

# Hwanhee Lee

PH.D CANDIDATE @ SEOUL NATIONAL UNIVERSITY

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## Education

### Seoul National University

PH.D CANDIDATE OF ELECTRICAL AND COMPUTER ENGINEERING

Seoul, Korea

Mar. 2017 - Aug. 2022 (Expected)

- Machine Intelligence Laboratory (Advisor: 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))

### Seoul National University

BACHELOR OF ELECTRICAL AND COMPUTER ENGINEERING

Seoul, Korea

Mar. 2013 - Feb. 2017

## Research Experience

### NAVER CLOVA AI Research

RESEARCH INTERN

Sungnam, Korea

Aug. 2021 - Jan. 2022

- NAVER AI LAB Language Research Team
- Working with Hwaran Lee, Kang Min Yoo, Joonsuk Park
- Theme: Factual Consistency Evaluation and Optimization for Abstractive Summarization
- Published a paper at NAACL

### Adobe Research

COLLABORATIVE RESEARCHER

San Jose, CA

Nov. 2019 - Current

- Natural Language Processing Group
- Remote Working with Seunghyun Yoon, Franck Dernoncourt, Trung Bui, Doo Soon Kim
- Theme: Text Evaluation Metric, Factual Error Correction, Multimodal Dialogue Generation
- Published 5+ papers including ACL, NAACL, EMNLP

### Seoul National University

RESEARCH ASSISTANT

Seoul, Korea

Mar. 2017 - Current

- Research Interests: Natural Language Processing, Deep Learning
- Current Focus: Text Generation and Evaluation, Language Grounding with Vision, Factual Consistency Optimization
- Published 14+ papers, carried out 8 research projects, worked as TA for 8 semesters

## Scholarships & Awards

### AIIS Youlchon AI STAR Scholarship

GRANTED BY NONGSIM YOUNGJON FOUNDATION

Sep. 2021

### Best Poster Presentation Award at 2021 AIIS Fall Retreat, Second Prize

AWARDED BY ARTIFICIAL INTELLIGENCE INSTITUTE OF SEOUL NATIONAL UNIVERSITY

Nov. 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

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

**HWANHEE LEE**, KANG MIN YOO, JOONSUK PARK, HWARAN LEE, 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, KYOMIN JUNG

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

## **On Progress**

### **Factual Error Correction for Abstractive Summaries Using Entity Retrieval**

HWANHEE LEE, CHEONEUM PARK, SEUNGHYUN YOON, TRUNG BUI, FRANCK DERNONCOURT, JUAE KIM, KYOMIN JUNG

- Under Review & Pre-print on arXiv

### **Task-specific Knowledge Extraction for Multi-task Language Models using Attribution-based Pruning**

NAKYEONG YANG, YUNAH JANG, HWANHEE LEE, SEOHYEONG JUNG, KYOMIN JUNG

- Under Review & Pre-print on arXiv

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

TAEGWAN KANG, SEGWANG KIM, HYEONGU YUN, HWANHEE LEE, KYOMIN JUNG

- Under Review

### **Improving Abstractive Dialogue Summarization Using Keyword Extraction**

CHONGJAE YOO, HWANHEE LEE, KYOMIN JUNG

- Under Review

## **Peer Reviewed Workshops**

### **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, KYOMIN JUNG

- 2nd Workshop on Document-grounded Dialogue and Conversational Question Answering (**DialDoc 2022**) at ACL 2022

### **Learning to Select Question-Relevant Relations for Visual Question Answering**

JAEOONG LEE\*, HEEJOON LEE\*, HWANHEE LEE, KYOMIN JUNG

- Third Workshop on Multimodal Artificial Intelligence Workshop (**MAI 2021**) at NAACL 2021

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

HYUNKYUNG BAE, MINWOO LEE, AHHYEON KIM, **HWANHEE LEE**, CHEONGJAE LEE, CHEONUM PARK, DONGHYEON KIM, KYOMIN JUNG

- The Ninth Dialog System Technology Challenge (**DSTC 2021**) at AAAI 2021

## ViLBERScore: Evaluating Image Caption Using Vision-and-Language BERT

**HWANHEE LEE**, SEUNGHYUN YOON, FRANK DERNONCOURT, DOO SOON KIM, TRUNG BUI, KYOMIN JUNG

- First Workshop on Evaluation and Comparison of NLP Systems (**Eval4NLP 2020**) at EMNLP 2020

## Multimodal Semantic Transformer Network with Retrieval Style Word Generator

**HWANHEE LEE**, SEUNGHYUN YOON, FRANK DERNONCOURT, DOO SOON KIM, TRUNG BUI AND KYOMIN JUNG

- Eighth Dialog System Technology Challenge (**DSTC 2020**) at AAAI 2020

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

YANGHOON KIM, **HWANHEE LEE**, KYOMIN JUNG

- International Workshop on Semantic Evaluation 2018 (**SemEval 2018**) at NAACL 2018

## Research Projects

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### 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

### Factual Error Correction on Grounded Text Generation Systems

FUNDED BY ADOBE RESEARCH

Feb. 2021 - Feb. 2022

- 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 - Current

- Constructed Korean Conversational QA Dataset
- Published a Paper at AAAI 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 Papers at ACL, NAACL, EMNLP

### 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 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

### 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

## Teaching Experiences

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### Machine Learning

TEACHING ASSISTANT

Seoul National University

Spring 2019, Spring 2018

### Programming Methodology

TEACHING ASSISTANT

Seoul National University

Spring 2022, Spring 2020, Spring 2017

### Seminar on Deep Learning

TEACHING ASSISTANT

Seoul National University

Fall 2019

### Introduction to IoT, Artificial Intelligence, Big Data

TEACHING ASSISTANT

Seoul National University

Fall 2019, Spring 2019, Fall 2018

### Electrical Engineering Research Project

TEACHING ASSISTANT

Seoul National University

Fall 2020

## Invited Talks

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### Hyperconnect

ASKING QUESTIONS TO EVALUATE AN IMAGE CAPTION

Seoul, Korea

Jan. 2022

### Kakao Enterprise

INTEGRATING KEYPHRASE WEIGHTS AND DATA AUGMENTATION FOR TEXT EVALUATION

Sungnam, 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

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### Reviewer

COLING 2022, ACL 2022, EMNLP 2021, AAAI 2021, ACL 2021, SDU@AAAI 2021, EMNLP 2020

## Skills

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**Programming** Python, C++

**Deep Learning** PyTorch, Tensorflow