# 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*

- Optimized **high-performance** video rendering pipeline using **distributed computing**, reducing processing time by **5×** (from **2+ hours** to **24 minutes**) and cutting infrastructure costs by ∼**60%** through **segment-based parallelization**.
- Built scalable **data pipelines** processing **10,000+** events/second with <**10ms** p95 latency using **Redis** pub/sub and **PostgreSQL**, reducing API response times by **40%** and enabling **rapid deployment cycles**.

**FTC Robotics** Sept 2022 – June 2025

*Senior Software Lead* *Toronto, ON*

- Engineered **high-performance** telemetry pipelines in **C++** and **Java** processing **100+** sensor readings/second with <**5ms** latency, reducing sensor noise by **85%** and improving system reliability by **20%** through **statistical analysis**.
- Collaborated in **small teams** (**5-person** group) to implement **PID control** systems, improving autonomous navigation accuracy by **70%** (from ∼**60%** to ∼**98%**) and contributing to top-**5%** regional rankings.

## Projects

**Chess Bot** | ***PyTorch**, Modal, **Python**, **distributed computing*** June 2025

- Built **high-performance** AlphaZero-style chess engine using **PyTorch** trained on **1M+** games via **distributed computing** on **A100/H100 GPUs**, processing **10,000+** positions/second and reaching ∼**1600** Elo (top **15%**) from **800** Elo in **3 weeks**.
- Implemented **high-throughput** RL cycles processing **50,000+** games/day with **automated evaluation** pipelines, reducing manual tuning time by **90%** through **Monte Carlo Tree Search** and **statistical inference**.

**Spotilike** | *Flask, **TensorFlow**, **machine learning*** June 2025

- Created AI-driven music platform using **machine learning** (**TensorFlow**, DeepFace) for **real-time** emotion recognition, processing **50+** sessions with ∼**95%** accuracy and generating recommendations in <**200ms**.
- Designed **data processing** pipelines querying **100,000+** track metadata entries, reducing recommendation generation time by **60%** through optimized database indexing.

**Flaim Brain** | *Flask, LangChain, MongoDB, **natural language processing*** Jan 2024

- Implemented AI mentor platform using **GPT-4** and **natural language processing**, processing **100+** file uploads and reducing study-note prep time by ∼**50%** through **semantic retrieval**.
- Built **data research platform** indexing **1,000+** documents with <**500ms** query times, placing **4th** out of **80** teams at Hack the Valley 8.