

JONNY LI

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Experience

SoundHound AI

Toronto, Canada

Senior Machine Learning Engineer

Aug 2025 – Present

- Led modeling efforts for voice agent LLMs, implementing simulated environments for large-scale synthetic data generation, systematic error analysis loops, and online RL, leading to equal/better tool use and instruction following performance than closed models for application domains at **90% less cost**.
- Led development of SFT/RL post-training pipeline for LLMs up to 120B params on Ray/Kubernetes with integrations for PEFT, FSDP/ZeRO-3, and long context sequence parallelism; unblocked key experiments by debugging GPU out-of-memory issues due to integration errors between HF Transformers, PEFT, DeepSpeed, and Liger-Kernel.
- Implemented multimodal speech LLMs from research papers with speech encoders/projectors/tokenizers, and experimented with custom encoders adapted from in-house ASR models to deliver initial proof-of-concept of multimodal instruction following LLMs.
- Built an OpenAI Realtime API clone from scratch to support in-house ASR/LLM/TTS models and speech LLMs in voice agent applications, designing a robust async-iterator streaming architecture and resolving complex coroutine, buffering, and cancellation issues for reliable and responsive behaviour at sub-second latencies.

Machine Learning Engineer II

Aug 2023 – Jul 2025

- Led LLM-based ASR entity name correction project from initial research to production, combining detailed data/error analysis, synthetic data generation, knowledge distillation, and architecture/loss function refinements to achieve **+90% accuracy on entity names** while staying under 300ms latency per request.
- Built Bayesian optimization-based hyperparameter tuning pipeline for tuning dataset mixture weights, delivering **+30% accuracy improvement** in production ASR model.

Software Engineer

Oct 2021 – Jul 2023

- Engineered large-scale Spark ETL pipeline handling tens of TBs, debugged cluster out-of-memory issues by analyzing logical/physical plans of Spark SQL queries and implementing salting/sharding to resolve data skew across partitions, achieving **200% throughput** of previous pipeline, significantly reducing experiment iteration time.
- Authored end-to-end MLOps pipelines, designed clear and extensible APIs, resolved complex Docker dependency issues, and used Docker Compose/Kubernetes to stand up test environments for integration/end-to-end testing, which reduced manual work and experiment iteration time by **500%**.

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 (Github)

Streaming TTS Inference Server | PyTorch, CUDA, Python

2026

- Built bidirectional streaming (text input and audio output) websocket server for Qwen3-TTS model by translating research paper to code and implementing custom optimized inference code, achieving 100 ms TTFC.

Open Source Contributor | Hugging Face Transformers, TRL, PEFT

2024 - Present

- Contributed several distributed training bug fixes to open source libraries, e.g. caught/debugged GPU out-of-memory issues due to memory leaks and fixed several DeepSpeed ZeRO-3 integration bugs.

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

2024

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

Japanese Grammar Correction LLM | Keras, Tensorflow

2023

- Implemented/reproduced a grammar correction BERT model from a research paper and built a large-scale synthetic data generation pipeline with streaming/chunked processing to achieve **+10% accuracy over previous state-of-the-art**.

Education

University of Toronto

Toronto, Canada

Bachelors of Science in Computer Science & Linguistics (Honours)

Sep 2015 – Jun 2021

- Studied abroad at University of Tokyo from Sep 2018 - Aug 2019.