

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 Computational Biology, particularly single-cell RNA sequencing (scRNA-seq)
- **Keywords:** Long-Tail Problem, Missing Features, Data Sparsity (Dropout)

EDUCATION

Korea Advanced 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
Junghun 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 Advanced 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
	<ul style="list-style-type: none"> ▪ Gave a tutorial and hosted Kaggle Competition (Course Project) as a Teaching Assistant <ul style="list-style-type: none"> • Competition: Predicting a person's income using a demographic dataset under an imbalance situation 	
AWARDS & SCHOLARSHIPS	Korea National Scholarship	2021 – Present
	<ul style="list-style-type: none"> ▪ Awarded by the Ministry of Science and ICT, South Korea 	
	Poster Competition Excellence Award	2022
	<ul style="list-style-type: none"> ▪ Awarded at Industrial/Social Problem Solving Session held by Department of ISysE, KAIST 	
	SIGIR Student Travel Award	2022
	<ul style="list-style-type: none"> ▪ ACM International Conference on Information and Knowledge Management, Georgia, USA 	
	Merit Based Scholarship	2021
	<ul style="list-style-type: none"> ▪ Awarded by the Department of Industrial Engineering, Hanyang University 	
	Hanyang Academic Achievement Award	2021
	<ul style="list-style-type: none"> ▪ Awarded within the top 3% among the College of Engineering, Hanyang University 	
	Certificate of Recognition	2018
	<ul style="list-style-type: none"> ▪ Awarded when serving military service as auxiliary police by Seoul Metropolitan Police 	
PROJECTS	Recommending Financial Products based on Graph Embeddings	Feb 2021 – Feb 2022
	<ul style="list-style-type: none"> ▪ Collaboration with Hana Bank, South Korea <ul style="list-style-type: none"> • Generated financial networks via Jaccard similarity from user's data and enhanced user representation via GNN 	
REFERENCES	<ul style="list-style-type: none"> ▪ Prof. Chanyoung Park, Assistant Professor, KAIST Email: cy.park@kaist.ac.kr 	
	<ul style="list-style-type: none"> ▪ Prof. Tsuyoshi Murata, Professor, Tokyo Tech Email: murata@c.titech.ac.jp 	
	<ul style="list-style-type: none"> ▪ Prof. Kichun Lee, Associate Professor, Hanyang University Email: skylee@hanyang.ac.kr 	