


# NOKYUNG PARK

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## EDUCATION

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**Korea university** Seoul, South Korea

Master student in Computer Science and Engineering

GPA: 4.5 / 4.5

*Advisor: Prof. Jinkyu Kim*

Seoul, South Korea

03/22 - 02/24 (expected)

**Korea University**

Bachelor in Computer Science and Engineering

Major GPA: 4.33 / 4.5, Cumulative GPA: 4.22 / 4.5

Seoul, South Korea

03/18 - 02/22

## TECHNICAL SKILLS

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**Programming Language**

Python3 (*advanced*), C (*intermediate*), Shell Script (*basic*)

**Tools**

PyTorch (*advanced*), TensorFlow (*intermediate*), Git (*intermediate*)

**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

## RESEARCH EXPERIENCE

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**Vision and AI Lab, Korea University**

03/22 -

- Master Student (*Advisor: Prof. Jinkyu Kim*)
- Researching on Domain Generalization
- Participating in “*Bridging the Domain Gap by Clustering-based Image-Text Graph Matching (ICMLW 2023)*”

**NAVER Cloud, NAVER Corp.**

09/22 - 03/23

- 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**

07/21 - 02/22

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

## INTEREST FIELDS

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- **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

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### **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.

### **Bridging the Domain Gap by Clustering-based Image-Text Graph Matching**

*ICMLW 2023*

**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.

### **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

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### **Domain Generalization with Well-defined Pair**

*04/22 - 06/22*

- A project conducted in the Pattern Recognition (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**

*04/22 - 06/22*

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

### **Speech Emotion Recognition with Text Features**

*09/21 - 11/21*

- A project conducted in the Natural Language Processing (COSE461)
- About the importance of text information in the field of Speech Emotion Recognition.
- **Tech Skills:** Python3, Pytorch, Natural Language Process
- **Github:** [noparkee/Natural-Language-Process-Team-Project](#)

### **Currency Recognition Service for the Blind**

*09/21 - 11/21*

- A project conducted in the Capstone Design (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)**

*06/21 - 11/21*

- 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

#### **Junior Software Heroes**

*06/20 - 09/20*

- Acted as a mentor to SmartEcoSystem team.
- Informed the students in the SmartEcoSystem team that how get information from various sensor parts of Arduino, and make simple predictions (temperature of the next time step, etc.) through the information they got.
- **Tech Skills:** Python3, Tensorflow, Arduino
- **Github:** [noparkee/KUGifted](#)

#### **AWARD/SCHOLARSHIP**

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| • Excellence Award in Capstone Design (COSE489) | 2021 |
| • Scholarship for Outstanding Performance       | 2020 |

#### **EXTRA ACTIVITY**

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| • Teaching Assistant of Computer Programming I (COSE101) | <i>03/23 - 06/23</i> |
| • Teaching Assistant of Computer Architecture (COSE222)  | <i>03/22 - 06/22</i> |
| • Mentor of COMPUTINGTHE WORLD (GEQR039)                 | <i>09/20 - 12/20</i> |
| • App mentor of e-ICON World Contest                     | <i>07/20 - 09/20</i> |