Kibum Kim

Ph.D Student

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Research Interest

Deep Learning/Machine Learning

Scene Understanding, Recommendation System, Foundation Models

- **Alleviation of Long-tailed Distribution:** Enhancing the model's capability towards minority classes to counteract the long-tailed distribution commonly found in real-world data.
  - *Scene Understanding*: [2], [4], [6], [7], [9]
  - *Recommendation*: [3]
  - *Graph Neural Networks*: [1]
- **Application of Foundation Models**: Leveraging the generalizability of Foundation models, such as Large Language Models or Multimodal Large Language Models, to address practical challenges, e.g., long-tailed problems.
  - *Image Scene Understanding*: [6]
  - *Video Scene Understanding*: [9]

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.

[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

Journal Review

- 2023 - 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