

# Eric Huang

☎ +1(613)-220-1025 ✉ [eric.haoran.huang@gmail.com](mailto:eric.haoran.huang@gmail.com) 🌐 [eric-haoran-huang](https://eric-haoran-huang.github.io) 🌐 [ehuan2](https://ehuan2.github.io) 📁 [Portfolio](#) 🌐 [ehuan2.github.io](https://ehuan2.github.io)

## EDUCATION

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### McGill University

Sep 2025 - Apr 2027

*Master of Science in Computer Science (Thesis)*

Researching genomics in healthcare through single-cell transcriptomics, specifically in modelling temporal scRNA-seq for virtual cells under the supervision of Prof. Yue Li.

### University of Waterloo

Sep 2020 - Apr 2025

*Bachelor of Computer Science Co-op*

GPA: 90.55

### Tokyo Institute of Technology

Apr 2023 - Aug 2023

*Study Exchange in Young Science and Engineering Researchers Program (YSEP)*

## PROFESSIONAL SKILLS

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**Languages:** Python, C++, C, Matlab, R, Golang, JavaScript/TypeScript (Node, React), Scala, PostgreSQL

**Development Tools/Frameworks:** PyTorch, Git, Linux, Docker, L<sup>A</sup>T<sub>E</sub>X, Inkscape, Scikit-learn

## RESEARCH EXPERIENCE

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### Undergraduate Research Assistant

Jan 2025 - Apr 2025

*CompLing Lab supervised by Prof. Freda Shi*

*Waterloo, Ontario*

- Led the design and implementation of the [VLM-Lens](#) framework that enables researchers to generate and store vision-language model embeddings for further analysis, resulting in a EMNLP 2025 Systems Demonstrations Paper.
- Ensured extensibility to new PyTorch models through modular design and well-defined Yaml config files.

### Applied ML Research Intern

Sep 2024 - Dec 2024

*Cerebras Systems*

*Toronto, Ontario*

- Researched and experimented with **Mixture of Experts (MoE)** to create scaling laws for LLMs through **PyTorch**.
- Improved upon Llama 3.3 70B performance beating Llama 3.1 405B on math, code and reasoning benchmarks through Chain of Thought techniques to ultimately provide an open-source reasoning framework. See results [here](#).

### Student Researcher

Apr 2023 - Aug 2023

*Tokyo Institute of Technology Cross Laboratory, EdTech Group*

*Tokyo, Japan*

- Proposed novel research by identifying gaps of Sign Language learning tools through literature review and Japanese Deaf community outreach. Used existing EdTech research on language learning tools such as SRS to address these gaps.
- Explored a proof of concept Sign Language learning tool using computer vision models to classify videos into words through a knn-classifier on a latent vector space of face, hand and gesture landmark features.

## PUBLICATIONS

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Sheta, H., **Huang, E. H.**, Wu, S., Alenabi, I., Hong, J., Lin, R., Ning, R., Wei, D., Yang, J., Zhou, J., Ma, Z., & Shi, F. (2025). From Behavioral Performance to Internal Competence: Interpreting Vision-Language Models with VLM-Lens. Proceedings of the 2025 Conference on Empirical Methods in Natural Language Processing: System Demonstrations, 886–895. <https://doi.org/10.18653/v1/2025.emnlp-demos.68>

## AWARDS AND SCHOLARSHIPS

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**Research Presentation Award:** Awarded to the best research presentation in the Tokyo Tech research exchange program.

**President's International Experience Award:** Awarded to students who participate in an international experience.

**President's Scholarship of Distinction:** Awarded to students with a university entrance GPA of 95% or higher.

**Governor General's Award:** Awarded to the student with the best high school GPA.

## EMPLOYMENT HISTORY

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### Intro to Artificial Intelligence (COMP 424) Teaching Assistant

McGill University

Sep 2025 - Dec 2025

Montréal, Québec

### 3D Software Engineer Intern

SideFX

May 2024 - Aug 2024

Toronto, Ontario

- Experimented with **OpenCL** optimizations for image resampling through separable linear kernels to reduce bandwidth. Proved quadratic kernels are more memory efficient through timing tests and peak memory calculations.
- Implemented geometry override features using **C++** for artists to override parameters for COP image renders.
- Developed HScript expressions to evaluate node signature types through graph analysis to improve the COP workflow.

### Machine Learning Engineer Intern

Cerebras Systems

Jan 2024 - Apr 2024

Toronto, Ontario

- Developed weight compression and freezing features through **PyTorch** framework support to reduce ML training time.
- Integrated Determined AI's training platform on **GPT** models with PyTorch support and Docker for Cerebras hardware.
- Improved UX through implementing error handling on **MLIR** failures to help users find issues independently.

### Compiler Engineer Intern

Cerebras Systems

Jan 2023 - Apr 2023

Toronto, Ontario

- Developed a library using greedy algorithms and spatial geometry to improve the **C++ LLVM** compiler runtime.
- Improved linker runtime through dynamic programming and caching multithreaded results for a 15% speed-up.
- Researched C++'s Boost library by running smaller scale experiments to test linker optimization possibilities.

### Embedded Software Engineer Intern

Siemens Healthineers

May 2022 - Aug 2022

Ottawa, Ontario

- Prototyped a Wi-Fi Direct **Android** app written in **Java** to enable speeds of 100+MB/s for software package transfers.
- Developed a LIS2DW12 accelerometer driver on the STM32H7 chipset in **C** and **C++** through the I2C protocol to enable tapping, free fall, and orientation change recognition of the device.

### Backend Developer Intern

Enzuzo Inc.

May 2021 - Aug 2021

Waterloo, Ontario

- Migrated from Datadog to a self-hosted **Docker**-based Jaeger observability platform saving 32% of computing costs.

## RELEVANT PROJECTS

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### 🔗 Transcription Factor Binding Prediction From Structural Information Framework

- Designed a framework to compare the performance of traditional ML methods and deep learning models for transcription factor binding site prediction from motif information and 3D structure data using scikit-learn, MLflow, and **PyTorch**.
- Showcased the effect of different input modalities and model architectures on predicting PAX5 transcription factor binding sites in open regions with high motif scores detailed in this [report](#).

## EXTRACURRICULARS

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### ML Reading Group Lead

University of Waterloo Data Science Club

Jan 2025 - Apr 2025

- Spearheaded an initiative to create a reading group that tackles the latest industry trends in ML, specifically deep learning and its applications in other fields such as LLMs, bioinformatics, healthcare, physics and chemistry.

### Vice President

University of Waterloo Computer Science Club

Jan 2022 - Apr 2022

- Led a cross-club collaboration by assuming responsibility and point of contact to build a 250+ student resume review.
- Supported 15+ coordinators to build events where the student community explores career options and socializing.