

Ji Sung Han

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EDUCATION

University of Toronto

Sep. 2021 – Dec. 2025

Honours Bachelor of Science in Computer Science and Statistical Machine Learning

- Technical Director of UofT AI and Crypto Club.

Relevant Coursework:

Database System, Operating System, Software Engineering, Data Structure and Algorithm, Machine Learning, Deep Learning

EXPERIENCE

Open Source Developer

Sep. 2024 – Dec. 2024

Langchain(via. University of Toronto)

- Implemented a **Dropbox Document Loader** using **TypeScript**, allowing seamless integration of **Dropbox** files into applications, which enhanced user experience by simplifying document access and management.
- Optimized **document retrieval speed by 20%**, improving **error handling**, and enabling **better data synchronization** for seamless integration.

Machine Learning Engineer Intern

Jan. 2023 – Aug. 2023

Chemtronics

- Utilized **LabelImg** to annotate the training dataset with bounding boxes for accurate object labeling, Implemented the **YOLO** model using the **Darknet** framework with **C++** and **CUDA** for real-time object detection, improving accuracy by **20%** and validating performance with approximately **50,000 tested samples**.
- leveraged **OpenCV** for image preprocessing and real-time video analysis.
- Enhanced model performance through **data augmentation**, **architecture adjustments**, and **hyperparameter tuning**, using **Matplotlib**, **NumPy**, **Seaborn**, **TensorBoard**, and **Optuna** for performance analysis.

Software Engineer Intern

May 2022 – Aug. 2022

Maple Bit Services

- Enhanced the **payment processing system** for the company's **Point of Sale (POS)** platform utilizing **Python** and **C++**, incorporating asynchronous processing methods that led to a **35% reduction** in transaction times.
- Developed a **distributed caching** solution using **Redis** and enhanced database performance by implementing advanced **partitioning** strategies, optimizing data distribution across servers.

PROJECTS

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

- Developed an **advanced AI-powered document search engine** 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**.

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).

Quotis | *React, TypeScript, AWS S3, MongoDB, WebSockets, System Design*

- Architected and led the development of a **real-time social platform** 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**.

TECHNICAL SKILLS

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

Frameworks: React, Node, Flask, Django, Express, Bootstrap, Expo, Mongoose, JUnit, Redux, FastAPI, TensorFlow, PyTorch, Scikit-learn, Pandas, NumPy, .NET, Langchain, Keras, Tesseract, NEXT, Angular, XGBoost

Databases: SQL, SQLAlchemy, Firebase, MongoDB, SQLite, AWS, Neo4j, PostgreSQL

Tools: GIT, GitHub, Linux, Docker, Agile, Android Studio, XCode, Unity, Ansible, OpenCV, Postman, OpenShift