

# YOONSANG LEE

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## RESEARCH INTEREST

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My research interest lies in natural language processing and machine learning. Especially, I am interested in information retrieval and open-domain question answering.

## EDUCATION

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**Seoul National University** Mar 2019 - Present  
B.S. in Computer Science and Engineering and B.S. in Statistics  
Seoul, Korea  
Leave of absence for compulsory military service (1.5 years)

**The University of Texas at Austin** Aug - Dec 2023  
Exchange student, Department of Computer Science  
Austin, TX

**Gyeonggi Science High School for the Gifted** Mar 2016 - Feb 2019  
High school for gifted students specialized in mathematics and science  
Suwon, Korea

## RESEARCH EXPERIENCE

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**Language and Data Intelligence Lab**, Seoul National University Jul 2023 - Present  
Undergraduate Researcher (Supervisor: Prof. Seungwon Hwang)

- Proposed a novel architecture to enhance quality of pseudo-documents generated by sLLM. Furthermore, revised internal errors with original document for effective zero-shot retrieval.

**Machine Intelligence Lab**, Seoul National University Jul 2022 - Jul 2023  
Research Internship (Supervisor: Prof. Kyomin Jung)

- Conducted experiments to leverage small language models for domain transfer on few-shot retrieval, demonstrating competitive performance comparable to state-of-the-art methods on specific BeIR datasets.
- Explored various methods for injecting factuality in retrieval.
- Participated in ArgMining workshop (EMNLP 2023).

**Naver AI Lab** Jan - Feb 2023  
· Implemented causal deep learning model with alternating transformer and experimented on common DAG datasets.

## PROJECT

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**Recontextualize, Revise and Retrieve** May - Jun 2023

- Proposed a novel method for recontextualizing and revising the generated output of T5-base for dense retrieval. Achieved better performance compared to the baseline. [code]

**Modality Translation through Conditional Encoder-Decoder** Apr - Jun 2023

- Designed a general architecture that does not rely on a specific latent encoder-decoder architecture and provides more accurate latent space prediction across different modalities. [paper]

**Private Mobile Chatbot Application** Mar - Jun 2023

- Developed an android chatbot application for automatic, anonymous customer complaints. Implemented using homomorphic encryption, MPNet, and ChatGPT. [poster]

**NowSee** Sep - Dec 2022

- Developed web service for live weather feed and statistics. [poster]

## Hate Twits Classifier

Nov - Dec 2020

- Classified twits into 'hate', 'offensive', 'non-offensive' using characteristics as parameters of logistic regression.

## Finding Abandoned Animals with Keywords

Jul - Aug 2019

- Developed a program finding one's abandoned animal based on specified categories and similar keywords, resulting better search than official service. Broadcasted on EBS

## Collaborative Filtering Recommendation System Correcting User Bias Based on Comments-Rating Relationship

Mar - Jun 2018

- Suggested recommendation system using CNN trained by movie comments to unbiased user ratings. [paper]

## AWARDS AND SCHOLARSHIPS

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Merit Based Scholarship	Every semester
Army Commendation Medal	2022
4th place, Selected Topics Seminar 2 Presentation	2019
Silver, Korea Olympiad in Informatics	2018

## TEACHING EXPERIENCE

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Computer Architecture, Undergraduate TA	Mar - Jun 2023
Electrical and Electronic Circuits, Undergraduate TA	Sep - Dec 2020
Invited talk at SNUE Gifted Science Education Center	Jun, Oct 2019
· Introduced recent trend of computer science to gifted students in informatics	

## SKILLS

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Programming Languages	C++, Java, Python, R, HTML/CSS, Javascript, Kotlin, SQL
Frameworks and Tools	PyTorch, ReactJS, Django, Git, Docker
Languages	Korean(native), English(TOEFL 100 TOEIC 980)

## EXTRACURRICULAR

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LikeLion at SNU	Mar - Nov 2022
- Studied HTML/CSS, ReactJS, Django for web development	
Sergeant, Korean Augmentaion to the US Army, Camp Humphreys	Dec 2020 - Jun 2022
SAENA, SNU CLS Ambassador	Apr 2019 - Aug 2020
Student Council, Department of Major and Autonomy	Mar - Nov 2019
International Olympiad in Informatics Training Camp in Korea	Jul - Aug 2016, Jan 2017
- Studied advanced data structures and algorithms	