Jaehyung **Seo**

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Research Interests

I am currently an **Assistant Professor** and lead the **ELION Lab**. I received my **Ph.D. in Computer Science and Engineering from Korea University** (Advisor: Heuiseok Lim) in August 2025. I am a co-founder of the **KU-NMT Group**. My research has resulted in **30+ publications** in **Natural Language Processing**, **Computer Science**, and **Artificial Intelligence**, as well as **four granted patents**.

- Natural Language Processing
- Language Modeling
- Commonsense Reasoning
- Hallucination Detection and Mitigation
- Model Editing
- Language Resource and Evaluation
- Multilingual & Multimodal Systems
- AI Agent
- Information Retrieval & RAG

Professional Experience

Konkuk University, Department of Computer Science and Engineering   *Seoul, South Korea*

Assistant Professor   *Mar. 2026 – Present*
- Leading the **ELION Lab (Elucidating Language Intelligence & RepresentatiON)**
- Research areas: NLP, Language Models, Interpretation, Reasoning, Hallucination, Model Editing, and World Models

Education

Korea University   *Seoul, South Korea*

Ph.D. in Computer Science and Engineering, (GPA: 4.47 / 4.5)   *Sep. 2020 - Aug. 2025*
- **Advisor: Heuiseok Lim**
- **Natural Language Processing & Artificial Intelligence Lab**

Korea University   *Seoul, South Korea*

B.A. in English Language and Literature & Business School, (GPA: 4.19 / 4.5)   *Mar. 2014 - Exp. Aug. 2020*
- **Advisor: Donguk Kim**

Academic Services

Reviewer
- **AI / Machine Learning**: ICLR (2025, 2026), AAAI (2026)
- **Natural Language Processing**: ACL (2023–2025), EMNLP (2023–2025), NAACL (2025), COLING (2022)
- **Computer Vision**: CVPR (2026)

Selected Publications

[†] (Corresponding author)

The Impact of Negated Text on Hallucination with Large Language Models
  Jaehyung Seo, Hyeonseok Moon, Heuiseok Lim[†]
  EMNLP 2025 - Proceedings of the Conference on Empirical Methods in Natural Language Processing

KoLEG: On-the-Fly Korean Legal Knowledge Editing with Continuous Retrieval
  Jaehyung Seo, Dahyun Jung, Yongchan Chun Jaewook Lee, Dongjun Kim, Hwijung Ryu, Donghoon Shin, Heuiseok Lim[†]
  EMNLP 2025 - Findings of the Association for Computational Linguistics

MultiDocFusion: Hierarchical and Multimodal Chunking Pipeline for Enhanced RAG on Long Industrial Documents
  Joong Min Shin, Chanjun Park, Jeongbae Park, **Jaehyung Seo**[†], Heuiseok Lim[†]

Metric Calculating Benchmark: Complicate Instruction Following Benchmark for Large Language Models
Hyeonseok Moon, Seongtae Hong, **Jaehyung Seo**[†],Heuiseok Lim[†]

CoME: An Unlearning-based Approach to Conflict-free Model Editing
Dahyun Jung, **Jaehyung Seo**, Jaewook Lee, Chanjun Park[†],Heuiseok Lim[†]

K-HALU: Multiple Answer Korean Hallucination Benchmark for Large Language Models
Jaehyung Seo, Heuiseok Lim[†]

Post-negation Text Induce New Hallucinations in Large Language Models
Jaehyung Seo, Aram So, Heuiseok Lim[†]

KoCommonGEN v2: A Benchmark for Navigating Korean Commonsense Reasoning Challenges in Large Language Models
Jaehyung Seo, Jaewook Lee, Chanjun Park, SeongTae Hong, Seungjun Lee, Heuiseok Lim[†]

CHEF in the Language Kitchen: A Generative Data Augmentation Leveraging Korean Morpheme Ingredients
Jaehyung Seo, Hyeonseok Moon, Jaewook Lee, Sugyeong Eo, Chanjun Park, Heuiseok Lim[†]

PU-GEN: Enhancing generative commonsense reasoning for language models with human-centered knowledge
Jaehyung Seo, Dongsuk Oh, Sugyeong Eo, Chanjun Park, Kisu Yang, Hyeonseok Moon, Kinam Park, Heuiseok Lim[†]

Plain Template Insertion: Korean-Prompt-Based Engineering for Few-Shot Learners
Jaehyung Seo, Hyeonseok Moon, Chanhee Lee, Sugyeong Eo, Chanjun Park, Jihoon Kim, Changwoo Chun, Heuiseok Lim[†]

A Dog Is Passing Over The Jet? A Text-Generation Dataset for Korean Commonsense Reasoning and Evaluation
Jaehyung Seo, Seounghoon Lee, Chanjun Park, Yoonna Jang, Hyeonseok Moon, Sugyeong Eo, Seonmin Koo, Heuiseok Lim[†]

Dense-to-Question and Sparse-to-Answer: Hybrid Retriever System for Industrial Frequently Asked Questions
Jaehyung Seo, Taemin Lee, Hyeonseok Moon, Chanjun Park, Sugyeong Eo, Imatitikua D Aiyanyo, Kinam Park, Aram So, Sungmin Ahn, Jeongbae Park[†]

Automatic Knowledge Augmentation for Generative Commonsense Reasoning
Jaehyung Seo, Chanjun Park, Sugyeong Eo, Hyeonseok Moon, Heuiseok Lim[†]

Study on Decoding Strategies in Neural Machine Translation
Jaehyung Seo, Chanjun Park, Sugyeong Eo, Hyeonseok Moon, Heuiseok Lim[†]

All Publications

[†] (Corresponding author)

LimaCost: Data Valuation for Instruction Tuning of Large Language Models
Hyeonseok Moon, **Jaehyung Seo**, Seonmin Koo, Jinsung Kim, Youngkyoung Ham, Jiwon Moon, Heuiseok Lim[†]

Call for Rigor in Reporting Quality of Instruction Tuning Data
Hyeonseok Moon, **Jaehyung Seo**, Heuiseok Lim[†]

Find the Intention of Instruction: Comprehensive Evaluation of Instruction Understanding for Large Language Models
Hyeonseok Moon, **Jaehyung Seo**, Seungyoon Lee, Chanjun Park, Heuiseok Lim[†]

An analysis on language transfer of pre-trained language model with cross-lingual post-training
Suhyune Son, Chanjun Park, Jungseob Lee, Midan Shim, Chanhee Lee, Yoonna Jang, **Jaehyung Seo**, Jungwoo Lim, Heuiseok Lim[†]

Intelligent Predictive Maintenance RAG framework for Power Plants: Enhancing QA with StyleDFS and Domain Specific Instruction Tuning
Seongtae Hong, Joong Min Shin, **Jaehyung Seo**, Taemin Lee, Jeongbae Park[†],Cho Man Young, Byeongho Choi, Heuiseok Lim[†]

Length-aware Byte Pair Encoding for Mitigating Over-segmentation in Korean Machine Translation
Jungseob Lee, Hyeonseok Moon, Seungjun Lee Chanjun Park[†],Sugyeong Eo, Hyunwoong Ko, **Jaehyung Seo**, Seungyoon Lee, Heuiseok Lim[†]

Leveraging Pre-existing Resources for Data-Efficient Counter-Narrative Generation in Korean

Seungyoon Lee, Chanjun Park[†], DaHyun Jung, Hyeonseok Moon, **Jaehyung Seo**, Sugyeong Eo, Heuiseok Lim[†]
LREC-COLING 2024 - The Joint International Conference on Computational Linguistics, Language Resources and Evaluation

Hyper-BTS Dataset: Scalability and Enhanced Analysis of Back TranScription (BTS) for ASR Post-Processing
Chanjun Park, **Jaehyung Seo**, Seolhwa Lee, Junyoung Son, Hyeonseok Moon, Sugyeong Eo, Chanhee Lee, Heuiseok Lim[†]
EACL 2024 - Findings of the Association for Computational Linguistics

KNOTICED: Augmentative and Alternative Communication Software for Language Developmental Disabilities
Sugyeong Eo, Jungwoo Lim, Chanjun Park, Hyeonseok Moon, **Jaehyung Seo**, Heuiseok Lim[†]
LREC-COLING 2024 - The Joint International Conference on Computational Linguistics, Language Resources and Evaluation

Generative Interpretation: Toward Human-Like Evaluation for Educational Question-Answer Pair Generation
Hyeonseok Moon, Jaewook Lee, Sugyeong Eo, Chanjun Park, **Jaehyung Seo**, Heuiseok Lim[†]
EACL 2024 - Findings of the Association for Computational Linguistics

Doubts on the reliability of parallel corpus filtering
Hyeonseok Moon, Chanjun Park, Seonmin Koo, Jungseob Lee, Seungjun Lee, **Jaehyung Seo**, Sugyeong Eo, Yoonna Jang, Hyunjoong Kim, Hyoung-gyu Lee, Heuiseok Lim[†]
Expert Systems with Applications 233 (2023) p. 120962. Elsevier

KEBAP: Korean Error Explainable Benchmark Dataset for ASR and Post-processing
Seonmin Koo, Chanjun Park, Jinsung Kim, **Jaehyung Seo**, Sugyeong Eo, Hyeonseok Moon, Heuiseok Lim[†]
EMNLP 2023 - Proceedings of the Conference on Empirical Methods in Natural Language Processing

CReTIHC: Designing Causal Reasoning Tasks about Temporal Interventions and Hallucinated Confoundings
Changwoo Chun, SongEun Lee, **Jaehyung Seo**, Heuiseok Lim[†]
EMNLP 2023 - Findings of the Association for Computational Linguistics

Informative Evidence-guided Prompt-based Fine-tuning for English-Korean Critical Error Detection
Dahyun Jung, Sugyeong Eo, Chanjun Park, Hyeonseok Moon, **Jaehyung Seo**, Heuiseok Lim[†]
IJCNLP-AACL 2023 - Proceedings of the 13th International Joint Conference on Natural Language Processing and the 3rd Conference of the Asia-Pacific Chapter of the Association for Computational Linguistics

Uncovering the Risks and Drawbacks Associated with the Use of Synthetic Data for Grammatical Error Correction
Seonmin Koo, Chanjun Park, Seolhwa Lee, **Jaehyung Seo**, Sugyeong Eo, Hyeonseok Moon, Heuiseok Lim[†]
IEEE Access (2023). IEEE

PEEP-Talk: A Situational Dialogue-based Chatbot for English Education
Seungjun Lee, Yoonna Jang, Chanjun Park, Jungseob Lee, **Jaehyung Seo**, Hyeonseok Moon, Sugyeong Eo, Seounghoon Lee, Bernardo Yahya, Heuiseok Lim[†]
ACL 2023 - Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (*Volume 3: System Demonstrations*)

Knowledge Graph-Augmented Korean Generative Commonsense Reasoning
Dahyun Jung, **Jaehyung Seo**, Jaewook Lee, Chanjun Park, Heuiseok Lim[†]
ICML-DMLR workshop (2023)

A Survey on Evaluation Metrics for Machine Translation
Seungjun Lee, Jungseob Lee, Hyeonseok Moon, Chanjun Park, **Jaehyung Seo**, Sugyeong Eo, Seonmin Koo, Heuiseok Lim[†]
Mathematics 11.4 (2023) p. 1006. MDPI

BTS: Back TranScription for Speech-to-Text Post-Processor using Text-to-Speech-to-Text
Chanjun Park, **Jaehyung Seo**, Seolhwa Lee, Chanhee Lee, Hyeonseok Moon, Sugyeong Eo, Heuiseok Lim[†]
ACL 2021 - Proceedings of the 8th Workshop on Asian Translation (*WAT2021*), Online

QUAK: A Synthetic Quality Estimation Dataset for Korean-English Neural Machine Translation
Sugyeong Eo, Chanjun Park, Hyeonseok Moon, **Jaehyung Seo**, Gyeongmin Kim, Jungseob Lee, Heuiseok Lim[†]
COLING 2022 - Proceedings of the 29th International Conference on Computational Linguistics

An Empirical Study on Automatic Post Editing for Neural Machine Translation
Hyeonseok Moon, Chanjun Park, Sugyeong Eo, **Jaehyung Seo**, Heuiseok Lim[†]
IEEE Access 9 (2021) pp. 123754–123763. IEEE

Dealing with the Paradox of Quality Estimation
Sugyeong Eo, Chanjun Park, Hyeonseok Moon, **Jaehyung Seo**, Heuiseok Lim[†]
MT Summit - Proceedings of the 4th Workshop on Technologies for MT of Low Resource Languages (*LoResMT2021*), Virtual

Grounded Vocabulary for Image Retrieval Using a Modified Multi-Generator Generative Adversarial Network
Kuekyeng Kim, Chanjun Park, **Jaehyung Seo**, Heuiseok Lim[†]
IEEE Access (2021). IEEE

A New Tool for Efficiently Generating Quality Estimation Datasets
Sugyeong Eo, Chanjun Park, **Jaehyung Seo**, Hyeonseok Moon, Heuiseok Lim[†]
NeurIPS 2021 - Data-centric AI (*DCAI*) *workshop*

How should human translation coexist with NMT? Efficient tool for building high quality parallel corpus
Chanjun Park, Seolhwa Lee, Hyeonseok Moon, Sugyeong Eo, **Jaehyung Seo**, Heuiseok Lim[†]
NeurIPS 2021 - Data-centric AI (*DCAI*) *workshop* (2021)

An Automatic Post Editing with Efficient and Simple Data Generation Method
Hyeonseok Moon, Chanjun Park, **Jaehyung Seo**, Sugyeong Eo, Heuiseok Lim[†]
IEEE Access (2022). IEEE

Word-level Quality Estimation for Korean-English Neural Machine Translation
Sugyeong Eo, Chanjun Park, Hyeonseok Moon, **Jaehyung Seo**, Heuiseok Lim[†]

Priming Ancient Korean Neural Machine Translation
Chanjun Park, Seolhwa Lee, **Jaehyung Seo**, Hyeonseok Moon, Sugyeong Eo, Heuiseok Lim[†]
LREC 2022 - Proceedings of the Language Resources and Evaluation Conference, Marseille, France

Empirical Analysis of Noising Scheme based Synthetic Data Generation for Automatic Post-editing
Hyeonseok Moon, Chanjun Park, Seolhwa Lee, **Jaehyung Seo**, Jungseob Lee, Sugyeong Eo, Heuiseok Lim[†]
LREC 2022 - Proceedings of the Language Resources and Evaluation Conference, Marseille, France

Research on Utilization Strategy of User Engagements in Korean Fake News Detection
Myunghoon Kang, **Jaehyung Seo**, Chanjun Park, Heuiseok Lim[†]
IEEE Access (2022) pp. 1–1

PicTalky: Augmentative and Alternative Communication Software for Language Developmental Disabilities
Chanjun Park, Yoonna Jang, Seolhwa Lee, **Jaehyung Seo**, Kisu Yang, Heuiseok Lim[†]
IJCNLP-AACL 2022 - The 2nd Conference of the Asia-Pacific Chapter of the Association for Computational Linguistics

K-NCT: Korean Neural Grammatical Error Correction Gold-Standard Test Set Using Novel Error Type Classification Criteria
Seonmin Koo, Chanjun Park, **Jaehyung Seo**, Seungjun Lee, Hyeonseok Moon, Jungseob Lee, Heuiseok Lim[†]
IEEE Access (2022). IEEE

Honors & Awards

2025.10	**BEST Paper Award, 2025,** The 37th Annual Conference on Human & Cognitive Language Technology
2025.08	**Selected as a Member of the National Representative AI Research Team,** NC AI
2024.10	**BEST Paper Award, 2024,** The 36th Annual Conference on Human & Cognitive Language Technology
2023.10	**Outstanding Paper Award, 2023,** The 35th Annual Conference on Human & Cognitive Language Technology
2022.12	**NAVER PH.D Fellowship Award, 2022,** Scholarship Award
2022.12	**1st place in WMT 2022 QE Task 3, 2022,** WMT 2022 - EMNLP 2022
2022.10	**Outstanding Paper Award, 2022,** The 34th Annual Conference on Human & Cognitive Language Technology
2021.10	**Outstanding Paper Award, 2021,** The 33rd Annual Conference on Human & Cognitive Language Technology
2021.07	**4th Place in CommonGen 1.1 Leaderboard, 2021,** CommonGen 1.1 Leaderboard

Selected Research Experience

(National Initiative) National Representative AI — World Best LLM
NC AI, Korea University, ETRI, KAIST, SNU, LOTTE Innovate, POSCO DX

RESEARCH ENGINEER
Aug 2025 – Dec 2025
- Participated in Korea's National Representative AI initiative, supported by NIPA, IITP, and NIA.
- Built a foundation model from scratch using 1,000 NVIDIA H100 GPUs.
- Contributed to LLM post-training & dataset construction

(Collaborative Research) MMA-ASIA: A Multilingual and Multimodal Alignment Framework for Culturally-Grounded Evaluation
Singapore A Research & Korea University*

PROJECT MANAGER
May 2025 – Oct 2025
- Led the design and evaluation of a multi-modal East-Asian benchmark for LLMs.
- Collaboration Partners: A*, Kyoto University, Alibaba DAMO, Jiangxi Normal University, IIT Delhi, Inner Mongolia University

(Industry–Academic Joint Project) Unlearning for LLM Reliability
KT & Korea University

PROJECT MANAGER & RESEARCH ENGINEER
Apr 2024 – May 2025
- Developed knowledge editing methods tailored for vertical LLMs.
- Proposed RAG-based editing approaches with lifelong learning capabilities.
- KoLEG: On-the-Fly Korean Legal Knowledge Editing with Continuous Retrieval

(National Initiative) Next-Generation AI Technology Development — Hallucination
Korea University, KAIST, SKKU, KU, KETI, NCAI, O2O

PROJECT MANAGER & RESEARCH ENGINEER
Jan 2024 – Dec 2026
- Supported by IITP.
- Secured research funding of **4.8B KRW** (≈ $3.5M) over 3 years.
- Led research on hallucination detection, mitigation, and domain adaptation.
- Received **Best Paper Award**: Post-negation Text Induces New Hallucinations in Large Language Models.
- Published at **ICLR 2025**: OpenReview Link.

(Industry–Academic Joint Project) Large Language Modeling for Special Technical Documents

GAON & Korea University

PROJECT MANAGER & RESEARCH ENGINEER

Dec 2023 – Jun 2024

- Supported by GAON.
- Proposed a RAG-based LLM for predictive maintenance in nuclear power plants.
- Developed an on-premise deployable model system for handling classified government documents.
- Published at **EMNLP 2024 (Industry Track)**: ACL Anthology Link.

(Collaborative Research) Open Ko-LLM Leaderboard

Upstage & Korea University

RESEARCH ENGINEER

Sep 2023 – Dec 2023

- Constructed and deployed the H5 Leaderboard to evaluate commonsense reasoning in LLMs.
- Contributed to the evaluation of 2,000+ open-source LLMs.
- Developed **KoCommonGEN v2**, a benchmark for Korean commonsense reasoning challenges.
- Published at **ACL Findings 2024**: ACL Anthology Link.

(Industry–Academic Joint Project) UI/UX Artificial Intelligence Service Development

Samsung Fire and Marine Insurance & Korea University

RESEARCH ENGINEER

Jun 2023 – Feb 2024

- Developed an AI-based application service for dementia prevention (**Synerpeace**).
- Implemented memory-enhancement learning via API calls and developed an automatic diary summarization feature.

(Industry–Academic Joint Project) R&D Voucher: AI Contact Center

O2O & Korea University

RESEARCH ENGINEER

Jun 2022 – May 2023

- Developed an AI-based system for evaluating call quality and providing job training for customer service agents.

(Industry–Academic Joint Project) R&D Voucher: AI Interviewing

Withmind & Korea University

RESEARCH ENGINEER

Jun 2022 – May 2023

- Developed an AI-powered interview automation service and established an evaluation system.

(Industry–Academic Joint Project) Data Augmentation with Language Generation Research

Samsung Research & Korea University

PROJECT MANAGER & RESEARCH ENGINEER

May 2022 – Apr 2023

- Proposed a data augmentation method using language generation to improve training of a phone-scam classifier.

(Industry–Academic Joint Project) Korean Prompt-based Engineering for Few-shot Learning

Hyundai Motor Group & Korea University

PROJECT MANAGER & RESEARCH ENGINEER

Mar 2021 – Apr 2022

- Proposed the Plain Template Insertion method for Korean prompt-based few-shot learning.
- Developed an instance classifier for low-resource scenarios.
- Published at **IEEE Access (SCIE)**: IEEE Xplore Link.

(Industry–Academic Joint Project) Return on Advertising Spend (ROAS) Prediction Research

BizSpring & Korea University

RESEARCH ENGINEER

Dec 2021 – Mar 2022

- Conducted research on predicting Return on Advertising Spend (ROAS) to optimize advertising effectiveness.
- Project supported by the Data Voucher Program.
- Published at **Mathematics (SCIE)**: MDPI Link.

(Project) Hybrid Retriever System for Industrial Frequently Asked Questions Research

O2O & Korea University

PROJECT MANAGER & RESEARCH ENGINEER

Dec 2021 – Mar 2022

- Proposed a hybrid information retrieval method for customer inquiries by combining dense and sparse embeddings.
- Introduced scaling and weighting functions to improve robustness to domain-specific terminology.
- Published at **Mathematics (SCIE)**: MDPI Link.

(Industry–Academic Joint Project) Korean Multi-turn Response Chatbot Research

Samsung SDS & Korea University

RESEARCH ENGINEER

May 2021 – Jan 2022

- Developed a Korean multi-turn chatbot based on BlenderBot.
- Published at **KCI 2022**: DOI Link.

(Industry–Academic Joint Project) Improving the Understanding of Korean-based Generative Models

NSR & Korea University

RESEARCH ENGINEER

Jul 2020 – Mar 2021

- Project supported by the National Security Research Institute (NSR).
- Developed a GPT-based model to improve classification performance.

Patents

2025.10	**DEVICE AND METHOD FOR GENERATING KOREAN COMMONSENSE REASONING DATASET**, Granted Patent (10-2875876)	*South Korea*
2025.06	**APPARATUS OF OBTAINING RESPONSE BASED ON SEMANTIC SIMILARITY AND METHOD THEREOF**, Granted Patent (10-2828691)	*South Korea*
2023.12	**DEVICE AND METHOD FOR KOREAN DATA AUGMENTATION BASED ON CONTRASTIVE LEARNING AND MORPHEME COMBINATION**, Patent Application (10-2023-0189496)	*South Korea*
2023.10	**APPARATUS AND METHOD FOR GENERATING LANGUAGE BASED ON COMMONSENSE REASONING**, Granted Patent (10-2593463)	*South Korea*
2023.03	**GENERATING METHOD OF MODEL MEASURING DOCUMENT SIMILARITY AND MEASURING METHOD FOR DOCUMENT SIMILARITY USING THE SAME**, Granted Patent (10-2507192)	*South Korea*
2022.10	**DEVICE AND METHOD FOR GENERATING KOREAN COMMONSENSE REASONING DATASET**, Patent Application (10-2022-0132373)	*South Korea*

Invited Talk & Teaching Experience

DGIST *South Korea*

INVITED SPEAKER *Apr. 2025*

- Commonsense Reasoning or Hallucination? Unpacking the Plausible Errors of Language Models

Dongguk University *South Korea*

INVITED ADVISOR *Jun. 2023*

- Introduction to Natural Language Processing and Commonsense Reasoning

NongHyup Bank Co., Ltd *South Korea*

INVITED ADVISOR *Jul. 2020 - Sep. 2020*

- Teaching data science for new employees

Korea University *South Korea*

TEACHING ASSISTANT *Mar - Jun. 2023*

- (DFE615-00) Natural Language Processing for Artificial Intelligence

Korea University *South Korea*

TEACHING ASSISTANT *Sep - Dec. 2022*

- (DFE610) Natural Language Processing for Digital Finance Engineering
- Lecture materials: `https://github.com/nlpai-lab/nlp-bible-code`

Korea University *South Korea*

TEACHING ASSISTANT *Mar - Jun. 2022*

- (BDC101) Introduction to Natural Language Processing in Big Data
- Lecture materials: `https://github.com/J-Seo/BDC103_IR`

Korea University *South Korea*

RESEARCH ASSISTANT *Sep - Dec. 2021*

- (DFE610) Natural Language Processing for Digital Finance Engineering
- Lecture materials: `https://github.com/nlpai-lab/nlp-bible-code`

Korea University *South Korea*

TEACHING ASSISTANT *Mar - Jun. 2021*

- (BDC101) Introduction to Natural Language Processing in Big Data
- Lecture materials: `https://github.com/J-Seo/BDC103_IR`