

Sukwon Yun

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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, Heterophily, 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

- [C4] MUSE: Music Recommender System with Shuffle Play Recommendation Enhancement
Yunhak Oh*, **Sukwon Yun***, Dongmin Hyun, Sein Kim, Chanyoung Park
ACM International Conference on Information and Knowledge Management (**CIKM 2023**)
- [C3] S-Mixup: Structural Mixup for Graph Neural Networks
Junghun Kim*, **Sukwon Yun***, Chanyoung Park
ACM International Conference on Information and Knowledge Management (**CIKM Short 2023**)
- [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] Single-cell RNA-seq data imputation using Feature Propagation
Sukwon Yun*, Junseok Lee*, Chanyoung Park
ICML Workshop on Computational Biology (**ICML WCB 2023 Best Paper Award**)

IN SUBMISSION

CONFERENCES

- [S1] 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

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	Best Paper Award	2023
	<ul style="list-style-type: none"> ICML Workshop on Computational Biology, Honolulu, Hawai'i, USA 	
	Korea National Scholarship	2021 – 2023
	<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 	
PROFESSIONAL SERVICES	Conference Reviews	
	<ul style="list-style-type: none"> The International Conference on Learning Representations (ICLR) 	2024
	<ul style="list-style-type: none"> Conference on Parsimony and Learning (CPAL) 	2024
	<ul style="list-style-type: none"> Conference on Neural Information Processing Systems (NeurIPS) 	2023
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 	