

# Hyeonseok Moon

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## Research Area

- Language Resource
- Benchmark
- Large Language Model
- Language Generation
- Model Evaluation
- Data Evaluation
- Machine Translation
- Data Engineering

## Education

**Korea University** (Seoul, Republic of Korea) 2021.03 – 2026.02

Ph.D.

Major in Computer Science and Engineering - Advisor: Prof. Heuiseok Lim

**Korea University** (Seoul, Republic of Korea) 2015.03 – 2021.02

Bachelor of Science and Engineering

Major in Mathematics and Artificial Intelligence (Double Majors) - Advisor: Prof. Euisung Park

## Selected Publications

### International Conference

**Metric Calculating Benchmark: Code-Verifiable Complicate Instruction Following Benchmark for Large Language Models** 2025

Hyeonseok Moon, Seongtae Hong, Jaehyung Seo, Heuiseok Lim  
*EMNLP 2025*

**LimaCost: Data Valuation for Instruction Tuning of Large Language Models** 2025

Hyeonseok Moon, Jaehyung Seo, Seonmin Koo, Jinsung Kim, Young-kyoung Ham, jiwon moon, Heuiseok Lim  
*EMNLP 2025 Findings*

**The Impact of Negated Text on Hallucination with Large Language Models** 2025

Jaehyung Seo, Hyeonseok Moon, Heuiseok Lim  
*EMNLP 2025*

**Call for Rigor in Reporting Quality of Instruction Tuning Data** 2025

Hyeonseok Moon, Jaehyung Seo, Heuiseok Lim  
*ACL 2025*

**Cross-Lingual Optimization for Language Transfer in Large Language Models** 2025

Jungseob Lee, Seongtae Hong, Hyeonseok Moon, Heuiseok Lim  
*ACL 2025*

**Semantic Aware Linear Transfer by Recycling Pre-trained Language Models for Cross-lingual Transfer** 2025

Seungyoon Lee, Seongtae Hong, Hyeonseok Moon, Heuiseok Lim  
*ACL 2025 Findings*

**Find the Intention of Instruction: Comprehensive Evaluation of Instruction Understanding for Large Language Models** 2025

Hyeonseok Moon, Jaehyung Seo, Seungyoon Lee, Chanjun Park, Heuiseok Lim  
*NAACL 2025 Findings*

**FLEX: A Benchmark for Evaluating Robustness of Fairness in Large Language Models** 2025

Dahyun Jung, Seungyoon Lee, Hyeonseok Moon, Chanjun Park, Heuiseok Lim  
*NAACL 2025 Findings*

**MIRAGE: A Metric-Intensive Benchmark for Retrieval-Augmented Generation Evaluation** 2025

Chanhee Park, Hyeonseok Moon, Chanjun Park, Heuiseok Lim  
*NAACL 2025 Findings*

<b>MIGRATE: Cross-Lingual Adaptation of Domain-Specific LLMs through Code-Switching and Embedding Transfer</b> Seongtae Hong, Seungyoon Lee, <u>Hyeonseok Moon</u> , Heuiseok Lim COLING 2025	2025
<b>Translation of Multifaceted Data without Re-Training of Machine Translation Systems</b> <u>Hyeonseok Moon</u> , Seungjun Lee, Seongtae Hong, Seungjum Lee, Chanjun Park, Heuiseok Lim EMNLP 2024 Findings	2024
<b>Length-aware Byte Pair Encoding for Mitigating Over-segmentation in Korean Machine Translation</b> Jungseob Lee, <u>Hyeonseok Moon</u> ( <i>equal contribution</i> ), Seungjun Lee, Chanjun Park, Sugyeong Eo, Hyunwoong Ko, Jaehyung Seo, Seungyoon Lee, Heuiseok Lim ACL 2024 Findings	2024
<b>Generative Interpretation: Toward Human-Like Evaluation for Educational Question-Answer Pair Generation</b> <u>Hyeonseok Moon</u> , Jaewook Lee, Sugyeong Eo, Chanjun Park, Jaehyung Seo, Heui-Seok Lim EACL 2024 Findings	2024
<b>Hyper-BTS Dataset: Scalability and Enhanced Analysis of Back Transcription (BTS) for ASR Post-Processing</b> Chanjun Park, Jaehyung Seo, Seolhwa Lee, Junyoung Son, <u>Hyeonseok Moon</u> , Sugyeong Eo, Chanhee Lee, Heui-Seok Lim EACL 2024 Findings	2024
<b>Leveraging Pre-existing Resources for Data-Efficient Counter-Narrative Generation in Korean</b> Seungyoon Lee, Chanjun Park, DaHyun Jung, <u>Hyeonseok Moon</u> , Jaehyung Seo, Sugyeong Eo, Heui-Seok Lim LREC-COLING 2024	2024
<b>Detecting Critical Errors Considering Cross-Cultural Factors in English-Korean Translation</b> Sugyeong Eo, Jungwoo Lim, Chanjun Park, Dahyun Jung, Seonmin Koo, <u>Hyeonseok Moon</u> , Jaehyung Seo, Heui-Seok Lim LREC-COLING 2024	2024
<b>CHEF in the Language Kitchen: A Generative Data Augmentation Leveraging Korean Morpheme Ingredients</b> Jaehyung Seo, <u>Hyeonseok Moon</u> , Jaewook Lee, Sugyeong Eo, Chanjun Park, Heui-Seok Lim EMNLP 2023	2023
<b>KEBAP: Korean Error Explainable Benchmark Dataset for ASR and Post-processing</b> Seonmin Koo, Chanjun Park, Jinsung Kim, Jaehyung Seo, Sugyeong Eo, <u>Hyeonseok Moon</u> , Heui-Seok Lim EMNLP 2023	2023
<b>Post-hoc Utterance Refining Method by Entity Mining for Faithful Knowledge Grounded Conversations</b> Yoonna Jang, Suhyune Son, Jeongwoo Lee, Junyoung Son, Yuna Hur, Jungwoo Lim, <u>Hyeonseok Moon</u> , Kisu Yang, Heuiseok Lim EMNLP 2023	2023
<b>PEEP-talk: A situational dialogue-based chatbot for English education</b> Seungjun Lee, Yoonna Jang, Chanjun Park, Jungseob Lee, Jaehyung Seo, <u>Hyeonseok Moon</u> , Sugyeong Eo, Seounghoon Lee, Bernardo Yahya, Heui-Seok Lim ACL 2023 - Demo	2023
<b>Towards diverse and effective question-answer pair generation from children storybooks</b> Sugyeong Eo, <u>Hyeonseok Moon</u> ( <i>equal contribution</i> ), Jinsung Kim, Yuna Hur, Jeongwook Kim, Songeun Lee, Changwoo Chun, Sungsoo Park, Heuiseok Lim ACL 2023 Findings	2023
<b>Improving Formality-Sensitive Machine Translation Using Data-Centric Approaches and Prompt Engineering</b> Seungjun Lee, <u>Hyeonseok Moon</u> , Chanjun Park, Heuiseok Lim IWSLT 2023	2023

<b>QUAK: A synthetic quality estimation dataset for korean-english neural machine translation</b>	<b>2022</b>
Sugyeong Eo, Chanjun Park, <u>Hyeonseok Moon</u> , Jaehyung Seo, Gyeongmin Kim, Jungseob Lee, Heuiseok Lim <i>COILING 2022</i>	
<b>A dog is passing over the jet? a text-generation dataset for korean commonsense reasoning and evaluation</b>	<b>2022</b>
Jaehyung Seo, Seounghoon Lee, Chanjun Park, Yoonna Jang, <u>Hyeonseok Moon</u> , Sugyeong Eo, Seonmin Koo, Heuiseok Lim <i>NAACL 2022 Findings</i>	
<b>KU X upstage's submission for the WMT22 quality estimation: Critical error detection shared task</b>	<b>2022</b>
Sugyeong Eo, Chanjun Park, <u>Hyeonseok Moon</u> , Jaehyung Seo, HeuiSeok Lim <i>WMT 2022</i>	
<b>Priming ancient Korean neural machine translation</b>	<b>2022</b>
Chanjun Park, Seolhwa Lee, Jaehyung Seo, <u>Hyeonseok Moon</u> , Sugyeong Eo, Heui-Seok Lim <i>LREC 2022</i>	
<b>Empirical Analysis of Noising Scheme based Synthetic Data Generation for Automatic Post-editing</b>	<b>2022</b>
<u>Hyeonseok Moon</u> , Chanjun Park, Seolhwa Lee, Jaehyung Seo, Jungseob Lee, Sugyeong Eo, HeuiSeok Lim <i>LREC 2022</i>	
<b>A Self-Supervised Automatic Post-Editing Data Generation Tool</b>	<b>2022</b>
Hyeonseok Moon, Chanjun Park, Sugyeong Eo, Jaehyung Seo, SeungJun Lee, Heuiseok Lim <i>ICML 2022 - DataPerf Workshop</i>	
<b>BTS: Back Transcription for Speech-to-Text Post-Processor using Text-to-Speech-to-Text</b>	<b>2021</b>
Chanjun Park, Jaehyung Seo, Seolhwa Lee, Chanhee Lee, <u>Hyeonseok Moon</u> , Sugyeong Eo, Heuiseok Lim <i>WAT2021 - ACL Workshop</i>	
<b>Should we find another model?: Improving neural machine translation performance with one-piece tokenization method without model modification</b>	<b>2021</b>
Chanjun Park, Sugyeong Eo, <u>Hyeonseok Moon</u> , HeuiSeok Lim <i>NAACL 2021 - industry track</i>	
<b>International Journal</b> .....	
<b>Exploiting Hanja-based Resources in Processing Korean Historic Documents written by Common Literati</b>	<b>2024</b>
<u>Hyeonseok Moon</u> , Myunghoon Kang, Jaehyung Seo, Sugyeong Eo, Chanjun Park, Yeongwook Yang, Heuiseok Lim <i>IEEE Access</i>	
<b>Doubts on the reliability of parallel corpus filtering</b>	<b>2023</b>
<u>Hyeonseok Moon</u> , Chanjun Park, Seonmin Koo, Jungseob Lee, Seungjun Lee, Jaehyung Seo, Sugyeong Eo, Yoonna Jang, Hyunjoong Kim, Hyoung-gyu Lee, Heuiseok Lim <i>Expert Systems with Applications</i>	
<b>Uncovering the Risks and Drawbacks Associated with the Use of Synthetic Data for Grammatical Error Correction</b>	<b>2023</b>
Seonmin Koo, Chanjun Park, Seolhwa Lee, Jaehyung Seo, Sugyeong Eo, <u>Hyeonseok Moon</u> , Heuiseok Lim <i>IEEE Access</i>	
<b>A survey on evaluation metrics for machine translation</b>	<b>2023</b>
Seungjun Lee, Jungseob Lee, <u>Hyeonseok Moon</u> , Chanjun Park, Jaehyung Seo, Sugyeong Eo, Seonmin Koo, Heuiseok Lim <i>Mathematics</i>	
<b>PU-GEN: Enhancing generative commonsense reasoning for language models with human-centered knowledge</b>	<b>2022</b>
Jaehyung Seo, Dongsuk Oh, Sugyeong Eo, Chanjun Park, Kisu Yang, <u>Hyeonseok Moon</u> , Kinam Park, Heuiseok Lim <i>Knowledge-Based Systems</i>	
<b>An automatic post editing with efficient and simple data generation method</b>	<b>2022</b>
<u>Hyeonseok Moon</u> , Chanjun Park, Jaehyung Seo, Sugyeong Eo, Heuiseok Lim <i>IEEE Access</i>	

<b>AI for patents: A novel yet effective and efficient framework for patent analysis</b>	2022
Junyoung Son, <u>Hyeonseok Moon</u> , Jeongwoo Lee, Seolhwa Lee, Chanjun Park, Wonkyung Jung, Heuiseok Lim <i>IEEE Access</i>	
<b>Plain template insertion: korean-prompt-based engineering for few-shot learners</b>	2022
Jaehyung Seo, <u>Hyeonseok Moon</u> , Chanhee Lee, Sugyeong Eo, Chanjun Park, Jihoon Kim, Changwoo Chun, Heuiseok Lim <i>IEEE Access</i>	
<b>K-nct: Korean neural grammatical error correction gold-standard test set using novel error type classification criteria</b>	2022
Seonmin Koo, Chanjun Park, Jaehyung Seo, Seungjun Lee, <u>Hyeonseok Moon</u> , Jungseob Lee, Heuiseok Lim <i>IEEE Access</i>	
<b>Mimicking infants' bilingual language acquisition for domain specialized neural machine translation</b>	2022
Chanjun Park, Woo-Young Go, Sugyeong Eo, <u>Hyeonseok Moon</u> , Seolhwa Lee, Heuiseok Lim <i>IEEE Access</i>	
<b>Word-level quality estimation for Korean-English neural machine translation</b>	2022
Sugyeong Eo, Chanjun Park, <u>Hyeonseok Moon</u> , Jaehyung Seo, Heuiseok Lim <i>IEEE Access</i>	
<b>An empirical study on automatic post editing for neural machine translation</b>	2021
<u>Hyeonseok Moon</u> , Chanjun Park, Sugyeong Eo, Jaehyung Seo, Heuiseok Lim <i>IEEE Access</i>	
<b>Comparative analysis of current approaches to quality estimation for neural machine translation</b>	2021
Sugyeong Eo, Chanjun Park, <u>Hyeonseok Moon</u> , Jaehyung Seo, Heuiseok Lim <i>Applied Sciences</i>	
<b>Return on Advertising Spend Prediction with Task Decomposition-Based LSTM Model</b>	2021
<u>Hyeonseok Moon</u> , Taemin Lee, Jaehyung Seo, Chanjun Park, Sugyeong Eo, Imatitikua D Aiyanyo, Jeongbae Park, Aram So, Kyoungwha Ok, Kinam Park <i>Mathematics</i>	
<b>Comparative analysis of current approaches to quality estimation for neural machine translation</b>	2021
Sugyeong Eo, Chanjun Park, <u>Hyeonseok Moon</u> , Jaehyung Seo, Heuiseok Lim <i>Applied Sciences</i>	

## Collaborative Project

<b>World Best LLM - with NC AI</b>	2025.07 – now
Supported by <b>National Research Foundation</b> - Team Leader at Korea University	
<ul style="list-style-type: none"> <li>Supervise LLM training process and Evaluating trained LLMs</li> <li>Evaluation data curation. Evaluation dashboard management</li> <li>Training data curation and management</li> </ul>	
<b>LLM Assistant for Teaching Human Consultant</b>	2024.07 – 2025.08
Supported by <b>Creative Digital Lab</b> - Project Manager at Korea University	
<ul style="list-style-type: none"> <li>Training Large Language Models with Data Curation</li> <li>Data augmentation with a few human-annotated labels</li> </ul>	
<b>Legal Domain Vertical LLM</b>	2024.07 – 2025.07
Supported by <b>KT</b> - Project Manager at Korea University	
<ul style="list-style-type: none"> <li>Training Large Language Models with Data Curation</li> <li>Data quality check for building domain specialized LLM</li> <li>Constructing data processing pipeline</li> </ul>	
<b>NLP for Ancient Korean Common Literati Document</b>	2022.06 – 2024.07
Supported by <b>National Research Foundation</b> - Project Manager at Korea University	
<ul style="list-style-type: none"> <li>Named entity recognition and document analysis for ancient Korean documents</li> <li>Engaged in data construction process and setup annotation standard</li> <li>Related Publication: Exploiting Hanja-Based Resources in Processing Korean Historic Documents Written by Common Literati (<i>IEEE Access</i>)</li> </ul>	

<b>Persona-based Dialogue with k-Nearest-Neighbor Approach</b> <i>Supported by NC Soft - Head Technician at Korea University</i> <ul style="list-style-type: none"> <li>Research on the applicability of k-nearest neighbor approach in persona dialogue</li> <li>k-nearest neighbor, persona dialogue, language generation</li> </ul>	2023.05 – 2023.12
<b>Domain Specialized Parallel Corpus Construction for Machine Translation</b> <i>Supported by NIA (with Minigate Corporation) - Project Manager at Korea University</i> <ul style="list-style-type: none"> <li>Data evaluation and supervision in curation process</li> <li>Engaged in data construction process and setup annotation standard</li> </ul>	2022.06 – 2023.11
<b>Automated Question-Answer pair Data Generation System</b> <i>Supported by Hyundai Mortors - Head Technician at Korea University</i> <ul style="list-style-type: none"> <li>Automated question-Answer pair generation framework, especially tailored to the educational purpose</li> <li>QA generation, Education domain</li> <li>Related Publication: Towards Diverse and Effective Question-Answer Pair Generation from Children Storybooks (ACL 2023 - findings)</li> </ul>	2022.03 – 2023.02
<b>User Query based Recommendation System</b> <i>Supported by FLES corporation - Head Technician at Korea University</i> <ul style="list-style-type: none"> <li>Commercial item recommendation systems based on the user preference</li> <li>Recommendation system, Information retrieval</li> </ul>	2022.03 – 2023.01
<b>Fortune Telling Generation AI Project</b> <i>Supported by FLES corporation - Project Manager at Korea University</i> <ul style="list-style-type: none"> <li>Fortune telling AI module. Encoder-Decoder generator along with LLM based generator system</li> <li>Language generation, Decoding strategy, Large language models</li> <li>Related Publication: SaJuTeller: Conditional Generation Deep-Learning based Fortune Telling Model (HCLT 2022)</li> </ul>	2022.03 – 2023.01
<b>Parallel Corpus Filtering and Mining Research Project</b> <i>Supported by Naver Papago - Head Technician at Korea University</i> <ul style="list-style-type: none"> <li>Analysis on parallel corpus filtering methods targeting Korean-English machine translation</li> <li>Parallel corpus filtering, Machine translation</li> <li>Related Publication: Doubts on the reliability of parallel corpus filtering (Expert Systems with Applications)</li> </ul>	2021.12 – 2022.07
<b>Korean-Prompt-based Engineering for Few-shot Research Project</b> <i>Supported by Hyundai Motors - Researcher at Korea University</i> <ul style="list-style-type: none"> <li>Few-shot prompting strategy for enhancing Korean understanding task performance</li> <li>Prompt engineering, Few shot, Language understanding</li> <li>Related Publication: <a href="https://ieeexplore.ieee.org/abstract/document/9913979">https://ieeexplore.ieee.org/abstract/document/9913979</a> Plain Template Insertion: Korean-Prompt-Based Engineering for Few-Shot Learners (IEEE Access)</li> </ul>	2022.05 – 2022.07
<b>Information Retrieval system for Industrial Frequently Asked Question</b> <i>Supported by Data Voucher (O2O corporation) - Researcher at Korea University</i> <ul style="list-style-type: none"> <li>Information retrieval system for frequently-asked QA systems</li> <li>Keyword Extraction, Information Extraction, Question Answering module</li> </ul>	2021.07 – 2022.03
<b>Return on Advertising Spend (ROAS) Prediction Project</b> <i>Supported by BizSpring corporation - Head Technician at Korea University</i> <ul style="list-style-type: none"> <li>Regression module for return-on-advertising-spend prediction</li> <li>Keyword Extraction, Return on Advertising Spend, Regression Model</li> <li>Related Publication: <a href="https://www.mdpi.com/2227-7390/10/10/1637">https://www.mdpi.com/2227-7390/10/10/1637</a> Return on Advertising Spend Prediction with Task Decomposition-Based LSTM Model (Mathematics)</li> </ul>	2021.07 – 2022.03
<b>Patent document processing Research Project</b> <i>Supported by LG Innotek - Head Technician at Korea University</i> <ul style="list-style-type: none"> <li>Sentence extraction and key phrase extraction module for patent documents</li> <li>Automatic Summarization, Sentence classification, Information Extraction</li> <li>Related Publication: <a href="https://ieeexplore.ieee.org/abstract/document/9779775">https://ieeexplore.ieee.org/abstract/document/9779775</a> AI for Patents: A Novel Yet Effective and Efficient Framework for Patent Analysis (IEEE Access)</li> </ul>	2021.06 – 2021.09

## Teaching

<b>Teaching Assistant at Korea University</b> <ul style="list-style-type: none"> <li>(DFE610-00) NLP for digital finance engineering</li> <li>(BDC101-00) Introduction to Natural Language Processing In Big Data</li> <li>(COSE461-02) Natural Language Processing</li> </ul>	2023.09 – 2024.06
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## Honors & Awards

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<b>Best Paper Award</b>	2024
○ The 36th Annual Conference on Human & Cognitive Language Technology (HCLT2024)	
<b>Best Paper Award</b>	2023
○ The 35th Annual Conference on Human & Cognitive Language Technology (HCLT2023)	
<b>1st place in WMT 2022 QE Task 3, 2022</b>	2022
○ Seventh Conference on Machine Translation (WMT22) Quality Estimation Shared Task	
<b>Best Paper Award</b>	2022
○ The 34th Annual Conference on Human & Cognitive Language Technology (HCLT2022)	
<b>Best Paper Award</b>	2021
○ The 33rd Annual Conference on Human & Cognitive Language Technology (HCLT2021)	

## Patent

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### Device and Method For Generation of Diverse Question-Answer Pair

- U.S. Patent Application No. 18/585,166

### Device and Method for Generating Fortune Telling Model Based n Conditional Generation Deep-Learning

- South Korea Patent Granted No. 10-2790031
- South Korea Patent Application No. 10-2022-0158977

### Task Decomposition Method based Prediction of Return on Advertising Spend and Device Performing the same

- South Korea Patent Granted No. 10-2790027
- South Korea Patent Application No. 10-2021-0156657

### Device and Method for Parallel Corpus Filtering Based On Semantic Similarity

- South Korea Patent Granted No. 10-2593448
- South Korea Patent Application No. 10-2022-0151593

### Device and Method for Generating of Training Data for Quality Estimation In Machine Translation

- South Korea Patent Granted No. 10-2593447
- South Korea Patent Application No. 10-2021-0156657

### Device and Method for Automatic Evaluation of Call Center Agent Conversation

- South Korea Patent Application No. 10-2025-0100212

### Performance Evaluation Method For Large Language Models Based On Intention Catching Capability

- South Korea Patent Application No. 10-2024-0169352

### Diverse and Effective Question-Answer Pair Generation System for Education

- South Korea Patent Application No. 10-2023-0024355

### Device And Method For Assessment Of Educational Question-Answering

- South Korea Patent Application No. 10-2023-0162875

### Device and Method for Generating Training Data For Post Editing

- South Korea Patent Application No. 10-2021-0118924