Sunkyung Lee

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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

UNDER REVIEW

Sunkyung Lee, Minjin Choi, Eunseong Choi, Hye-young Kim, Jongwuk Lee, Generative recommendation with effective and efficient prompting, 2024.

Minjin Choi, **Sunkyung Lee**, Seongmin Park, Jongwuk Lee, Utilizing linear and neural models for session-based recommendation, 2024.

Hye-young Kim, Minjin Choi, **Sunkyung Lee**, Ilwoong Baek, Jongwuk Lee, Side-information enhanced sequential recommendation with frequency domain, 2024.

INTERNATIONAL CONFERENCES

Eunseong Choi, **Sunkyung Lee**, Minjin Choi, June Park, Jongwuk Lee, From Reading to Compressing: Exploring the Multi-document Reader for Prompt Compression. Findings of the Association for Computational Linguistics: EMNLP 2024 (**EMNLP findings**). 2024

Hyunsoo Kim*, Junyoung Kim*, Minjin Choi, **Sunkyung Lee** and Jongwuk Lee, MARS: Matching Attribute-aware Representations for Text-based Sequential Recommendation. The 33rd ACM International Conference on Information and Knowledge Management (**CIKM**). 2024 (*: equal contribution)

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**). 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. 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

NAVER Search CIC, NAVER Corp. *Seongnam, Republic of Korea*
RESEARCH INTERN *Jul. 2021- Aug. 2021*
- Developed sparse representation-based document retrieval system utilizing pre-trained language models
- Implemented pipeline to validate the performance of retrieval models on real-world search log data

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

Data Intelligence Workshop 2024 @ Database Society of Korea *Sokcho, Republic of Korea*
PRESENTER IN POSTER SESSION *Jul. 2024*
- Introduced the paper "GLEN: Generative Retrieval via Lexical Index Learning", EMNLP (2023)

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