HWANHEE LEE - 이환희

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EDUCATION

Ph.D. Candidate, Electrical and Computer Engineering, Seoul National University, 2017.03 - Present
- Machine Intelligence Laboratory (Advisior: Kyomin Jung)

B.S., Electrical and Computer Engineering, Seoul National University, 2013.03 - 2017.02

SCHOLARSHIPS AND AWARDS

- Youlchon AI Star Scholarship, *Granted by Nongsim Youlchon Foundation*, 2021.09

- Scholarship from Foundation for Electronics, Electrical and Computer Engineering, *Granted by Seoul National University*, 2018 Spring

- National Science & Technology Scholarship (Full-tuition), *Granted by Korea Student Aid Foundation*, 2013 Spring - 2016 Fall

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 Langauge (**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*, 2021.06 - Current

- Factual Error Correction on Grounded Text Generation Systems, Seoul National University - *joint work with Adobe Research*, 2021.02 - Current

- Knowledge-Grounded Conversational Question Answering System, Seoul National University - *joint work with Hyundai AIRLab*, 2020.09 - Current

- Evaluation Metric for Grounded Text Generation Systems, Seoul National University - *joint work with Adobe Research*, 2019.12 - 2021.01

- Deep Learning Based Context-awareness Dialog System, Seoul National University - *joint work with Samsung Advanced Institute of Technology*, 2019.05 - 2020.05

- Global Internet Big Text Data Monitoring, Seoul National University, 2019.01 - 2020.06

- Deep Learning Based Recommendation System, Seoul National University - *joint work with Laontrip*, 2017.03 - 2017.12

- Deep Learning Based Fraud Detection System, Seoul National University - *joint work with KCB*, 2017.03 - 2017.09

TEACHING EXPERIENCES

- Teaching Assistant, Programming Methodology, Seoul National University, 2020 Spring

- Teaching Assistant, Seminar on Deep Learning, Seoul National University, 2019 Fall

- Teaching Assistant, Machine Learning, Seoul National University, 2019 Spring

- Teaching Assistant, Machine Learning, Seoul National University, 2018 Spring

- Teaching Assistant, Programming Methodology, Seoul National University, 2017 Spring

INVITED TALK

- Recent Advances in Text Evaluation Metrics, LG AI Research, 2021.07

ACADEMIC SERVICES

- Reviewer of EMNLP 2021

- Reviewer of AAAI 2021

- Sub-reviewer of ACL 2021

- Sub-reviewer of EMNLP 2020