Hwanhee Lee (이환희)

Assistant Professor @ Chung-Ang University

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Affiliation & Research Experience

Chung-Ang University   *Seoul, Korea*
Assistant Professor   *Mar. 2023 - Current*
- Department of Artificial Intelligence

Seoul National University   *Seoul, Korea*
Postdoctoral Researcher   *Sep. 2022 - Feb. 2023*
- Senior Researcher, Automation and Systems Research Institute

NAVER CLOVA AI Research   *Seongnam, Korea*
Research Intern   *Aug. 2021 - Jan. 2022*
- NAVER AI LAB Language Research Team
- Working with Dr. Hwaran Lee, Dr. Kang Min Yoo, and Prof. Joonsuk Park
- Theme: Factual Consistency Evaluation and Optimization for Abstractive Summarization
- Published a paper at NAACL 2022

Adobe Research   *San Jose, CA, USA*
Collaborative Researcher   *Nov. 2019 - Current*
- Natural Language Processing Group
- Remote Working with Dr. Seunghyun Yoon, Dr. Franck Dernoncourt, Dr. Trung Bui, and Dr. Doo Soon Kim
- Theme: Text Evaluation Metric, Factual Error Correction, Multimodal Dialogue Generation
- Published 5+ papers (including EMNLP 2024, ACL 2021, NAACL 2021, EMNLP 2021)

Research Interests Natural Language Processing, Truthfulness and Safety of Language Models
Current Focus Knowledge-aware Text Generation/Evaluation, Retrieval Augmented Generation, Hallucination Mitigation/Detection

Education

Seoul National University   *Seoul, Korea*
Ph.D of Electrical and Computer Engineering   *Aug. 2022*
- Machine Intelligence Laboratory (Advisor: Prof. Kyomin Jung)
- Thesis: Factual Consistency Evaluation for Conditional Text Generation Systems
  (Committee: Kyuseok Shim, Kyomin Jung, Taesup Moon, Seung-won Hwang (SNU), and JinYeong Bak (SKKU))
- Distinguished Ph.D. Dissertation Award

Seoul National University   *Seoul, Korea*
Bachelor of Electrical and Computer Engineering   *Feb. 2017*

Scholarships & Awards

Outstanding Area Chair
Awarded by EMNLP 2024   *Nov. 2024*

Distinguished Ph.D. Dissertation Award
Awarded by Dept. of Electrical and Computer Engineering, Seoul National University   *Aug. 2022*

AIIS Youlchon AI STAR Scholarship
Granted by Nongsim Youlchon Foundation   *Sep. 2021*

Scholarship of Electronics, Electrical and Computer Engineering
Granted by Foundation for Electronics, Electrical and Computer Engineering at Seoul National University   *Mar. 2018*

National Science & Technology Scholarship (Full-tuition)
Granted by Korea Student Aid Foundation   *Mar. 2013 - Feb. 2017*

Publications

International Conferences

Probing-RAG: Self-Probing to Guide Language Models in Selective Document Retrieval

INGEOL BAEK, HWAN CHANG, BYEONGJEONG KIM, JIMIN LEE, <u>HWANHEE LEE</u>†

- Findings of the Association for Computational Linguistics: NAACL 2025 (**Findings of NAACL 2025**)

AdvisorQA: Towards Helpful and Harmless Advice-seeking Question Answering with Collective Intelligence

MINBEOM KIM, <u>HWANHEE LEE</u>, JOONSUK PARK, HWARAN LEE, KYOMIN JUNG

- Annual Conference of the North American Chapter of the Association for Computational Linguistics (**NAACL 2025**)

FIZZ: Factual Inconsistency Detection by Zoom-in Summary and Zoom-out Document

JOONHO YANG, SEUNGHYUN YOON, BYEONGJEONG KIM, <u>HWANHEE LEE</u>†

- Conference on Empirical Methods in Natural Language Processing (**EMNLP 2024**)

IterCQR: Iterative Conversational Query Reformulation with Retrieval Guidance

YUNAH JANG, KANG-IL LEE, HYUNKYUNG BAE, <u>HWANHEE LEE</u>†, KYOMIN JUNG†

- Annual Conference of the North American Chapter of the Association for Computational Linguistics (**NAACL 2024**)

LifeTox: Unveiling Implicit Toxicity in Life Advice

MINBEOM KIM, JAHYUN KOO, <u>HWANHEE LEE</u>, JOONSUK PARK†, HWARAN LEE, KYOMIN JUNG†

- Annual Conference of the North American Chapter of the Association for Computational Linguistics (**NAACL 2024**)

KoCoSa: Korean Context-aware Sarcasm Detection Dataset

YUMIN KIM*, HEEJAE SUH*, MINGI KIM*, DONGYEON WON*, <u>HWANHEE LEE</u>†

- The 2024 Joint International Conference on Computational Linguistics, Language Resources and Evaluation (**COLING 2024**)

Kosmic: Korean Text Similarity Metric Reflecting Honorific Distinctions

YERIN HWANG, YONGIL KIM, HYUNKYUNG BAE, JEESOO BANG, <u>HWANHEE LEE</u>†, KYOMIN JUNG†

- The 2024 Joint International Conference on Computational Linguistics, Language Resources and Evaluation (**COLING 2024**)

Asking Clarification Questions to Handle Ambiguity in Open-Domain QA

DONGRYEOL LEE, SEGWANG KIM, MINWOO LEE, <u>HWANHEE LEE</u>, JOONSUK PARK, SANG-WOO LEE, KYOMIN JUNG

- Findings of the Association for Computational Linguistics: EMNLP 2023 (**Findings of EMNLP 2023**)

Dialogizer: Context-aware Conversational-QA Dataset Generation from Textual Sources

YERIN HWANG*, YONGIL KIM*, HYUNKYUNG BAE, <u>HWANHEE LEE</u>†, JEESOO BANG, KYOMIN JUNG†

- Conference on Empirical Methods in Natural Language Processing (**EMNLP 2023**)

Critic-Guided Decoding for Controlled Text Generation

MINBEOM KIM, <u>HWANHEE LEE</u>, KANG MIN YOO, JOONSUK PARK, HWARAN LEE, KYOMIN JUNG

- Findings of the Association for Computational Linguistics: ACL 2023 (**Findings of ACL 2023**)

Task-specific Compression for Multi-task Language Models using Attribution-based Pruning

NAKYEONG YANG, YUNAH JANG, <u>HWANHEE LEE</u>, SEOHYEONG JUNG, AND KYOMIN JUNG

- Findings of the Association for Computational Linguistics: EACL 2023 (**Findings of EACL 2023**)

Masked Summarization to Generate Factually Inconsistent Summaries for Improved Factual Consistency Checking

<u>HWANHEE LEE</u>, KANG MIN YOO, JOONSUK PARK, HWARAN LEE, AND KYOMIN JUNG

- Findings of the Association for Computational Linguistics: NAACL 2022 (**Findings of NAACL 2022**)

QACE: Asking Questions to Evaluate an Image Caption

<u>HWANHEE LEE</u>, THOMAS SCIALOM, SEUNGHYUN YOON, FRANK DERNONCOURT, AND KYOMIN JUNG

- Findings of the Association for Computational Linguistics: EMNLP 2021 (**Findings of EMNLP 2021**)

CrossAug: A Contrastive Data Augmentation Method for Debiasing Fact Verification Models

MINWOO LEE, SEUNGPIL WON, JUAE KIM, <u>HWANHEE LEE</u>, CHEONUM PARK, AND KYOMIN JUNG

- 30th ACM International Conference on Information and Knowledge Management (**CIKM 2021**)

UMIC: An Unreferenced Metric for Image Captioning via Contrastive Learning

Hwanhee Lee, Seunghyun Yoon, Frank Dernoncourt, Trung Bui, and Kyomin Jung

- The Joint Conference of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (**ACL 2021**)

Entangled Bidirectional Encoder to Autoregressive Decoder for Sequential Recommendation

Taegwan Kang, Hwanhee Lee, Byeongjin Choe, and Kyomin Jung

- International ACM SIGIR Conference on Research and Development in Information Retrieval (**SIGIR 2021**)

KPQA: A Metric for Generative Question Answering Using Keyphrase Weights

Hwanhee Lee, Seunghyun Yoon, Frank Dernoncourt, Doo Soon Kim, Trung Bui, Joongbo Shin, and Kyomin Jung

- Annual Conference of the North American Chapter of the Association for Computational Linguistics (**NAACL 2021**)

Attentive Modality Hopping Mechanism for Speech Emotion Recognition

Seunghyun Yoon, Subhadeep Dey, Hwanhee Lee, and Kyomin Jung

- IEEE International Conference on Acoustics, Speech and Signal Processing (**ICASSP 2020**)

Improving Neural Question Generation Using Answer Separation

Yanghoon Kim, Hwanhee Lee, Joongbo Shin, and Kyomin Jung

- Thirty-Third AAAI Conference on Artificial Intelligence (**AAAI 2019**)

International Journal

REMDoC: Reference-free Evaluation for Medical Document Summaries via Contrastive Learning

Jimin Lee, Ingeol Baek, Hwanhee Lee†

- IEEE Access, 2024

Improving Abstractive Dialogue Summarization Using Keyword Extraction

Chongjae Yoo and Hwanhee Lee†

- Applied Sciences, 2023

Gated Relational Target-aware Encoder and Local Context-aware Decoder for Target-oriented Opinion Words Extraction

Taegwan Kang, Segwang Kim, Hyeongu Yun, Hwanhee Lee, and Kyomin Jung

- IEEE Access, 2022

Preprint/Under Review

Dynamic Label Name Refinement for Few-Shot Dialogue Intent Classification

Gyutae Park, Ingeol Baek, ByeongJeong Kim, Joongbo Shin, Hwanhee Lee†

- arXiv (2412.15603)

Conversational Query Reformulation with the Guidance of Retrieved Documents

Jeonghyun Park, Hwanhee Lee†

- arXiv (2407.12363)

Crafting the Path: Robust Query Rewriting for Information Retrieval

Ingeol Baek, Jimin Lee, Joonho Yang, Hwanhee Lee†

- arXiv (2407.12529)

Dynamic Order Template Prediction for Generative Aspect-Based Sentiment Analysis

Yonghyun Jun, Hwanhee Lee†

- arXiv (2406.11130)

Workshop Papers

Dynamically Managing a Prompt Pool via Self-Enhancement in Continual Learning

Hayun Lee, Kiseong Hong, **Hwanhee Lee**, Sungho Suh, Eunwoo Kim

- NeurIPS 2024 Workshop on Adaptive Foundation Models (**NeurIPS-W 2024**)

Low-Resource Cross-Lingual Summarization through Few-Shot Learning with Large Language Models

Gyutae Park, Seojin Hwang, **Hwanhee Lee**†

- ACL Workshop on Technologies for Machine Translation of Low-Resource Languages (**ACL-W 2024**)

Factual Error Correction for Abstractive Summaries Using Entity Retrieval

Hwanhee Lee, Cheoneum Park, Seunghyun Yoon, Trung Bui, Franck Dernoncourt, Juae Kim and Kyomin Jung

- EMNLP Workshop on Generation, Evaluation & Metrics (**EMNLP-W 2022**)

Improving Multiple Documents Grounded Goal-Oriented Dialog Systems via Diverse Knowledge Enhanced Pre-trained Language Model

Yunah Jang, Dongryeol Lee, Hyung Joo Park, Taegwan Kang, **Hwanhee Lee**, Hyunkyung Bae, and Kyomin Jung

- ACL Workshop on Document-grounded Dialogue and Conversational Question Answering (**ACL-W 2022**)

Learning to Select Question-Relevant Relations for Visual Question Answering

Jaewoong Lee, Heejoon Lee, **Hwanhee Lee**, and Kyomin Jung

- NAACL Workshop on Multimodal Artificial Intelligence Workshop (**NAACL-W 2021**)

Relevance Similarity Scorer and Entity Guided Reranking for Knowledge Grounded Dialog System

Hyunkyung Bae, Minwoo Lee, Ahhyeon Kim, and **Hwanhee Lee**, Cheongjae Lee, Cheonum Park, Donghyeon Kim, and Kyomin Jung

- AAAI Workshop on Dialog System Technology Challenge (**AAAI-W 2021**)

ViLBERTScore: Evaluating Image Caption Using Vision-and-Language BERT

Hwanhee Lee, Seunghyun Yoon, Frank Dernoncourt, Doo Soon Kim, Trung Bui, and Kyomin Jung

- EMNLP Workshop on Evaluation and Comparison of NLP Systems (**EMNLP-W 2020**)

Multimodal Semantic Transformer Network with Retrieval Style Word Generator

Hwanhee Lee, Seunghyun Yoon, Frank Dernoncourt, Doo Soon Kim, Trung Bui, and Kyomin Jung

- AAAI Workshop on Dialog System Technology Challenge (**AAAI-W 2020**)

Attention-based Convolutional Neural Networks for Multi-label Emotion Classification

Yanghoon Kim, **Hwanhee Lee**, and Kyomin Jung

- NAACL Workshop on Semantic Evaluation 2018 (**NAACL-W 2018**)

Research Projects

Risk Assessment of Construction Site based on Large Language Models

Funded by Doosan Enerbility   *Jun. 2024 - Current*

- Risk Assessment and Prediction with Large Language Models

Improvement of Speech Recognition Rate Using LLMs

Funded by Seoul 120 Dasan Call Foundation   *April. 2024 - Current*

- Detecting Errors of ASR System for Dialogue Data

RAG based Conversational Question Answering System

Funded by URP   *Mar. 2024 - Current*

- Developing ConvQA System for Real Estate Domain

Anomaly Detection in Fuel Cell

Funded by Doosan Fuel Cell   *June. 2023 - May. 2024*

- Developing Anomaly Detection System for Full Cell

Credibility of Large-scale Language Models and their Application to Knowledge Based Dialogue Models

FUNDED BY NAVER CLOVA AI RESEARCH   *June. 2021 - Feb. 2023*

- Developing Factual Consistency Evaluation and Optimization System
- Developing a Personalized Dialog System
- Published a Paper at NAACL 2022, ACL 2023, EMNLP 2023

Factual Error Correction on Grounded Text Generation Systems

FUNDED BY ADOBE RESEARCH   *Feb. 2021 - Feb. 2022, May. 2023 - Current*

- Developed Factual Error Correction System for Abstractive Summarization Systems
- Submitted a Paper

Knowledge-Grounded Conversational Question Answering System

FUNDED BY HYUNDAI MOTORS GROUP AIRS COMPANY   *Sep. 2020 - Sep. 2021*

- Constructed Korean Conversational QA Dataset
- Published a Paper at AAAI 2021 Workshop

Evaluation Metric for Grounded Text Generation Systems

FUNDED BY ADOBE RESEARCH   *Dec. 2019 - Jan. 2021*

- Developed Evaluation Metrics for Generative QA and Image Captioning
- Published Four Papers at ACL 2021, NAACL 2021, EMNLP 2021 and EMNLP 2020 Workshop

Deep Learning Based Context-awareness Dialog System

FUNDED BY SAMSUNG ADVANCED INSTITUTE OF TECHNOLOGY   *May. 2019 - May. 2020*

- Developed a Multimodal Dialog System
- Published a Paper at AAAI 2020 Workshop

Global Internet Big Text Data Monitoring

FUNDED BY MINISTRY OF TRADE, INDUSTRY AND ENERGY   *Jan. 2018 - June. 2020*

- Developed Open Domain QA System and Question Generation System
- Published a Paper at AAAI 2019

Deep Learning Based Recommendation System

FUNDED BY LAONTRIP   *Mar. 2017 - Dec. 2017*

- Developed a Package Tour Recommendation System

Deep Learning Based Fraud Detection System

FUNDED BY KOREA CREDIT BUREAU   *Mar. 2017 - Sep. 2017*

- Developed a Fraud Detection System for Credit Card

Invited Talks (Selected)

Adobe Research   *San Jose, CA, USA*

TOWARD TRUTHFUL AND SAFE LANGUAGE MODELS   *Jan. 2025*

HCLT-KACL 2024   *Seongnam, Korea*

TOWARD TRUTHFUL AND SAFE LANGUAGE MODELS   *Oct. 2024*

Hanyang University   *Seoul, Korea*

HALLUCINATION OF LARGE LANGUAGE MODELS   *March. 2024*

Korea Institute of Science and Technology Information   *Daejeon, Korea*

RECENT RESEARCH ON FACTUAL CONSISTENCY AND APPLICATIONS TO SCIENTIFIC DOMAIN   *January. 2024*

KAIST   *Daejeon, Korea*

RESEARCH ON TEXT GENERATION SYSTEMS   *Oct. 2023*

Korea Electronics Technology Institute	*Seongnam, Korea*
Large Language Models ChatGPT: How it Works and How to Use	*July. 2023*

Eötvös Loránd University	*Budapest, Hungary*
Research on Text Generation Systems	*July. 2023*

Chung-Ang University	*Anseong, Korea*
Large Language Models ChatGPT: How it Works and How to Use	*May. 2023*

Chung-Ang University	*Seoul, Korea*
Large Language Models ChatGPT: How it Works and How to Use	*April. 2023*

LG AI Research	*Seoul, Korea*
Factual Consistency of Text Generation Systems	*Jan. 2023*

BrainLink 2022	*Incheon, Korea*
Factual Consistency of Text Generation Systems	*Oct. 2022*

Korea Electronics Technology Institute	*Seongnam, Korea*
Factual Consistency of Text Generation Systems	*Aug. 2022*

Hyperconnect	*Seoul, Korea*
Asking Questions to Evaluate an Image Caption	*Jan. 2022*

Kakao Enterprise	*Seongnam, Korea*
Integrating Keyphrase Weights and Data Augmentation for Text Evaluation	*Jan. 2022*

Korea Software Congress 2021	*Pyeongchang, Korea*
Top Conference Session for Artificial Intelligence	*Dec. 2021*

Hyundai AIRLab	*Seoul, Korea*
Integrating Keyphrase Weights for Generative QA Evaluation	*Dec. 2021*

LG AI Research	*Seoul, Korea*
Recent Advances in Text Evaluation Metrics	*July 2021*

Academic Services

Organizing Committee

IJCNLP-AACL 2023 (D&I Chair)

Area Chair

COLING 2025, EMNLP 2024, ACL 2024, NAACL 2024, EMNLP 2024, KCC 2024, KSC 2023, IEIE 2023

Reviewer

ACL 2021-2023, EMNLP 2020-2023, COLING 2022-2024, AAAI 2021, NeurIPS 2023-2024

Advisor

Software Policy & Research Institute	*Aug. 2022 - Mar. 2023*

- Technical Advising on Hyperscale Language Models

Teaching Experiences

Objected Oriented Programming	*Chung-Ang University*
Lecturer	*Spring 2024*

Embedded Artificial Intelligence	*Chung-Ang University*
Lecturer	*Fall 2024, Fall 2023*

Artificial Intelligence Design

Chung-Ang University

Lecturer

Fall 2024, Fall 2023

Advanced Natural Language Processing: Large Language Models

Chung-Ang University

Lecturer

Spring 2024, Spring 2023

Probability and Random Process

Chung-Ang University

Lecturer

Spring 2023

Machine Learning

Seoul National University

Teaching Assistant

Spring 2019, Spring 2018

Programming Methodology

Seoul National University

Teaching Assistant

Spring 2022, Spring 2020, Spring 2017

Seminar on Deep Learning

Seoul National University

Teaching Assistant

Fall 2019

Introduction to IoT, Artificial Intelligence, Big Data

Seoul National University

Teaching Assistant

Fall 2019, Spring 2019, Fall 2018

Electrical Engineering Research Project

Seoul National University

Teaching Assistant

Fall 2020