

HWANHEE LEE - 이환희

Ph.D Student at Seoul National University

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EDUCATION

Seoul National University

Ph.D. Candidate, Electrical and Computer Engineering
- Machine Intelligence Laboratory (Advisor: Kyomin Jung)

Mar. 2017 - Current

Seoul National University

B.S., Electrical and Computer Engineering

Mar. 2013 - Feb. 2017

SCHOLARSHIPS AND AWARDS

- Youlchon AI Star Scholarship
Granted by Nongsim Youlchon Foundation *Sep. 2021*
- Scholarship from Foundation for Electronics, Electrical and Computer Engineering
Granted by Seoul National University *Mar. 2018*
- National Science & Technology Scholarship (Full-tuition)
Granted by Korea Student Aid Foundation *Mar. 2013 - Feb. 2017*

RESEARCH INTERESTS

My research interest is in the field of Natural Language Processing and Machine Learning, especially about the following items.

- Text Evaluation
 - Metric for Generative Question Answering: Proposed an evaluation metric, KPQA-metric for generation question answering based on keyphrase weights. KPQA-metric shows dramatically higher correlation with human judgments of correctness than all of the previous metrics.
(published in NAACL 2021)
 - Unreferenced Metric for Image Captioning: Proposed a reference-less metric UMIC, QACE and ViLBERTScore for image captioning that does not require any reference to evaluate a caption. UMIC shows higher correlation with human judgments than other metrics that require reference captions. QACE uses question-answering framework to evaluate the image captions that provides interpretability in evaluating the captions. ViLBERTScore utilizes the embeddings from vision-and-language BERT to evaluate the captions.
(published in ACL 2021, Findings of EMNLP 2021 and Eval4NLP 2020)
- Conditional Sequence Generation
 - Neural Question Generation: Proposed a novel neural question generation model using an answer

masking method and answer separation seq2seq model, named AsS2S. AsS2S shows state-of-the-arts performance in question generation tasks.

(published in **AAAI 2019**)

- Recommendation System: Proposed a novel sequential recommendation model, Entangled BART for Recommendation (E-BART4Rec) that entangles bidirectional encoder and auto-regressive decoder with noisy transformations for user interaction. Employed noisy transformation that imitates the real user's behaviors to the input of the encoder.

(published in **SIGIR 2021**)

- Language Grounding with Vision

- Video Dialogue: Proposed Multimodal Semantic Transformer Network(MSTN) for video grounded dialog systems. MSTN uses word embedding attention network to focus on the semantic information of the multimodal context.

(published in **DSTC 2020**)

PUBLICATIONS

Conference Publications

1. **H Lee**, T Scialom, S Yoon, F Dernoncourt, and K Jung, QACE: Asking Questions to Evaluate an Image Caption, *Findings of the Association for Computational Linguistics: EMNLP 2021* (**Findings of EMNLP 2021**)
2. M Lee, S Won, J Kim, **H Lee**, C Park, and K Jung, CrossAug: A Contrastive Data Augmentation Method for Debiasing Fact Verification Models, *30th ACM International Conference on Information and Knowledge Management* (**CIKM 2021**)
3. **H Lee**, S Yoon, F Dernoncourt, T Bui, and K Jung, UMIC: An Unreferenced Metric for Image Captioning via Contrastive Learning, *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-IJCNLP 2021**)
4. T Kang, **H Lee**, B Choe and K Jung, Entangled Bidirectional Encoder to Autoregressive Decoder for Sequential Recommendation, *International ACM SIGIR Conference on Research and Development in Information Retrieval* (**SIGIR 2021**)
5. **H Lee**, S Yoon, F Dernoncourt, D Kim, T Bui, J Shin and K Jung, KPQA: A Metric for Generative Question Answering Using Keyphrase Weights, *Annual Conference of the North American Chapter of the Association for Computational Linguistics* (**NAACL 2021**)
6. S Yoon, S Dey, **H Lee** and K Jung, Attentive Modality Hopping Mechanism for Speech Emotion Recognition, *IEEE International Conference on Acoustics, Speech and Signal Processing* (**ICASSP 2020**)
7. Y Kim, **H Lee**, J Shin, K Jung, Improving Neural Question Generation using Answer Separation, *Thirty-Third AAAI Conference on Artificial Intelligence* (**AAAI 2019**)

Peer Reviewed Workshops

1. J Lee*, H Lee*, **H Lee**, K Jung, Learning to Select Question-Relevant Relations for Visual Question Answering, *Third Workshop on Multimodal Artificial Intelligence Workshop (MAI 2021) at NAACL 2021*
2. H Bae, M Lee, A Kim, **H Lee**, C Lee, C Park, D Kim, K Jung, Relevance Similarity Scorer and Entity Guided Reranking for Knowledge Grounded Dialog System, *The Ninth Dialog System Technology Challenge (DSTC 2021) at AAAI 2021*
3. **H Lee**, S Yoon, F Dernoncourt, D Kim, T Bui, K Jung, ViLBERTScore: Evaluating Image Caption Using Vision-and-Language BERT, *First Workshop on Evaluation and Comparison of NLP Systems (Eval4NLP 2020) at EMNLP 2020*
4. **H Lee**, S Yoon, F Dernoncourt, D Kim, T Bui and K Jung, DSTC8-AVSD: Multimodal Semantic Transformer Network with Retrieval StyleWord Generator, *The Eighth Dialog System Technology Challenge (DSTC 2020) at AAAI 2020*
5. **H Lee** and K Jung, Insensibility of Question Word Order in Visual Question Answering, *First Workshop on Shortcomings in Vision and Language (SiVL 2019) at NAACL 2019*
6. Y Kim, **H Lee**, K Jung, AttnConvnet at SemEval-2018-Task 1: Attention-based Convolutional Neural Networks for Multi-label Emotion Classification, *International Workshop on Semantic Evaluation 2018 (SemEval 2018) at NAACL 2018*

RESEARCH PROJECTS

- Credibility of Large-scale Language Models and their Application to Knowledge Based Dialogue Models
Seoul National University - *joint work with NAVER AI Lab* *June. 2021 - Current*
- Factual Error Correction on Grounded Text Generation Systems
Seoul National University - *joint work with Adobe Research* *Feb. 2021 - Current*
- Knowledge-Grounded Conversational Question Answering System
Seoul National University - *joint work with Hyundai AIRLab* *Sep. 2020 - Current*
- Evaluation Metric for Grounded Text Generation Systems
Seoul National University - *joint work with Adobe Research* *Dec. 2019 - Jan. 2021*
- Deep Learning Based Context-awareness Dialog System
Seoul National University - *joint work with Samsung Advanced Institute of Technology* *May. 2019 - May. 2020*
- Global Internet Big Text Data Monitoring
Seoul National University *Jan. 2019 - June. 2020*
- Deep Learning Based Recommendation System
Seoul National University - *joint work with Laontrip* *Mar. 2017 - Dec. 2017*

- Deep Learning Based Fraud Detection System
Seoul National University - *joint work with KCB*

Mar. 2017 - Sep. 2017

TEACHING EXPERIENCES

- Teaching Assistant, Programming Methodology, Seoul National University *Spring. 2020*
- Teaching Assistant, Seminar on Deep Learning, Seoul National University *Fall. 2019*
- Teaching Assistant, Machine Learning, Seoul National University *Spring. 2019*
- Teaching Assistant, Machine Learning, Seoul National University *Spring. 2018*
- Teaching Assistant, Programming Methodology, Seoul National University *Spring. 2017*

INVITED TALK

- Recent Advances in Text Evaluation Metrics, LG AI Research *July. 2021*

ACADEMIC SERVICES

- Reviewer of EMNLP 2021
- Reviewer of AAAI 2021
- Sub-reviewer of ACL 2021
- Sub-reviewer of EMNLP 2020

(Last update: 9, Oct, 2021)