airflow, **reducing recovery time by 9x**
- Built data pipelines in **Rust** and **Ruby on Rails** ingesting **50TB+** of weather data from global agencies, serving **real-time forecasting** for prop trading and hedge fund clients
- Developed **state-of-the-art transformer-based models** for outage probability and ice accretion.
- Engineered PR review bot with low-latency sandbox execution, reviewing **100+ PRs weekly**

**Software Engineer Intern**

March 2025 – August 2025

*DitchCarbon*

*London, United Kingdom*

- Enhanced document processing pipeline for **1M+ documents monthly** using **Ruby on Rails** and **Google Cloud**
- Optimized dashboard load time by **70%** through database precalculation and query optimization in **PostgreSQL**
- Developed agentic fallback system for external API failures, reducing data gaps by **80%**
- Architected end-to-end **agentic QA system** with **MCP server** for GraphQL API and designed custom agentic layer for observability, **reducing manual QA time by 40%**
- Shipped end-to-end personalized carbon-reducing recommendations pipeline for **1M+** companies.

**Full-Stack Developer Intern**

March 2024 – August 2024

*Slime Scholars*

*Waterloo, Canada*

- Led product design in **Figma** and built core gameplay features end-to-end using **Next.js**, **TypeScript**, **Tailwind**, and a **MongoDB** backend with **Node.js** and **Mongoose**
- Improved lesson design and game balance by conducting market research on platforms like Duolingo and IXL, resulting in a **30% increase** in user sentiment scores

## PROJECTS

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🐳 **WhaleBeing** | *Python, JavaScript, Flask, React.js*

- Built interactive predictive heatmap for whale-ship collisions with **React**, **Python** and **Flask** to reduce ship strikes in coastal waters in California, implementing prediction model based on 2019 NOAA research paper
- Created collision risk algorithm using SeaRoutesAPI to support proactive decision-making in commercial ships
- Placed **1st Overall** at DeltaHacks 2025, winning \$5000 and James Dyson Award

🐳 **Overseer** | *Python, Flask, Cohere API, Next.js, Three.js, Tailwind CSS*

- Designed a bias-mitigation platform for hiring data using **Python/Flask**: embedded resumes, clustered and pruned over-represented groups, and exported balanced datasets
- Delivered an interactive 3D cluster explorer in **Next.js** + **Three.js** with AI-generated trait summaries via Cohere CMD-A, cutting audit time from hours to minutes
- Won **"Best DEI AI Hack"** at GenAI Genesis 2025 for impact on fair AI from **600+ participants**