

NOKYUNG PARK

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EDUCATION

Korea university Seoul, South Korea

Master student in Computer Science and Engineering

GPA: 4.5 / 4.5

Advisor: Prof. Jinkyu Kim

Seoul, South Korea

Mar 2022 - Feb 2024 (expected)

Korea University

Bachelor in Computer Science and Engineering

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

Seoul, South Korea

Mar 2018 - Feb 2022

TECHNICAL SKILLS

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

Vision and AI Lab, Korea University

Mar 2022 - Feb 2024 (expected)

- Master Student (Advisor: Prof. Jinkyu Kim)
- Research on Domain Generalization
- Participate in “Bridging the Domain Gap by Clustering-based Image-Text Graph Matching (Preprint)”

NAVER Cloud, NAVER Corp.

Sep 2022 - Mar 2023

- Worked for the Information Extraction team
- Research on Scene Graph Generation
- Participating in “EGTR: Extract Graph from Transformer for Scene Graph Generation (CVPR 2024)”

Vision and AI Lab, Korea University

Jul 2021 - Feb 2022

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

INTEREST FIELDS

- **Text-to-Image Generation**
- **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

- **EGTR: Extracting Graph from Transformer for Scene Graph Generation** *CVPR 2024*
Jinbae Im, Jeongyeon Nam, **Nokyung Park**, Hyungmin Lee, Seunghyun Park

- **Clustering-based Image-Text Graph Matching for Domain Generalization** *Preprint*
Nokyung Park, Daewon Chae, Jeongyong Shim, Sangpil Kim, Eun-Sol Kim, Jinkyu Kim

This paper proposed a clustering-based graph-matching method for domain generalization, focusing on (image-text) data. By converting image and text descriptions into graphs and aligning image features with textual features, our model achieves state-of-the-art results on prominent public datasets like CUB-DG and Domainbed. Additionally, our approach excels in few-shot learning scenarios, highlighting the pivotal role of textual information.

- **Bridging the Domain Gap by Clustering-based Image-Text Graph Matching** *ICMLW 2023*
Nokyung Park, Daewon Chae, Jeongyong 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 (GRADUATE)

- **Domain Generalization with Well-defined Pair** *Mar 2022 - Jun 2022*

- 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** *Mar 2022 - Jun 2022*

- A project conducted in the Moonshot Project (AAA744)
- Designed filters for CVD to distinguish colors well.
- Student Best Paper, Summer Annual Conference IEIE2023
- **Tech Skills:** Python3, Pytorch, Computer Vision

PROJECTS (UNDERGRADUATE)

- **Speech Emotion Recognition with Text Features** *Sep 2021 - Nov 2021*

- 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** *Sep 2021 - Nov 2021*
 - 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)** *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
- **Junior Software Heroes** *Jun 2020 - Sep 2020*
 - 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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|-------------------------------------------------------|------|
| • Student Best Paper, Summer Annual Conference (IEIE) | 2023 |
| • 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>Mar 2023 - Jun 2023</i> |
| • Teaching Assistant of Computer Architecture (COSE222) | <i>Mar 2022 - Jun 2022</i> |
| • Mentor of COMPUTINGTHE WORLD (GEQR039) | <i>Sep 2020 - Dec 2020</i> |
| • App mentor of e-ICON World Contest | <i>Jul 2020 - Sep 2020</i> |