Gi-Cheon Kang

Contact Information

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Education

Seoul National University — Seoul, Korea
Ph.D. Student in Artificial Intelligence — Sept. 2020 – Present
Advisor: Prof. Byoung-Tak Zhang

Seoul National University — Seoul, Korea
M.S. in Cognitive Science — Mar. 2018 – Feb. 2020
Advisor: Prof. Byoung-Tak Zhang
Thesis: Deep Representation Learning for Visually-Grounded Dialogue

Ajou University — Suwon, Korea
B.Eng. in Software and Computer Engineering — Mar. 2011 – Feb. 2018

Interests

Machine Learning, Natural Language Processing, Computer Vision, Robotics
Mostly, I am focusing on modeling algorithms that learn the physical world with natural language
The long-term goal of my research is to build machines that can

- perceive their everyday surroundings through vision or other senses,
- communicate with humans via grounded natural language,
- make reliable decisions using language, vision, etc.

Research Experience

SNU-NAVER Hyperscale AI Center — Seoul, Korea
Student Researcher — Sept. 2021 – May 2022
With Dr. Jin-Hwa Kim and Sungdong Kim
Studied a semi-supervised learning approach for visual dialog, Generative Self-Training, which generates synthetic visual dialog data and trains a model on the data. Published at CVPR 2023.

Seoul National University (SNU) — Seoul, Korea
Research Assistant — Sept. 2020 – Present
With Prof. Byoung-Tak Zhang
I have studied "grounded language learning", which aims to connect language to non-linguistic experiences in the physical world, such as sensory perception and action. Recent research focuses on developing embodied dialog agents that can see, talk, and act.

SK Telecom AI Center — Seoul, Korea
Research Intern — Jan. 2020 - March. 2020
With Dr. Jin-Hwa Kim and Dr. Hwaran Lee
Developed Sparse Graph Learning (SGL) algorithm that discovers inherently sparse semantic structures of the human conversation. Published at Findings of EMNLP 2021.

Honors & Awards

Daeha Scholarship — May 2022
Ranked 3rd Place, Visual Dialog Challenge @ CVPR 2019 — June 2019
Software-Centered University Hackathon, Prize from Microsoft Korea — Sept. 2017
Yeoju Honor Scholarship — May 2016

Preprints

[11] **PROGrasp: Pragmatic Human-Robot Communication for Object Grasping**
Gi-Cheon Kang, Junghyun Kim, Jaein Kim, Byoung-Tak Zhang
arXiv preprint 2309.07759, 2023

Conference Publications

[10] **The Dialog Must Go On: Improving Visual Dialog via Generative Self-Training**
Gi-Cheon Kang, Sungdong Kim*, Jin-Hwa Kim*, Donghyun Kwak*, Byoung-Tak Zhang
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2023

[9] **GVCCI: Lifelong Learning of Visual Grounding for Language-Guided Robotic Manipulation**
Junghyun Kim, Gi-Cheon Kang*, Jaein Kim*, Suyeon Shin, Byoung-Tak Zhang
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2023

[8] **Reasoning Visual Dialog with Sparse Graph Learning and Knowledge Transfer**
Gi-Cheon Kang, Junseok Park, Hwaran Lee, Byoung-Tak Zhang*, Jin-Hwa Kim*
Findings of Empirical Methods in Natural Language Processing (EMNLP Findings), 2021

[7] **Attend What You Need: Motion-Appearance Synergistic Networks for Video Question Answering**
Ahjeong Seo, Gi-Cheon Kang, Joonhan Park, Byoung-Tak Zhang
Annual Meeting of the Association for Computational Linguistics (ACL), 2021

[6] **Label Propagation Adaptive Resonance Theory for Semi-Supervised Continuous Learning**
Taehyeong Kim, Injune Hwang, Gi-Cheon Kang, Won-Seok Choi, Hyunseo Kim, Byoung-Tak Zhang
IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2020

[5] **Dual Attention Networks for Visual Reference Resolution in Visual Dialog**
Gi-Cheon Kang, Jaeseo Lim, Byoung-Tak Zhang
Conference on Empirical Methods in Natural Language Processing (EMNLP), 2019

Workshop Papers

[4] **Generative Self-training Improves Pre-training for Visual Dialog**
Gi-Cheon Kang, Sungdong Kim*, Jin-Hwa Kim*, Donghyun Kwak*, Byoung-Tak Zhang
ICML Workshop on Pre-training: Perspectives, Pitfalls, and Paths Forward (ICML-W), 2022

[3] **Improving Robustness to Texture Bias via Shape-focused Augmentation**
Sangjun Lee, Inwoo Hwang, Gi-Cheon Kang, Byoung-Tak Zhang
CVPR Workshop on Human-centered Intelligent Services: Safety and Trustworthy (CVPR-W), 2022

[2] **C^3: Contrastive Learning for Cross-domain Correspondence in Few-shot Image Generation**
Hyukgi Lee, Gi-Cheon Kang, Chang-Hoon Jeong, Hanwool Sul, Byoung-Tak Zhang
NeurIPS Workshop on Controllable Generative Modeling in Language and Vision (NeurIPS-W), 2021

[1] **Contextualized Bilinear Attention Networks**
Gi-Cheon Kang, Seonil Son, Byoung-Tak Zhang
ECCV Workshop on VizWiz Grand Challenge (ECCV-W), 2018

Invited Talks

The Dialog Must Go On: Improving Visual Dialog via Generative Self-Training
IEEE RO-MAN Workshop on Learning by Asking for Intelligent Robots and Agents Aug. 2023

Reasoning Visual Dialog with Sparse Graph Learning and Knowledge Transfer
KSC 2021 - Top-tier Conference Paper Presentation Session — Dec. 2021
Annual Conference on Human and Cognitive Language Technology — Oct. 2021

Dual Attention Networks for Visual Reference Resolution in Visual Dialog
ICCV 2019 - Video Turing Test Workshop **(Spotlight)** — Nov. 2019
SK Telecom AI Center — Sept. 2019

Professional Activities

Reviewing
(ML) International Conference on Learning Representations (ICLR) — 2024
(ML) Neural Information Processing Systems (NeurIPS) — 2023
(NLP) Annual Meeting of the Association for Computational Linguistics (ACL) — 2023
(NLP) Empirical Methods in Natural Language Processing (EMNLP) — 2022 – 2023

Extra Curricular Activities

BI Lab Conference Deadline Site Administrator — 2018 – Present
Military Service in Republic of Korea Army — 2012 – 2014