

# 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	<b>Seoul National University</b> <i>Master of Science in Computer Science and Engineering</i>	<i>Mar. 2015-Feb. 2017</i>
	<b>Korea University</b> <i>Bachelor of Science in Computer and Communication Engineering</i>	<i>Mar. 2010-Aug. 2014</i>
PUBLICATIONS	<ul style="list-style-type: none"><li>[1] S. Bae, D. Ban, D. Han, <b>J. Kim</b>, K.-h. Lee, S. Lim, W. Park, and C.-k. Kim, "StreetSense: Effect of bus Wi-Fi APs on pedestrian smartphone," in <i>Proc. 2015 Internet Measurement Conf. (IMC '15)</i>, New York, NY, USA, 2015, pp. 347–353, doi: <a href="https://doi.org/10.1145/2815675.2815715">10.1145/2815675.2815715</a></li><li>[2] J. Park, <b>J. Kim</b>, K. Kim, S. Jang, and C.-k. Kim, "CTI in Wi-Fi/Bluetooth combo modules," poster presented at the <i>13th USENIX Symp. Networked Systems Design and Implementation (NSDI '16)</i>, Santa Clara, CA, USA, Mar. 2016</li><li>[3] J. Chung, D. Han, <b>J. Kim</b>, and C.-k. Kim, "Machine learning based path management for mobile devices over MPTCP," in <i>Proc. 2017 IEEE Int. Conf. Big Data Smart Comput. (BigComp)</i>, Jeju, Korea (South), 2017, pp. 206–209, doi: <a href="https://doi.org/10.1109/BIGCOMP.2017.7881739">10.1109/BIGCOMP.2017.7881739</a></li><li>[4] <b>J. Kim</b>, D. Han, and C.-k. Kim, "Impact of diverse document-evaluation measure-based searching methods in big data search accuracy," <i>J. KIISE</i>, vol. 44, no. 5, pp. 553–558, 2017.</li></ul>	
RESEARCH EXPERIENCE	<b>University of Illinois Urbana-Champaign (UIUC)</b> <i>Research Intern</i>	<i>Sep. 2025-Present</i>
	Collaborating with Prof. Darko Marinov on a large-scale study of real-world software bugs reported in academic research.	
	<p>Research Contribution</p> <ul style="list-style-type: none"><li>• <b>Bug Dataset Construction</b> Collected, verified, and standardized bug reports from academic papers and open-source repos; designed metadata schema and led manual validation</li><li>• <b>Reproduction Test &amp; APR Evaluation</b> Applied reproduction tools (SWE-agent, AssertFlip) and APR systems to benchmark their ability to reproduce or fix bugs; analyzed failure cases and tool limitations.</li><li>• <b>Pipeline &amp; Automation Development</b> 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.</li><li>• <b>Project Coordination &amp; Research Leadership</b> Led weekly sync meetings with multinational student teams; organized workstreams (data cleaning, reproduction testing, evaluation) and maintained unified methodology and documentation.</li></ul>	
	<b>SAP Labs Korea</b> <i>Data Scientist</i>	<i>Jun. 2023-Present</i>
	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.	
	<p>Key Research Projects</p> <ul style="list-style-type: none"><li>• <b>Reasoning Path: New Approach to Capture Historical Bug Resolution Processes</b> Extracted structured reasoning steps (observation → thought → action → evaluation) from historical HANA bug</li></ul>	

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

Total funding secured: \$950,000 (Korean government + private companies)

*I led ideation, proposal writing, and served as Project Director for execution.*

• <b>AI Multi-agent for Intelligent Video Highlight Extraction</b> (2025)	Secured <b>\$100,000</b>
• <b>Chrome Extension for Watermarking, LLM-based Service</b> (2024)	Secured <b>\$100,000</b>
• <b>Cloud Web Storage Platform</b> (2024)	Secured <b>\$90,000</b>
• <b>Webtoon-to-Animation Production Tool</b> (2023-2024)	Secured <b>\$500,000</b>
• <b>Data Processing (2022–2023)</b> Korea Data Agency	Secured <b>\$160,000</b>

## INDUSTRY EXPERIENCE (SELECTED, RESEARCH-RELEVANT)

### **SAP Labs Korea Analytical Reporting Developer**

*Nov. 2017- May. 2023*

Developed enterprise-scale CI/CD monitoring and development-quality analysis systems.

- 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.

### **PatternTech Director / Project Manager**

*Jun. 2020-Present*

Led AI projects combining LLMs, vision models, and large-scale data processing.

- Built Chrome-based LLM tools (translation, summarization, document search).
- Managed architecture for AI-assisted animation production systems.

### **Korea Information Technology Corporation Senior Researcher**

*Feb. 2017-Nov 2017*

Developed IoT devices and real-time monitoring systems for health and senior care.

## AWARDS

### **Honors and Awards**

- Ceremonial speaker for the SAP Academy for Engineering graduation 2023
- SAP Early talent award 2019

### **Academic Scholarship**

- Scholarship for academic excellence in Seoul National University (1 semester) 2016

## SKILLS AND CERTIFICATIONS

### **TOEFL 104** (Reading 26, Listening 28, Speaking 24, Writing 26)

*Jul. 2025*