

# Lin Hong

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10× Hackathon Winner · 2× Founding Engineer · Full-Stack & AI Developer

## 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: Intro to CS, Algorithm Design, Data Abstraction, Calculus 1 & 2

## SKILLS

**Languages:** Python, Go, Java, C++, JavaScript, TypeScript, Bash, PHP, HTML/CSS, Tailwind

**Technologies:** Git, Next.js, React, Flask, FastAPI, Docker, AWS, PostgreSQL, MongoDB, Nginx, Pytorch

## EXPERIENCE

### Walnote AI

July 2025 – Present

*Founding Engineer*

*Toronto, ON*

- Optimized a large-scale video rendering pipeline, reducing processing time by 5× through segment-based parallelization and 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.
- 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.
- 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%.

### Linovation Design

Summer 2024

*Full Stack Developer*

*Toronto, ON*

- Designed and launched 8 production websites using Next.js, React, TypeScript, Tailwind, and Figma.
- Built Flask APIs with JWT authentication and database integrations; deployed using Docker, Vercel, and MongoDB.

## PROJECTS

### HomeLab | *Linux, Docker, Nginx, Cloudflare*

May 2025 – Present

- Built a personal Linux server secured with SSH key-pair authentication and HTTPS reverse proxying.
- Deployed Dockerized Node.js apps with PM2 and Cloudflare DNS/routing for secure access.
- Developed an understanding of TCP/IP fundamentals, load balancing, and CDN architectures.

### Chess Bot | *PyTorch, Modal, Python*

June 2025

- Built an AlphaZero-style chess engine with a unified policy-value network trained via large-scale self-play reinforcement learning.
- 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.

### Spotilike | *Flask, Next.js, Tailwind, TensorFlow, DeepFace*

June 2025

- Created an AI-driven music discovery platform that matches songs to user emotions in real time.
- Integrated DeepFace, OpenCV, TensorFlow, Gemini, and Spotify API for emotion-aware track recommendations.
- Designed MongoDB schemas linking emotion embeddings to music metadata.

**Lofied** | *Python, torchaudio, Pedalboard*

May 2025

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

**Skip the Walk** | *Terraform, Commander.js, Slack API*

Sept 2024

- Built a CLI to automate Domino's pizza ordering and volunteer routing at Hack the North.
- Integrated Mappedin for indoor navigation and Terraform for workflow automation.
- Won Best Use of Terraform at Hack the North 2024.

**Flaim Brain** | *Flask, LangChain, MongoDB*

Jan 2024

- Implemented an AI mentor enabling file uploads, note summarization, and personalized study guides.
- Used GPT-4, Cloud Vision, and MongoDB Atlas Vector Search to provide semantic retrieval.
- Placed 4th at Hack the Valley 8 among 80 teams.

**Bill-in-Bytes** | *React Native, Google Cloud Vision*

May 2023

- Digitized paper receipts into structured data using OCR for easier expense tracking.
- Won Best UI/UX Hack & People's Choice at GryphHacks 2023.

**Ingredify** | *React Native, Cohere, MongoDB*

July 2023

- Extracted ingredient text using Tesseract OCR and analyzed health effects with Cohere NLP.
- Built personalized dietary recommendation features using MongoDB and React Native.

**Inner Voice** | *Next.js, Whisper, OpenAI TTS*

July 2023

- Built a multi-persona speech AI app with full STT and TTS accessibility.
- Integrated OpenAI APIs for persona generation and conversation flows.