Kibum Kim

Ph.D Student

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Research Interest

Machine Learning/Deep Learning

Scene Understanding, Recommendation System, Graph Neural Networks

- With the advancement of machine learning, fundamental challenges continue to arise, compromising the model's generalizability. In this regard, my research aims to address the fundamental challenges to improve the generalization power of the model. The fundamental challenges of interest, but are not limited, are the following:
  - *Long-tailedness*: [1], [2], [3], [4], [6], [7], [10]
  - *Data Scarcity*: [6], [9]
  - *Adversarial Attacks*: [5], [8], [11]
- As fundamental challenges arise across various domains, my research areas are diverse and include the following:
  - *Image/Video Scene Understanding*
  - *Recommender Systems*
  - *Graph Neural Networks*

Education

Korea Advanced Institute of Science and Technology (KAIST) — *Daejeon, South Korea*

Ph.D in Industrial & Systems Engineering — *Sep 2023 - Present*

- Research Interest: Scene Understanding, Large Language Model, Recommendation
- Advisor: Prof. Chanyoung Park

Korea Advanced Institute of Science and Technology (KAIST) — *Daejeon, South Korea*

M.S in Industrial & Systems Engineering — *Aug 2021 - Jul 2023*

- Research Interest: Scene Understanding, Recommendation, Graph Neural Network
- Advisor: Prof. Chanyoung Park

Hanyang University — *Seoul, South Korea*

B.S. in Industrial Engineering — *Mar 2016 - Jul 2021*

- GPA: 4.09/4.5
- Early Graduation
- The period includes two years of military service, required for all Korean men

Publications

Preprint

[11] Yeonjun In, Kanghoon Yoon, Sukwon Yun, Kibum Kim, Sungchul Kim, Chanyoung Park. Noise Robust Graph Learning under Feature-Dependent Graph-Noise.

[10] Kanghoon Yoon, Kibum Kim, Jaehyeong Jeon, Yeonjun In, Donghyun Kim, Chanyoung Park. ReTAG: Retrieval-Augmented Scene Graph Generation via Multi-Prototype Learning.

[9] Kibum Kim, Kanghoon Yoon, Yeonjun In, Jaehyeong Jeon , Jinyoung Moon, Donghyun Kim, Chanyoung Park. Weakly supervised Video Scene Graph Generation with Natural Language Supervision.

Conference

[8] (**CIKM 2024**) Kanghoon Yoon, Yeonjun In, Namkyeong Lee, Kibum Kim, Chanyoung Park. Debiased Graph Poisoning Attack via Contrastive Surrogate Objective. ACM International Conference on Information and Knowledge Management.[Paper] [Code]

[7] (**ECCV 2024**) Jaehyeong Jeon, Kibum Kim, Kanghoon Yoon, Chanyoung Park. Semantic Diversity-aware Prototye-based Learning for Unbiased Scene Graph Generation. The 18th European Conference on Computer Vision ECCV 2024. [Paper] [Code]

[6] (**CVPR 2024**) Kibum Kim, Kanghoon Yoon, Jaehyeong Jeon, Yeonjun In, Jinyoung Moon, Donghyun Kim, Chanyoung Park. LLM4SGG: Large Language Model for Weakly Supervised Scene Graph Generation. [Paper] [Code]

[5] (**WWW 2024 (Oral)**) Yeonjun In, Kanghoon Yoon, Kibum Kim, Kijung Shin, Chanyoung Park. Self-guided Robust Graph Structure Refinement. The 2024 ACM Web Conference. [Paper] [Code]

[4] (**ICLR 2024**) Kibum Kim*, Kanghoon Yoon*, Yeonjun In, Jinyoung Moon, Donghyun Kim, Chanyoung Park. Adaptive Self-training Framework for Fine-grained Scene Graph Generation. The Twelfth International Conference on Learning Representations. [Paper] [Code]

[3] (**SIGIR 2023**) Kibum Kim, Dongmin Hyun, Sukwon Yun, Chanyoung Park. MELT: Mutual Enhancement of Long-Tailed User and Item for Sequential Recommendation. The 46th International ACM SIGIR Conference on Research and Development in Information Retrieval. [Paper] [Code]

[2] (**AAAI 2023**) Kanghoon Yoon*, Kibum Kim*, Jinyoung Moon, Chanyoung Park. Unbiased Heterogeneous Scene Graph Generation with Relation-aware Message Passing Neural Network. Proceedings of the AAAI Conference on Artificial Intelligence 2023. [Paper] [Code]

[1] (**CIKM 2022**) Sukwon Yun, Kibum Kim, Kanghoon Yoon, Chanyoung Park. LTE4G: Long-Tail Experts for Graph Neural Networks. Proceedings of the 31st ACM International Conference on Information & Knowledge Management. [Paper] [Code]

Projects

2024.06-Present **NAVER·Intel·KAIST (NIK) AI Collaboration Project for building a new AI ecosystem**
Collaboration with NAVER & Intel

2022.06-Present **AI Development for reasoning, extraction, understanding of common-sense**
Collaboration with **I**nstitute for **I**nformation & communications **T**echnology **P**lanning & evaluation (IITP)

2021.06-Present **Visual Intelligence Technique Development**
Collaboration with **E**lectronics and **T**elecommunications **R**esearch **I**nstitute (ETRI)

2020.12-2021.06 **Recommending Financial Product based on Graph Embeddings**
Collaboration with Hana Bank

Awards & Scholarship

2022 **Poster Competition Excellence Award**
Awarded at Industrial/Social Problem Solving Session held by Department of ISysE, KAIST

2022 **Hanyang Academic Achievement Award**
Awarded within the top 3% among the College of Engineering, Hanyang Univ.

2020 **Hanyang Brain Scholarship**
Scholarship for excellent top 5% grade in Industrial Engineering department, Hanyang Univ.

2020 **Outstanding Learning Activities Scholarship**
Outstanding learning activities in communities held by University Innovation Support

2017 **Hanyang Brain Scholarship**
Scholarship for excellent top 5% grade in Industrial Engineering department, Hanyang Univ.

Professional Services

Conference Review

- 2024-2025 AAAI Conference on Artificial Intelligence (AAAI)
- 2024 Conference on Information and Knowledge Management (CIKM)

Journal Review

- IEEE Transactions on Knowledge and Data Engineering (TKDE)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)

Teaching Experience

Spring 2022 **KSE527: Machine Learning for Knowledge Service**
Teaching Assistant

Fall 2022 **KSE801: Recommender System and Graph Machine Learning**
Teaching Assistant

Talks & Seminars

Jun 2023 **MELT: Mutual Enhancement of Long-Tailed User and Item for Sequential Recommendation**
Top Conference Session of Korea Computer Congress (KCC) 2023

Activities

2021.12-2022.02 **Research intern in Data Science & Artificial Intelligence Lab (DSAIL)**
Implementing key papers on Graph Neural Networks and Recommender Systems (link)

2018.06-2018.07 **Short-term Language Study Program in China**
Cultural exchange activities at Changchun University

References

Prof. Chanyoung Park, Assistant professor, KAIST
Email: cy.park@kaist.ac.kr