Sunkyung Lee

Sungkyunkwan University (SKKU), Suwon-si, Gyeonggi-do, Republic of Korea

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Research Interests

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

Sungkyunkwan University   *Republic of Korea*
PH.D., DEPARTMENT OF ARTIFICIAL INTELLIGENCE   *Mar 2023 – present*
- Advisor: Prof. Jongwuk Lee

Sungkyunkwan University   *Republic of Korea*
M.S., DEPARTMENT OF ARTIFICIAL INTELLIGENCE   *Mar 2021 – Feb 2023*
- Thesis: A Dual Document Encoder Based on Sparse Representations for First-stage Retrieval
- Advisor: Prof. Jongwuk Lee

Sungkyunkwan University   *Republic of Korea*
B.S., DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING   *Mar 2017 – Feb 2021*
- Project: Data Augmentation Methods for Improving the Performance of Machine Reading Comprehension
- Advisor: Prof. Jongwuk Lee

B.A., DEPARTMENT OF GLOBAL ECONOMICS   *Mar 2017 – Feb 2021*

Publications

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

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

Honors and Awards

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

Scholarships

2023-2025	**Daesang Foundation Scholarship**, Daesang Foundation, Republic of Korea	*Full tuition*
2021-2023	**Graduate School Scholarship**, Sungkyunkwan University, Republic of Korea	

Presentations

Korea Computer Congress 2024 — *Jeju, Republic of Korea*
PRESENTER IN TOP CONFERENCE SESSION (ORAL) — *Jun. 2024*
- Introduced the paper "GLEN: Generative Retrieval via Lexical Index Learning", EMNLP (2023)

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

REGULAR COURSES

2023	**Introduction to Recommender Systems**, Teaching Assistant	*SKKU*
2022	**Fundamentals of Machine Learning**, Teaching Assistant	*SKKU*
2021	**Fundamentals of Machine Learning**, Teaching Assistant	*SKKU*
2022	**Introduction to Database**, Teaching Assistant	*SKKU*
2021	**Introduction to Database**, Teaching Assistant	*SKKU*

EXTRACURRICULAR COURSES

2022	**Machine Learning, Manufacture AI Leader Course, LG Electronics**, Teaching Assistant
2022	**Machine Learning, Software Architecture Course, Samsung SDS**, Teaching Assistant
2021	**Machine Learning, Manufacture AI Leader Course, LG Electronics**, Teaching Assistant

Reference

Jongwuk Lee, Associate professor, Sungkyunkwan University, jongwuklee@skku.edu