Lin Hong

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10× Hackathon Winner · Deep Learning Engineer · GPU 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: Deep Neural Networks, Linear Algebra, Numerical Methods, Computer Vision, Computer Architecture, Algorithm Design, Data Abstraction

Skills

Languages: Python, C++, Go, Java, JavaScript, TypeScript, Bash
Technologies: PyTorch, TensorFlow, CUDA, GPU Programming, Docker, AWS, Linux, Git, FastAPI, PostgreSQL

Experience

Walnote AI July 2025 – Present

Founding Engineer *Toronto, ON*

- Optimized large-scale video rendering pipeline, reducing processing time by 5× through segment-based parallelization and performance-oriented backend optimizations.
- Implemented Clerk authentication with WebSockets, enabling real-time sync and Redis pub/sub event broadcasting into a Neon-hosted PostgreSQL database.
- Built scalable REST APIs using FastAPI, Dockerized services, and asynchronous Celery workers orchestrated through Redis for high-throughput data processing.
- Deployed frontend to Vercel and backend to Render, utilizing Cloudflare R2 for object storage and GitHub Actions for CI/CD.

FTC Robotics Sept 2022 – June 2025

Senior Software Lead *Toronto, ON*

- Engineered telemetry pipelines aggregating encoder, IMU, and camera data into unified robot state estimation using numerical methods and signal filtering.
- Designed signal filtering and validation logic to eliminate noisy sensor readings, improving reliability by 20% and doubling response speed.
- Implemented PID tuning with hardware engineers, improving autonomous navigation accuracy by 70% through algorithmic optimization.

Projects

Chess Bot | ***PyTorch***, ***GPU***, *Modal, Python* June 2025

- Built an AlphaZero-style chess engine with unified policy–value **deep neural network** trained via large-scale self-play reinforcement learning on **A100/H100 GPUs**.
- Integrated neural priors into Monte Carlo Tree Search to guide node expansion, improving playing strength and convergence stability.
- Ran distributed training and self-play generation on **A100/H100 GPUs** via Modal, achieving high-throughput RL cycles and automated checkpoint evaluation.
- Reached ∼1600 Elo strength against classical engines through iterative self-play and MCTS-guided training with performance-optimized **GPU** implementations.

Spotilike | ***TensorFlow***, ***DeepFace***, *Computer Vision, OpenCV* June 2025

- Created AI-driven music platform using **TensorFlow** and **DeepFace** for real-time emotion recognition from facial expressions via **computer vision** pipelines.
- Integrated OpenCV, Gemini API, and Spotify API to provide emotion-aware track recommendations with optimized inference performance.

Lofied | *Python,* ***torchaudio***, *Pedalboard, DSP* May 2025

- Developed a Python tool converting Spotify playlists to lo-fi tracks using **torchaudio** for audio processing, DSP algorithms, and Spotify API integration.
- Implemented Basic Pitch for audio-to-sheet-music conversion and Docker-based deployment; won Best Solo Hack & Top 6 Overall at JamHacks 2025.