

Ji Young Kim

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RESEARCH INTERESTS Large Language Models (LLMs), Program Synthesis & Automated Debugging, Retrieval-Augmented Generation (RAG), Semantic Search, Reasoning Extraction, Software Engineering for AI Systems

EDUCATION **Seoul National University** Mar. 2015-Feb. 2017
Master of Science in Computer Science and Engineering

Korea University Mar. 2010-Aug. 2014
Bachelor of Science in Computer and Communication Engineering

PUBLICATIONS

- [1] S. Bae, D. Ban, D. Han, **J. Kim**, K.-h. Lee, S. Lim, W. Park, and C.-k. Kim, "StreetSense: Effect of bus Wi-Fi APs on pedestrian smartphone," in *Proc. 2015 Internet Measurement Conf. (IMC '15)*, New York, NY, USA, 2015, pp. 347–353, doi: [10.1145/2815675.2815715](https://doi.org/10.1145/2815675.2815715)
- [2] J. Park, **J. Kim**, K. Kim, S. Jang, and C.-k. Kim, "CTI in Wi-Fi/Bluetooth combo modules," poster presented at the *13th USENIX Symp. Networked Systems Design and Implementation (NSDI '16)*, Santa Clara, CA, USA, Mar. 2016
- [3] J. Chung, D. Han, **J. Kim**, and C.-k. Kim, "Machine learning based path management for mobile devices over MPTCP," in *Proc. 2017 IEEE Int. Conf. Big Data Smart Comput. (BigComp)*, Jeju, Korea (South), 2017, pp. 206–209, doi: [10.1109/BIGCOMP.2017.7881739](https://doi.org/10.1109/BIGCOMP.2017.7881739)
- [4] **J. Kim**, D. Han, and C.-k. Kim, "Impact of diverse document-evaluation measure-based searching methods in big data search accuracy," *J. KIISE*, vol. 44, no. 5, pp. 553–558, 2017.

RESEARCH EXPERIENCE **University of Illinois Urbana-Champaign (UIUC)** Sep. 2025-Present
Research Intern

Collaborating with Prof. Darko Marinov on a large-scale study of real-world software bugs reported in academic research.

Research Contribution

- **Bug Dataset Construction** Collected, verified, and standardized bug reports from academic papers and open-source repos; designed metadata schema and led manual validation
- **Reproduction Test & APR Evaluation** Applied reproduction tools (SWE-agent, AssertFlip) and APR systems to benchmark their ability to reproduce or fix bugs; analyzed failure cases and tool limitations.
- **Pipeline & Automation Development** Implemented automated pipelines for repo checkout, test execution, APR evaluation, and artifact generation (JSONL/CSV), enabling scalable processing. Built scalable scripts that enabled team members to evaluate hundreds of bugs efficiently.
- **Project Coordination & Research Leadership** Led weekly sync meetings with multinational student teams; organized workstreams (data cleaning, reproduction testing, evaluation) and maintained unified methodology and documentation.

SAP Labs Korea

Data Scientist Jun. 2023-Present

Focused on building LLM-based systems for automated debugging, reasoning extraction, and developer-assistance tools. Designed research-driven pipelines for analyzing historical bug reports, extracting structured reasoning, and enhancing fault localization and solution prediction.

Key Research Projects

- **Reasoning Path: New Approach to Capture Historical Bug Resolution Processes** Extracted structured reasoning steps (observation → thought → action → evaluation) from historical HANA bug

- reports to improve root cause analysis and solution generation. Developed evaluation metrics for structural consistency and contextual reliability.
- **Semantic Search for Bug Report Retrieval** Designed chunking + hierarchical retrieval (tree-structured RAG) pipeline that significantly improved relevance and precision over keyword-based search.
 - **LLM-based Bug Report Summarization** Built an LLM summarization module that distilled essential debugging signals while enforcing sensitive-information filtering.

Seoul National University - Social & Computer Network Lab

Data Scientist

Jan. 2015-Feb. 2017

Conducted research on wireless networking, communication interference, and recommender systems using large-scale mobility datasets.

- Selected Research Contributions
- Published at **IMC’15** and **NSDI’16** through joint industry–academia projects with Samsung Electronics.
 - Developed machine learning models for path management in MPTCP and large-scale location-based recommender systems.

RESEARCH GRANTS	<p>Total funding secured: ₩950,000 (Korean government + private companies)</p> <p><i>I led ideation, proposal writing, and served as Project Director for execution.</i></p> <div> <div> <ul style="list-style-type: none"> • AI Multi-agent for Intelligent Video Highlight Extraction (2025) • Chrome Extension for Watermarking, LLM-based Service (2024) • Cloud Web Storage Platform (2024) • Webtoon-to-Animation Production Tool (2023-2024) • Data Processing (2022–2023) Korea Data Agency </div> <div> <p>Secured \$100,000</p> <p>Secured \$100,000</p> <p>Secured \$90,000</p> <p>Secured \$500,000</p> <p>Secured \$160,000</p> </div> </div>
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INDUSTRY EXPERIENCE (SELECTED, RESEARCH-RELEVANT)	<div> <div>SAP Labs Korea</div> <div> <div>Analytical Reporting Developer</div> <div>Nov. 2017- May. 2023</div> </div> </div> <p>Developed enterprise-scale CI/CD monitoring and development-quality analysis systems.</p> <ul style="list-style-type: none"> • Built automated dashboards, ETL pipelines, and migration frameworks from on-premise to cloud. • Designed data models for tracking development velocity, regression patterns, and CI health. <div> <div>PatternTech</div> <div> <div>Director / Project Manager</div> <div>Jun. 2020-Present</div> </div> </div> <p>Led AI projects combining LLMs, vision models, and large-scale data processing.</p> <ul style="list-style-type: none"> • Built Chrome-based LLM tools (translation, summarization, document search). • Managed architecture for AI-assisted animation production systems. <div> <div>Korea Information Technology Corporation</div> <div> <div>Senior Researcher</div> <div>Feb. 2017-Nov 2017</div> </div> </div> <p>Developed IoT devices and real-time monitoring systems for health and senior care.</p>
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AWARDS	<div> <div>Honors and Awards</div> <div> <ul style="list-style-type: none"> • Ceremonial speaker for the SAP Academy for Engineering graduation • SAP Early talent award </div> </div> <div> <div>Academic Scholarship</div> <div> <ul style="list-style-type: none"> • Scholarship for academic excellence in Seoul National University (1 semester) </div> </div> <div> <div>2023</div> <div>2019</div> <div>2016</div> </div>
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SKILLS AND CERTIFICATIONS	<div> <div>TOEFL 104</div> <div> <div>(Reading 26, Listening 28, Speaking 24, Writing 26)</div> <div>Jul. 2025</div> </div> </div>
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