Sukwon Yun

swyun@kaist.ac.kr • Homepage • Google Scholar • Github

RESEARCH INTEREST

Graph Neural Networks and their *real-world* applications
- Mitigating the inductive bias of Graph Neural Networks (GNNs) in real-world scenarios, with their application in the field of Bioinformatics, particularly single-cell RNA sequencing (scRNA-seq)
- **Keywords**: Long-Tail Problem, Missing Features, Data Sparsity (Dropout)

EDUCATION

Korea Adavanced Institute of Technology (KAIST), Daejeon, South Korea   Aug 2021 – Aug 2023
- M.S. in Industrial & Systems Engineering
  - Research Interest: Graph Neural Networks with their applications
  - Advisor: Prof. Chanyoung Park

Hanyang University, Seoul, South Korea   Mar 2015 – Aug 2021
- B.S. in Industrial Engineering
  - Early Graduation, *Summa Cum Laude*
  - Period includes two years of military service, required for all Korean men

PUBLICATIONS
(*: Equal contribution)

CONFERENCES

[C2] MELT: Mutual Enhancement of Long-Tailed User and Item for Sequential Recommendation
Kibum Kim, Dongmin Hyun, **Sukwon Yun**, Chanyoung Park
ACM SIGIR Conference on Research and Development in Information Retrieval (**SIGIR 2023**)

[C1] LTE4G: Long-Tail Experts for Graph Neural Networks
Sukwon Yun, Kibum Kim, Kanghoon Yoon, Chanyoung Park
ACM International Conference on Information and Knowledge Management (**CIKM 2022**)

WORKSHOPS

[W1] Denoising single-cell RNA-seq data using Feature Propagation
Sukwon Yun*, Junseok Lee*, Chanyoung Park
ICML Workshop on Computational Biology (**ICML WCB 2023 Contributed Talk**)

IN SUBMISSION

CONFERENCES

[S3] Oldie but Goodie: Re-illuminating Label Propagation on Graphs with Partially Observed Features
Sukwon Yun, Xin Liu, Yunhak Oh, Junseok Lee, Tsuyoshi Murata, Chanyoung Park
Submitted to NeurIPS 2023

[S2] Muffin: Music Recommender System via Shuffle Invariant Training
Yunhak Oh*, **Sukwon Yun***, Dongmin Hyun, Sein Kim, Chanyoung Park
Submitted to CIKM 2023

[S1] Structural Mixup for Graph Neural Networks
Junghurn Kim*, **Sukwon Yun***, Chanyoung Park
Submitted to CIKM Short 2023

RESEARCH EXPERIENCES

Tokyo Institute of Technology (Tokyo Tech), Tokyo, Japan   Oct 2022 – Feb 2023
- Visiting Researcher in Murata Lab.
  - Host: Prof. Tsuyoshi Murata
  - Explored weaknesses of structured-based and GNN-based methods in graphs with missing features
  - Proposed supervised contrastive learning that incorporates pseudo-labels in graph domains
  - Submitted a paper that alleviates missing feature problem on graphs at NeurIPS 2023

Korea Adavanced Institute of Technology (KAIST), Daejeon, South Korea   Dec 2020 – Feb 2021
- Research Intern in Data Science & Artificial Intelligence Lab. (DSAIL)
  - Advisor: Prof. Chanyoung Park
  - Explored the theoretical basis and practical implementation of GNNs such as GCN and GAT (link)

Hanyang University, Seoul, South Korea   Sep 2020 – Aug 2021
- Research Student in Intelligent Data Systems Lab. (IDSL)
  - Advisor: Prof. Kichun Lee
  - Proposed an advanced version of Neural Graph Collaborative Filtering using a heterogeneous graph
  - Implemented Matrix Factorization of the BPR model using multiprocessing on the Epinion dataset
  - Implemented One-Class SVM on anomaly detection task using MNIST dataset

TEACHING EXPERIENCE	**IE343: Statistical Machine Learning**, KAIST	Spring, 2022

- Gave a tutorial and hosted Kaggle Competition (Course Project) as a Teaching Assistant
  - Competition: Predicting a person's income using a demographic dataset under an imbalance situation

AWARDS & SCHOLARSHIPS	**Korea National Scholarship**	2021 – Present

- Awarded by the Ministry of Science and ICT, South Korea

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

SIGIR Student Travel Award   2022
- ACM International Conference on Information and Knowledge Management, Georgia, USA

Merit Based Scholarship   2021
- Awarded by the Department of Industrial Engineering, Hanyang University

Hanyang Academic Achievement Award   2021
- Awarded within the top 3% among the College of Engineering, Hanyang University

Certificate of Recognition   2018
- Awarded when serving military service as auxiliary police by Seoul Metropolitan Police

PROJECTS	**Recommending Financial Products based on Graph Embeddings**	Feb 2021 – Feb 2022

- Collaboration with Hana Bank, South Korea
  - Generated financial networks via Jaccard similarity from user's data and enhanced user representation via GNN

REFERENCES

- **Prof. Chanyoung Park**, Assistant Professor, KAIST
  Email: cy.park@kaist.ac.kr

- **Prof. Tsuyoshi Murata**, Professor, Tokyo Tech
  Email: murata@c.titech.ac.jp

- **Prof. Kichun Lee**, Associate Professor, Hanyang University
  Email: skylee@hanyang.ac.kr