NOKYUNG PARK

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EDUCATION

Korea university Seoul, South Korea — Seoul, South Korea
Master student in Computer Science and Engineering — Mar 2022 -
GPA: 4.5 / 4.5
Advisor: Prof. Jinkyu Kim

Korea University — Seoul, South Korea
Bachelor in Computer Science and Engineering — Mar 2018 - Feb 2022
Major GPA: 4.33 / 4.5, Cummlative GPA: 4.22 / 4.5

RESEARCH EXPERIENCE

Vision and AI Lab, Korea University — Mar 2022 -

- Master Student (*Advisior: Prof. Jinkyu Kim*)
- Researching on Domain Generalization
- Participating in "*Bridging the Domain Gap by Clustering-based Image-Text Graph Matching* (*Under Review Status*)"

NAVER Cloud Internship, Korea University — Jan 2023 - Mar 2023

- Worked for the Information Extraction team
- Researching on Scene Graph Generation
- Participating in "*EGTR: Extract Graph from Transformer for Scene Graph Generation* (*Under Review Status*)"

NAVER Internship, Korea University — Sep 2022 - Dec 2022

- Worked for the Information Extraction team
- Researching on Scene Graph Generation
- Participating in "*EGTR: Extract Graph from Transformer for Scene Graph Generation* (*Under Review Status*)"

Vision and AI Lab, Korea University — Jul 2021 - Feb 2022

- Undergraduate Researcher (*Advisior: Prof. Jinkyu Kim*)
- Researching on Domain Generalization
- Participating in "*Grounding Visual Representations with Texts for Domain Generalization* (*ECCV 2022*)"

TECHNICAL SKILLS

Programming Language: Python3, C, JAVA, Shell Script

Tools: PyTorch, TensorFlow, Linux, Git

Courses: Computer Vision, Pattern Recognition, Artificial Intelligence, Machine Learning, Deep Learning, Natural Language Processing, Data Science, Linear Algebra, Probability and Statistics, Data Structure, Algorithm, Discrete Mathematics

INTEREST FIELDS

- **Domain Generalization.** When there is a difference in distribution between the training dataset and the test dataset, domain shift can occur, leading to a significant decrease in performance. Domain generalization is an essential area of research that seeks to mitigate this issue by developing models that can generalize well to unseen domains. This is crucial because it is impractical to collect data for all possible domains that exist in the world.
- **Multimodal Learning.** Just as humans use different senses to understand the world, by multimodal learning, deep learning models can process multiple types of data simultaneously, such as images and text. This helps us create more powerful models that better understand the relationships between different types of data.

PUBLICATION

Bridging the Domain Gap by Clustering-based Image-Text Graph Matching *Under Review*
Nokyung Park, Daewon Chae, Jeong Yong SHIM, Sangpil Kim, Eun-Sol Kim, Jinkyu Kim

This paper proposes a (image-text) multimodal graph representation approach to learn domain-invariant pivot embeddings for domain generalization problems. By representing image and text descriptions as graphs and clustering and matching image node features into textual graphs, the model can achieve state-of-the-art performance on large-scale public datasets, CUB-DG.

EGTR: Extract Graph from Transformer for Scene Graph Generation *Under Review*
Jinbae Im, Jeongyeon Nam, **Nokyung Park**, Hyungmin Lee, Seunghyun Park

This paper proposes lightweight Scene Graph Generation model which extracts relation graphs from the various relationships learned in each layer and head of the DETR decoder. By utilizing the self-attention of the DETR decoder, the relation graph can be effectively extracted. The proposed methodology outperforms state-of-the-art models on the Visual Genome and Open Image V6 datasets.

Grounding Visual Representations with Texts for Domain Generalization *ECCV 2022*
Seonwoo Min, **Nokyung Park**, Siwon Kim, Seunghyun Park, Jinkyu Kim

This paper proposes a novel approach to domain generalization using natural language supervision. It includes a Visual and Textual Joint Embedder and a Textual Explanation Generator to learn image-text representations and generate explanations. The approach achieves state-of-the-art performance on CUB-DG and DomainBed benchmarks.

PROJECTS

Domain Generalization with Well-defined Pair Apr 2022 - Jun 2022

- A project conducted in the Pattern Recognition course (AAA619)
- Modifying the dataloader to apply contrastive loss to the well-defined pair
- By simple modification of data loader and applying contrastive loss, can achieve good performance as MixUp and DANN without additional complex networks.
- **Tech Skills**: Python3, Pytorch, Computer Vision, Domain Generalization
- **Github**: noparkee/DG-Pair

Recolorization for Color Vision Deficiency Apr 2022 - Jun 2022

- A project conducted in the Moonshot project course (AAA744)
- Designed filters for CVD to distinguish colors well.
- **Tech Skills**: Python3, Pytorch, Computer Vision

Speech Emotion Recognition with Text Features Sep 2021 - Nov 2021

- A project conducted in the Natural Language Processing course (COSE461)

- About the importance of text information in the field of Speech Emotion Recognition.
- **Tech Skills**: Python3, Pytorch, Nautural Language Process
- **Github**: noparkee/Natural-Language-Process-Team-Project

Currency Recognition Service for the Blind Sep 2021 - Nov 2021

- A project conducted in the Capstone Design course (COSE489)
- Designed a model used in the app that tells the blind how much money it is when they show bills or coins with their cell phone cameras.
- **Tech Skills**: Python3, Pytorch, Computer Vision
- **Github**: noparkee/Capstone-Design

Smart Campus (COVID-19 Dashboard) Jun 2021 - Nov 2021

- Made the dash board contents related to COVID-19.
- Collected data using API and analyzed the acquired data to get some hidden meaning
- Defined an equation for the risk of local districts was calculated through congestion or public transportation traffic.
- Defined an equation for the individual's risk of covid-19, using the route of movement, activity content, and the surrounding covid-19 situation.
- **Tech Skills**: Python3, Pytorch, Data Analysis

AWARD/SCHOLARSHIP

- Scholarship for Outstanding Performance 2020
- Excellence Award (Capstone-Design) 2021