

# JONNY LI

Toronto, Canada

✉ [jonny.li@alumni.utoronto.ca](mailto:jonny.li@alumni.utoronto.ca)

🌐 [linkedin.com/in/jonnylii](https://www.linkedin.com/in/jonnylii)

🐙 [github.com/jonnyli1125](https://github.com/jonnyli1125)

## Experience

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### SoundHound AI

Toronto, Canada

Senior Machine Learning Engineer

Aug 2025 – Present

- Developing an in-house real-time multimodal LLM service (ASR + LLM + TTS), enabling **10× cost savings** and **3x lower latency** over external APIs and enhancing the voice agent product experience.
- Fine-tuning LLMs for function calling with supervised fine-tuning and reinforcement learning (GRPO, DPO), achieving high accuracy with smaller models tailored for production-scale inference.
- Creating the first large-scale NLU simulation and evaluation framework with automated user-agent interactions, establishing reproducible benchmarks where no standard evaluation previously existed.

Machine Learning Engineer II

Aug 2023 – Jul 2025

- Led the design and deployment of an ASR error-correction LLM that achieved **+90% accuracy improvement** in entity recognition using a custom loss function and knowledge distillation from larger teacher models.
- Primary author of distributed LLM training infrastructure (DeepSpeed, Ray, Kubernetes) supporting ZeRO-3, long-context training, and multi-node experiments; adopted by research teams to accelerate LLM experimentation.
- Conducted in-house multimodal audio LLM research: implemented speech adapters/tokenizers from recent papers and developed high-throughput audio pipelines with S3 integration and lazy transforms to remove I/O bottlenecks.

Software Engineer

Oct 2021 – Jul 2023

- Developed automated hyperparameter optimization pipelines for ASR, delivering **+30% accuracy improvement**.
- Engineered Spark-based ETL pipelines processing **10s of TBs** of text data, achieving **2× throughput** improvements and enabling scaled training experiments.
- Authored end-to-end MLOps pipelines with well-designed API and integrations across Docker/Kubernetes, Spark, and internal tooling, reducing time spent on experiment iteration cycles by **5×**.

### Amazon

Vancouver, Canada

Software Engineer Intern

Jun 2020 – Aug 2020

- Built Python dependency graph analyzer to remove redundant configs, optimizing backend search engine efficiency.

### Mitsucari

Tokyo, Japan

Software Engineer Intern

Sep 2018 – Aug 2019

- Delivered full-stack web features with Rails, PostgreSQL, Heroku and improved UI with jQuery, Bootstrap, and SASS.

## Projects

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### CUDA Vector Search Engine | C++, CUDA, Python

- Implemented GPU-native vector search with custom CUDA kernels, achieving **50× better latency** vs baseline.

### Japanese Grammar Correction BERT | Keras, Tensorflow

- Trained and evaluated grammar correction models that surpassed prior state-of-the-art by **+10% accuracy**.
- Built large-scale synthetic data generation pipeline with streaming/chunked processing.

### Open Source Contributor | PyTorch, DeepSpeed, HF Transformers

- Resolved DeepSpeed ZeRO-3 integration bug in HF Transformers for audio models (e.g., Wav2Vec2).

## Technical Skills

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Languages: Python, C++, Java, JavaScript

Frameworks & Infra: PyTorch, TensorFlow, Ray, DeepSpeed, Kubernetes, Docker, Spark, Hadoop

ML/AI: LLM post-training, reinforcement learning, distributed training, inference optimization, MLOps pipeline design, ASR, large-scale ETL

## Education

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### University of Toronto

Toronto, Canada

Honours Bachelor of Science in Computer Science & Linguistics

Sep 2015 – Jun 2021