

# Sunkyung Lee

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## Research Interests

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I am primarily interested in Information Retrieval, especially focusing on sparse retrieval and generative retrieval. My research interests lie in the fields of data mining and natural language processing in real-world applications.

## Education

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### Sungkyunkwan University

PH.D., DEPARTMENT OF ARTIFICIAL INTELLIGENCE

- Advisor: Prof. Jongwuk Lee

Republic of Korea

Mar 2023 – present

### Sungkyunkwan University

M.S., DEPARTMENT OF ARTIFICIAL INTELLIGENCE

- Thesis: A Dual Document Encoder Based on Sparse Representations for First-stage Retrieval
- Advisor: Prof. Jongwuk Lee
- GPA: 4.02 / 4.5

Republic of Korea

Mar 2021 – Feb 2023

### Sungkyunkwan University

B.S., DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

- Project: Data Augmentation Methods for Improving the Performance of Machine Reading Comprehension
- Advisor: Prof. Jongwuk Lee
- GPA: 4.02 / 4.5

Republic of Korea

Mar 2017 – Feb 2021

B.A., DEPARTMENT OF GLOBAL ECONOMICS

- GPA: 3.78 / 4.5

Mar 2017 – Feb 2021

## Publications

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### INTERNATIONAL CONFERENCES

**Sunkyung Lee\***, Minjin Choi\*, Jongwuk Lee, GLEN: Generative Retrieval via Lexical Index Learning. The 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP). 2023 (\* : equal contribution)

Hye-young Kim\*, Minjin Choi\*, **Sunkyung Lee**, Eunseong Choi, Young-In Song, Jongwuk Lee, ConQueR: Contextualized Query Reduction using Search Logs. The 46th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR, short paper). 2023 (\* : equal contribution)

Eunseong Choi\*, **Sunkyung Lee\***, Minjin Choi, Hyeseon Ko, Young-In Song, Jongwuk Lee, SpaDE: Improving Sparse Representations using a Dual Document Encoder for First-stage Retrieval, *In Proceedings of the 31st ACM International Conference on Information and Knowledge Management (CIKM)*, 2022 (\*: equal contribution)

Minjin Choi, **Sunkyung Lee**, Eunseong Choi, Heesoo Park, Junhyuk Lee, Dongwon Lee, Jongwuk Lee, MelBERT: Metaphor Detection via Contextualized Late Interaction using Metaphorical Identification Theories, *Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL)*, 2021

### DOMESTIC CONFERENCES

Jiwoo Kim, **Sunkyung Lee**, Eunseong Choi, and Jongwuk Lee. Pseudo-sentence Representation for Math Word Solving Problem. *Korea Computer Congress (KCC)*, 2022 (Best presentation paper)

**Sunkyung Lee**, Seonho Jeong, Jongwuk Lee, Data Augmentation Methods for Improving the Performance of Machine Reading Comprehension, *Korea Software Congress (KSC)*, 2020 (Best paper)

### DOMESTIC JOURNALS

**Sunkyung Lee**, Eunseong Choi, Seonho Jeong, Jongwuk Lee, Data Augmentation Methods for Improving the Performance of Machine Reading Comprehension, *Journal of KIISE*, 2021

## Professional Experience

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2021 **Research Intern**, NAVER Search CIC, NAVER Corp., Republic of Korea

## Honors and Awards

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2023	<b>2nd place (Minister Award)</b> , 6th AI Grand Challenge Stage II: Policy Support AI	IITP
2023	<b>4th place (Minister Award)</b> , 6th AI Grand Challenge Stage I: Policy Support AI	IITP
2022	<b>1st place (Minister Award)</b> , 5th AI Grand Challenge Stage III: Math Word Problem Solving	IITP
2022	<b>Best Presentation Paper Award</b> , Korea Computer Congress	KIISE
2021	<b>Grand Prize (2nd prize)</b> , SKKU Graduate Student Paper Awards (2/200 teams)	SKKU
2021	<b>3rd Prize (Minister Award)</b> , 5th AI Grand Challenge Stage II: Math Word Problem Solving	IITP
2020	<b>Best Paper Award</b> , Korea Software Congress	KIISE

## Scholarships

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2023-2025	<b>Daesang Foundation Scholarship</b> , Daesang Foundation, Republic of Korea	Full tuition
2021-2023	<b>Graduate School Scholarship</b> , Sungkyunkwan University, Republic of Korea	

## Presentations

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**SKKU AI Colloquium 2023** *Suwon-si, Republic of Korea*  
PRESENTER IN POSTER SESSION *Sep. 2023*  
• Introduced the paper "SpaDE: Improving Sparse Representations using a Dual Document Encoder for First-stage Retrieval", CIKM (2022)

**Korea Software Congress 2022** *Jeju, Republic of Korea*  
PRESENTER IN TOP CONFERENCE SESSION (ORAL) *Dec. 2022*  
• Introduced the paper "SpaDE: Improving Sparse Representations using a Dual Document Encoder for First-stage Retrieval", CIKM (2022)

## Teaching Experience

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### REGULAR COURSES

2023	<b>Introduction to Recommender Systems</b> , Teaching Assistant	SKKU
2022	<b>Fundamentals of Machine Learning</b> , Teaching Assistant	SKKU
2021	<b>Fundamentals of Machine Learning</b> , Teaching Assistant	SKKU
2022	<b>Introduction to Database</b> , Teaching Assistant	SKKU
2021	<b>Introduction to Database</b> , Teaching Assistant	SKKU

### EXTRACURRICULAR COURSES

2022	<b>Machine Learning, Manufacture AI Leader Course, LG Electronics</b> , Teaching Assistant
2022	<b>Machine Learning, Software Architecture Course, Samsung SDS</b> , Teaching Assistant
2021	<b>Machine Learning, Manufacture AI Leader Course, LG Electronics</b> , Teaching Assistant

## Reference

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**Jongwuk Lee**, Associate professor, Sungkyunkwan University, [jongwuklee@skku.edu](mailto:jongwuklee@skku.edu)