

# 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 acting as a bridge between scalable software systems and advanced Natural Language Processing. As a Hands-on Tech Lead, proven expertise in optimizing large-scale backend infrastructure and validating next-gen AI applications. Published author at ACL 2024 with a strong track record of driving engineering density through code reviews, DevOps modernization, and cost-efficient architecture design.

## 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, Lambda), CDK, Docker, Terraform, MySQL, Redis
- **Concepts & Methodologies:** System Architecture, DDD, TDD, CI/CD, RESTful API, PCI-DSS, Scrum, IaC

## EXPERIENCE

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- **Automatic Content Recognition — Samsung Electronics Co., Ltd.** Suwon, Korea  
*Staff Engineer* Dec 2024 – Present
  - **Infrastructure & Cost Optimization:** Spearheaded infrastructure refactoring (Graviton migration, OneTBB removal), achieving a **15% reduction in server costs** and **54% improvement in memory efficiency**.
  - **DevOps & Productivity:** Modernized development workflows by introducing AWS CDK (IaC) and Conan package manager, and re-architected network subnets to significantly improve maintainability and operational productivity.
  - **Algorithm Engineering:** Engineered a lightweight, client-server Game Detection algorithm capable of zero-shot recognition for new games (F1 0.70), establishing a scalable data foundation for new business models.
  - **System Reliability:** Established a robust RCA-based failure management process and centralized alarm systems, eliminating monitoring blind spots and enhancing global service stability.
- **Agentic AI Chatbot — Samsung Electronics Co., Ltd.** Suwon, Korea  
*Staff Engineer* Mar 2024 – Nov 2024
  - **Next-Gen Service Prototyping (PoC):** Led the Proof of Concept for a context-aware TV assistant using AWS Bedrock and LangGraph. Verified technical feasibility for dynamic content discovery through multi-turn dialogue analysis.
- **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, securing foundational technology for high-performance semantic retrieval.
  - **NLP Asset Internalization:** Conducted extensive comparative analysis of unsupervised contrastive learning approaches, optimizing performance for Korean language syntax to enhance the organization's R&D assets (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