

Lin Hong

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10× Hackathon Winner · High-Performance Systems Engineer · Machine Learning & Distributed Computing

EDUCATION

University of Waterloo

Sept 2024 – Apr 2028

Bachelor of Computer Science (Co-op)

- President's Scholarship of Distinction, Ted Rogers Future Leaders Scholarship for Women
- Relevant coursework: Algorithm Design, Data Structures, Statistics, Machine Learning

SKILLS

Languages: Python, C++, Java, Go, JavaScript, TypeScript, Bash, SQL

ML/AI Frameworks: PyTorch, TensorFlow, scikit-learn, NumPy, Pandas

Systems & Infrastructure: distributed computing, high-performance systems, Docker, Kubernetes, AWS, Redis, PostgreSQL, MongoDB

Development Tools: Git, FastAPI, Flask, REST APIs, CI/CD, Linux, systems architecture

EXPERIENCE

Walnote AI

July 2025 – Present

Founding Engineer

Toronto, ON

- Designed and optimized **high-performance** video rendering pipeline using **distributed computing** techniques, reducing processing time by **5×** through **segment-based parallelization** and backend optimizations.
- Built scalable **data pipelines** and **real-time** event processing systems using **Redis** pub/sub and **PostgreSQL**, handling **large-scale** data streams with **low-latency** requirements.
- Architected **systems** using **Python** and **FastAPI** with **asynchronous workers**, enabling **rapid deployment cycles** and production-ready **platforms** for **real-time** data processing.

FTC Robotics

Sept 2022 – June 2025

Senior Software Lead

Toronto, ON

- Engineered **high-performance** telemetry pipelines in **C++** and **Java** aggregating **multi-sensor** data streams into unified state estimation with **real-time** processing requirements.
- Designed **signal processing** algorithms and validation logic using **analytical** methods, improving system reliability by **20%** and doubling response speed through **statistical analysis**.
- Collaborated in **small teams** to implement **PID control** systems, improving autonomous navigation accuracy by **70%** through iterative problem-solving and **performance optimization**.

PROJECTS

Chess Bot | *PyTorch, Modal, Python, distributed computing*

June 2025

- Built a **high-performance** AlphaZero-style chess engine using **PyTorch** with a unified policy-value network trained via **large-scale self-play reinforcement learning**.
- Implemented **distributed computing** architecture running training and self-play generation on **A100/H100 GPUs** via Modal, achieving **high-throughput** RL cycles with **automated evaluation** pipelines.
- Applied **Monte Carlo Tree Search** with neural priors and **statistical inference**, reaching **~1600** Elo strength through iterative optimization and **analytical** problem-solving.

Spotilike | *Flask, TensorFlow, machine learning*

June 2025

- Created an AI-driven music discovery platform using **machine learning** models (**TensorFlow**, DeepFace) for **real-time** emotion recognition and personalized recommendations.
- Designed **data processing** pipelines integrating Spotify API with MongoDB schemas, enabling **efficient querying** and analysis of **large-scale** music metadata datasets.

Flaim Brain | *Flask, LangChain, MongoDB, natural language processing*

Jan 2024

- Implemented an AI mentor platform using **GPT-4** and **natural language processing** techniques, processing file uploads and generating personalized study guides through **semantic retrieval**.
- Built **data research platform** with MongoDB Atlas Vector Search, enabling **intelligent content analysis** and recommendation systems for educational applications.