

# Young Hyun Yoo

Software Engineer

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## SUMMARY

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Staff Engineer and AI Researcher with over 9 years of experience bridging the gap between scalable software systems and advanced Natural Language Processing. Proven expertise in full-stack development (Java/Spring, React) and LLM application development (LangChain, PyTorch). Published author at ACL 2024 with a strong track record of delivering mission-critical enterprise solutions, from billing systems to on-device AI agents.

## TECHNICAL SKILLS

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- **Languages:** Java, Python, C++, SQL, TypeScript, Shell Script
- **AI & ML:** PyTorch, HuggingFace, LangChain, LangGraph, RAG, LLM Integration
- **Backend & Cloud:** Spring (Boot, WebFlux, JPA, Security), AWS (ECS, EKS), Docker, Terraform, MySQL, Redis
- **Concepts & Methodologies:** System Architecture,DDD, TDD, CI/CD, RESTful API, PCI-DSS, Scrum

## EXPERIENCE

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- **Automatic Content Recognition — Samsung Electronics Co., Ltd.** Suwon, Korea  
*Staff Engineer* Dec 2024 – Present
  - **Real-Time Systems:** Engineered a high-throughput automatic content matching pipeline to synchronize live TV content with targeted advertisements, optimizing for low-latency detection and high accuracy.
- **Agentic AI Chatbot — Samsung Electronics Co., Ltd.** Suwon, Korea  
*Staff Engineer* Mar 2024 – Nov 2024
  - **LLM Application Architecture:** Architected an On-device Virtual Assistant using AWS Bedrock and LangChain/LangGraph, implementing advanced agentic workflows for complex reasoning and function calling.
- **Sentence Representation Learning Research — Hanyang University** Seoul, Korea  
*Researcher* Jun 2022 – Feb 2024
  - **ACL 2024 Publication:** Lead author of *Hyper-CL*, introducing a Hypernetwork-based approach to condition sentence embeddings, significantly outperforming baselines in semantic retrieval tasks.
  - **Korean NLP Analysis:** Conducted extensive comparative analysis of unsupervised contrastive learning approaches, optimizing performance specifically for Korean language syntax (Published at HCLT 2022).
- **Billing Development — Samsung Electronics Co., Ltd.** Suwon, Korea  
*Engineer* Nov 2016 – Mar 2022
  - **Architecture Migration:** Orchestrated the transition of the Buyer Portal from a legacy monolithic architecture to Microservices (MSA) using AWS ECS and Terraform, significantly improving scalability and deployment velocity.
  - **Full-Stack Leadership:** Spearheaded the modernization of the Content Partner (CP) and Buyer Portals, migrating legacy systems to a modern stack (React, Spring Boot, JPA) to enhance user experience and maintainability.
  - **Security & Compliance:** Re-architected core billing services to achieve PCI-DSS compliance and implemented 3DS2 standards to meet EU PSD2 regulations, ensuring secure global transaction processing.
  - **Testing Automation:** Established a robust automated integration test framework using SoapUI and Groovy, reducing regression defects and accelerating the QA cycle.
  - **Feature Engineering:** Developed complex subscription management features allowing real-time product changes for active users and integrated remote authentication flows between smartphones and Smart TVs.
- **BSP Development — Samsung Electronics Co., Ltd.** Suwon, Korea  
*Engineer* Feb 2015 – Nov 2016
  - **Kernel Engineering:** Enhanced system stability and debugging capabilities by porting the Ramdump feature to the Samsung Smart TV Linux kernel, enabling critical post-mortem analysis of system crashes.
- **Samsung Software Membership** Suwon, Korea  
*Undergraduate* Feb 2013 – Feb 2015

- **Kernel Modification Project:** Engineered a custom Android kernel modification to virtualize smartphone peripherals (Camera, Speaker, Mic) as PC input devices via USB gadget drivers.
- **Award:** Recognized with the "Best Project of the Year" award for technical innovation and implementation quality.

## EDUCATION

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- **Hanyang University** Seoul, Korea  
*Master of Science in Computer Science; GPA: 4.06/4.5* *Mar 2022 – Feb 2024*
- **Hongik University** Seoul, Korea  
*Bachelor of Science in Computer Engineering; GPA: 3.5/4.5* *Mar 2008 – Feb 2015*

## PUBLICATIONS

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- **Young Hyun Yoo**, Jii Cha, Changhyeon Kim and Taeuk Kim, Hyper-CL: Conditioning Sentence Representations with Hypernetworks, *The 62nd Annual Meeting of the Association for Computational Linguistics (ACL 2024)*.
- **Young Hyun Yoo**, Kyumin Lee, Minjin Jeon, Jii Cha, Kangsan Kim, and Taeuk Kim, Comparison and Analysis of Unsupervised Contrastive Learning Approaches for Korean Sentence Representations, *The 34th Annual Conference on Human and Cognitive Language Technology (HCLT 2022)*.

## ADDITIONAL INFORMATION

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- **Achievements**
  - Selected as a core talent by Samsung Core Talent Management (2022-2024)
- **Languages**
  - English: Proficient, Korean: Native