

Ji Sung Han

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EDUCATION

University of Toronto

Sep. 2021 – Dec. 2025

Honours Bachelor of Science in **Computer Science and Statistics**

- Technical Director of UofT Crypto Club.

Relevant Coursework:

Database System, Operating System, Software Engineering, Web Systems & Security, Machine Learning, Deep Learning

EXPERIENCE

LangChain-AI

Sep. 2024 – Dec. 2024

Software Developer, Open Source (via University of Toronto)

- Developed an optimized **Dropbox Document Loader** using **TypeScript** and **Node.js**, integrating into **LangChain's AI-driven document pipeline** to streamline document retrieval and processing, handling **10,000+ files** efficiently.
- Implemented **asynchronous batch processing** and **adaptive retry mechanisms**, reducing redundant API calls by **30%** and improving retrieval speed while enhancing **fault tolerance** under network constraints.

Chemtronics

Jan. 2023 – Aug. 2023

Machine Learning Developer Intern

- Developed a **computer vision-based ADAS perception model** using **YOLOv5** and **DeepSORT**, leveraging **Darknet (C++, CUDA)** for real-time vehicle and pedestrian detection, improving object detection accuracy by **20%** and evaluated on **50,000+ test samples**.
- Optimized model deployment by integrating **TensorRT** for inference acceleration and containerizing with **Docker**, achieving **1.8x faster inference** on automotive hardware with **FP16 quantization**.

Maple Bit Services

May 2022 – Aug. 2022

Software Developer Intern

- Optimized the **payment processing system** for the company's **Point of Sale (POS)** platform using **Python (FastAPI)**, **C++ (gRPC)**, and **PostgreSQL**, reducing transaction times by **35%** through asynchronous processing and caching.
- Implemented a **distributed caching solution** with **Redis**, improving database performance by integrating **sharding**, **partitioning**, and **advanced indexing strategies** for optimized data distribution.

PROJECTS

Lifomation | Angular, Express.js, PostgreSQL, FAISS, OpenAI Embeddings, Textact, **Deployed on GCP**

- Developed an **advanced AI-powered document search web application** using **RAG** with **FAISS** and **OpenAI Embeddings**, enabling **semantic search**, **deadline-based retrieval** and **contextual recommendations**.
- Implemented **OCR-based document processing** with **Textact**, extracting key entities from scanned documents and improving search accuracy by 85%, which **attracted Sequoia Capital's interest, leading to an interview**.

Quotis | React, TypeScript, AWS S3, MongoDB, WebSockets, Express.js (Node.js), **Deployed on AWS EC2 and GitLab**

- Architected and led the development of a **real-time community App** connecting users with handymen, featuring **multimedia job postings**, **WebSocket-based messaging**, and **live arrival tracking**.
- Implemented **AWS S3 for secure file storage**, **MongoDB for scalable data management**, and a **React Native, TypeScript** stack for a responsive cross-platform experience, securing \$4,000 in grants with **20+ freelancers** waitlisted.

Resumify | React, MongoDB, Django, Firebase, GPT API

- Engineered an **AI-driven resume generation system** leveraging the **GPT API** for **ATS-optimized formatting**, integrating **real-time content analysis** and **customizable templates**.
- Built a **scalable full-stack architecture** with **Django**, **MongoDB**, and **Firebase**, implementing **secure authentication**, **efficient document storage**, and **dynamic PDF generation**.

AI-Generated Image Detection | Python, PyTorch, TensorFlow, OpenCV, Weights & Biases, GitHub

- Developed an **Ensemble Deep Learning Model** integrating **EfficientNet**, **ResNet**, and **Swin Transformer** using **Late Fusion**, improving **F1-score** from **58% to 92%** on **19,986 test images**.
- Engineered an **end-to-end training pipeline** in **PyTorch**, optimizing model performance with **Bayesian Optimization**, **Focal Loss**, and **advanced data augmentation** (MixUp, CutMix).

TECHNICAL SKILLS

Languages: Python, HTML/CSS, JavaScript, TypeScript, C, C++, C#, Java, Kotlin, R, Bash, Haskell

Frameworks: React, Node.js, Express.js, Flask, Django, FastAPI, .NET, NEXT, Angular

Databases: SQL, Firebase, MongoDB, SQLite, DynamoDB, Neo4j, PostgreSQL, Supabase

Tools: Gitlab, GitHub, Linux, Docker, Android Studio, XCode, Unity, Ansible, Postman, OpenShift, Kubernetes