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, Probability, Machine Learning, Systems Programming

Skills

Languages: Python, C++, Java, Go, JavaScript, TypeScript, Bash
Technologies: PyTorch, **TensorFlow**, **distributed computing**, PostgreSQL, Redis, Docker, AWS, Git, FastAPI, Flask

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.