Hwanhee Lee

ASSISTANT PROFESSOR @ CHUNG-ANG UNIVERSITY

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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*

Affiliation & Research Experience

Research Interests   Natural Language Processing, Deep Learning

Current Focus   Language Generation and Evaluation, Factual Consistency Optimization, Summarization, Dialog System

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

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

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**)

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**)

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, Hwanhee Lee, and Kyomin Jung

- IEEE Access

Research Projects

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 - Current*

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

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)

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*

Research on Text Generation Systems   *Budapest, Hungary*

EÖTVÖS LORÁND UNIVERSITY   *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

AACL 2023 (D&I CHAIR)

Area Chair

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

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*

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*