Hwanhee Lee (이환희)

Assistant Professor @ Chung-Ang University

✉ hwanheelee@cau.ac.kr | ⌂ hwanheelee1993.github.io | ⌂ hwanheelee1993 | M: 010-2621-9532

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

Hᴡᴀɴʜᴇᴇ Lᴇᴇ, Sᴇᴜɴɢʜʏᴜɴ Yᴏᴏɴ, Fʀᴀɴᴋ Dᴇʀɴᴏɴᴄᴏᴜʀᴛ, Dᴏᴏ Sᴏᴏɴ Kɪᴍ, Tʀᴜɴɢ Bᴜɪ, Jᴏᴏɴɢʙᴏ Sʜɪɴ, ᴀɴᴅ Kʏᴏᴍɪɴ Jᴜɴɢ

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

Attentive Modality Hopping Mechanism for Speech Emotion Recognition

Sᴇᴜɴɢʜʏᴜɴ Yᴏᴏɴ, Sᴜʙʜᴀᴅᴇᴇᴘ Dᴇʏ, Hᴡᴀɴʜᴇᴇ Lᴇᴇ, ᴀɴᴅ Kʏᴏᴍɪɴ Jᴜɴɢ

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

Improving Neural Question Generation Using Answer Separation

Yᴀɴɢʜᴏᴏɴ Kɪᴍ, Hᴡᴀɴʜᴇᴇ Lᴇᴇ, Jᴏᴏɴɢʙᴏ Sʜɪɴ, ᴀɴᴅ Kʏᴏᴍɪɴ Jᴜɴɢ

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

Workshop Papers

Factual Error Correction for Abstractive Summaries Using Entity Retrieval

Hᴡᴀɴʜᴇᴇ Lᴇᴇ, Cʜᴇᴏɴᴇᴜᴍ Pᴀʀᴋ, Sᴇᴜɴɢʜʏᴜɴ Yᴏᴏɴ, Tʀᴜɴɢ Bᴜɪ, Fʀᴀɴᴄᴋ Dᴇʀɴᴏɴᴄᴏᴜʀᴛ, Jᴜᴀᴇ Kɪᴍ ᴀɴᴅ Kʏᴏᴍɪɴ Jᴜɴɢ

- 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

Yᴜɴᴀʜ Jᴀɴɢ, Dᴏɴɢʀʏᴇᴏʟ Lᴇᴇ, Hʏᴜɴɢ Jᴏᴏ Pᴀʀᴋ, Tᴀᴇɢᴡᴀɴ Kᴀɴɢ, Hᴡᴀɴʜᴇᴇ Lᴇᴇ, Hʏᴜɴᴋʏᴜɴɢ Bᴀᴇ, ᴀɴᴅ Kʏᴏᴍɪɴ Jᴜɴɢ

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

Learning to Select Question-Relevant Relations for Visual Question Answering

Jᴀᴇᴡᴏᴏɴɢ Lᴇᴇ, Hᴇᴇᴊᴏᴏɴ Lᴇᴇ, Hᴡᴀɴʜᴇᴇ Lᴇᴇ, ᴀɴᴅ Kʏᴏᴍɪɴ Jᴜɴɢ

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

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

Hʏᴜɴᴋʏᴜɴɢ Bᴀᴇ, Mɪɴᴡᴏᴏ Lᴇᴇ, Aʜʜʏᴇᴏɴ Kɪᴍ, ᴀɴᴅ Hᴡᴀɴʜᴇᴇ Lᴇᴇ, Cʜᴇᴏɴɢᴊᴀᴇ Lᴇᴇ, Cʜᴇᴏɴᴜᴍ Pᴀʀᴋ, Dᴏɴɢʜʏᴇᴏɴ Kɪᴍ, ᴀɴᴅ Kʏᴏᴍɪɴ Jᴜɴɢ

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

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

Hᴡᴀɴʜᴇᴇ Lᴇᴇ, Sᴇᴜɴɢʜʏᴜɴ Yᴏᴏɴ, Fʀᴀɴᴋ Dᴇʀɴᴏɴᴄᴏᴜʀᴛ, Dᴏᴏ Sᴏᴏɴ Kɪᴍ, Tʀᴜɴɢ Bᴜɪ, ᴀɴᴅ Kʏᴏᴍɪɴ Jᴜɴɢ

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

Multimodal Semantic Transformer Network with Retrieval Style Word Generator

Hᴡᴀɴʜᴇᴇ Lᴇᴇ, Sᴇᴜɴɢʜʏᴜɴ Yᴏᴏɴ, Fʀᴀɴᴋ Dᴇʀɴᴏɴᴄᴏᴜʀᴛ, Dᴏᴏ Sᴏᴏɴ Kɪᴍ, Tʀᴜɴɢ Bᴜɪ, ᴀɴᴅ Kʏᴏᴍɪɴ Jᴜɴɢ

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

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

Yᴀɴɢʜᴏᴏɴ Kɪᴍ, Hᴡᴀɴʜᴇᴇ Lᴇᴇ, ᴀɴᴅ Kʏᴏᴍɪɴ Jᴜɴɢ

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

Preprint

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

Jᴏᴏɴʜᴏ Yᴀɴɢ, Sᴇᴜɴɢʜʏᴜɴ Yᴏᴏɴ, Bʏᴇᴏɴɢᴊᴇᴏɴɢ Kɪᴍ, Hᴡᴀɴʜᴇᴇ Lᴇᴇ†

- arXiv

International Journal

Improving Abstractive Dialogue Summarization Using Keyword Extraction

Cʜᴏɴɢᴊᴀᴇ Yᴏᴏ ᴀɴᴅ Hᴡᴀɴʜᴇᴇ Lᴇᴇ†

- Applied Sciences

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

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
Hallucination of Large Language Models
Seoul, Korea
March. 2024

Korea Institute of Science and Technology Information
Recent Research on Factual Consistency and Applications to Scientific Domain
Daejeon, Korea
January. 2024

KAIST
Research on Text Generation Systems
Daejeon, Korea
Oct. 2023

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

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

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

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

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

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

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

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

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

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

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

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

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 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*