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

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 ACL 2021, NAACL 2021, EMNLP 2021)

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

Research Interests   Natural Language Processing, Deep Learning
Current Focus   Language Generation and Evaluation, Factual Consistency Optimization, Summarization, Dialog System

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

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

IterCQR: Iterative Conversational Query Reformulation with Retrieval Guidance

Yunah Jang, Kang-il Lee, Hyunkyung Bae, **Hwanhee Lee**†, 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, **Hwanhee Lee**, 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*, **Hwanhee Lee**†

- 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, **Hwanhee Lee**†, Kyomin Jung†

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

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

Yerin Hwang*, Yongil Kim*, Hyunkyung Bae, **Hwanhee Lee**†, Jeesoo Bang, Kyomin Jung†

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

Asking Clarification Questions to Handle Ambiguity in Open-Domain QA

Dongryeol Lee, Segwang Kim, Minwoo Lee, **Hwanhee Lee**, Joonsuk Park, Sang-Woo Lee, Kyomin Jung

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

Critic-Guided Decoding for Controlled Text Generation

Minbeom Kim, **Hwanhee Lee**, 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, **Hwanhee Lee**, 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

Hwanhee Lee, 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

Hwanhee Lee, 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, **Hwanhee Lee**, 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**)

Workshop Papers

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**)

Preprint

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

Joonho Yang, Seunghyun Yoon, Byeongjeong Kim, Hwanhee Lee†

- arXiv

International Journal

Improving Abstractive Dialogue Summarization Using Keyword Extraction

Chongjae Yoo and Hwanhee Lee†

- Applied Sciences

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

Taegwan Kang, Segwang Kim, Hyeongu Yun, <u>Hwanhee Lee</u>, and Kyomin Jung

- IEEE Access

Research Projects

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 FuelCell   *June. 2023 - Current*

- 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)

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
ACL 2024, NAACL 2024, KSC 2023, IEIE 2023

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

Advisor

- 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 2023*

Artificial Intelligence Design   *Chung-Ang University*

Lecturer   *Fall 2023*

Advanced Natural Language Processing: Large Language Models   *Chung-Ang University*

Lecturer   *Spring 2023, Spring 2024*

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*