# Sukwon Yun

swyun@cs.unc.edu • Homepage • Google Scholar • Github

**RESEARCH INTEREST**

**Multi-Agent LLMs, AI for Science**

- Addressing inductive bias of AI (LLMs, MoE, GNNs) with their application in Computational Biology

**EDUCATION**

**University of North Carolina at Chapel Hill**, Chapel Hill, NC, USA — Aug 2024 – Present
- Ph.D. in Computer Science (Advisor: Prof. Tianlong Chen)

**Korea Advanced Institute of Technology (KAIST)**, Daejeon, South Korea — Aug 2021 – Aug 2023
- M.S. in Industrial & Systems Engineering (Advisor: Prof. Chanyoung Park)

**Hanyang University**, Seoul, South Korea — Mar 2015 – Aug 2021
- B.S. in Industrial Engineering, *Summa Cum Laude*

**PUBLICATIONS**
(*: Equal contribution)

**PREPRINT**

[P1] scMoE: single-cell Multi-Modal Multi-Task Learning via Sparse Mixture-of-Experts
**Sukwon Yun***, Jie Peng*, Namkyeong Lee, Yanyong Zhang, Chanyoung Park, Zunpeng Liu, Tianlong Chen

**CONFERENCES**

[C11] Cut the Crap: An Economical Communication Pipeline for LLM-based Multi-Agent Systems
Guibin Zhang, Yanwei Yue, Zhixun Li, **Sukwon Yun**, Guancheng Wan, Kun Wang, Dawei Cheng, Jeffrey Xu Yu, Tianlong Chen
ICLR 2025

[C10] PortLLM: Personalizing Evolving Large Language Models with Training-Free and Portable Model Patches
Rana Muhammad Shahroz Khan, Pingzhi Li*, **Sukwon Yun***, Zhenyu Wang, Shahriar Nirjon, Chau-Wai Wong, Tianlong Chen
ICLR 2025

[C9] Subgraph Federated Learning for Local Generalization
Sungwon Kim, Yoonho Lee, Yunhak Oh, Namkyeong Lee, **Sukwon Yun**, Junseok Lee, Sein Kim, Carl Yang, Chanyoung Park
ICLR 2025

[C8] Flex-MoE: Modeling Arbitrary Modality Combination via the Flexible Mixture-of-Experts
**Sukwon Yun**, Inyoung Choi, Jie Peng, Yangfan Wu, Jingxuan Bao, Qiyiwen Zhang, Jiayi Xin, Qi Long, Tianlong Chen
NeurIPS 2024 Spotlight

[C7] DALK: Dynamic Co-Augmentation of LLMs and KG to answer Alzheimer's Disease Questions with Scientific Literature
Dawei Li, Shu Yang, Zhen Tan, Jae Young Baik, **Sukwon Yun**, Joseph Lee, Aaron Chacko, Bojian Hou, Duy Duong-Tran, Ying Ding, Huan Liu, Li Shen, Tianlong Chen
EMNLP 2024 Findings

[C6] Mew: Multiplexed Immunofluorescence Image Analysis through an Efficient Multiplex Network
**Sukwon Yun**, Jie Peng, Alexandro Trevino, Chanyoung Park, Tianlong Chen
ECCV 2024

[C5] DEGNN: Dual Experts Graph Neural Network Handling Both Edge and Node Feature Noise
Tai Hasegawa, **Sukwon Yun**, Xin Liu, Yin Jun Phua, Tsuyoshi Murata
PAKDD 2024

[C4] MUSE: Music Recommender System with Shuffle Play Recommendation Enhancement
Yunhak Oh*, **Sukwon Yun***, Dongmin Hyun, Sein Kim, Chanyoung Park
CIKM 2023

[C3] S-Mixup: Structural Mixup for Graph Neural Networks
Junghurn Kim*, **Sukwon Yun***, Chanyoung Park
CIKM 2023 Short

[C2] MELT: Mutual Enhancement of Long-Tailed User and Item for Sequential Recommendation
Kibum Kim, Dongmin Hyun, **Sukwon Yun**, Chanyoung Park
SIGIR 2023

[C1] LTE4G: Long-Tail Experts for Graph Neural Networks
**Sukwon Yun**, Kibum Kim, Kanghoon Yoon, Chanyoung Park
CIKM 2022

**JOURNALS**

[J1] Single-cell RNA sequencing data imputation using bi-level feature propagation
Junseok Lee*, **Sukwon Yun***, Yeongmin Kim, Tianlong Chen, Manolis Kellis, Chanyoung Park
Briefings in Bioinformatics 2024

**WORKSHOPS**

[W4] MoE-Retriever: Addressing Missing Modality in Incomplete Multimodal Data via Sparse Mixture-of-Experts
**Sukwon Yun***, Jiayi Xin*, Inyoung Choi, Jie Peng, Qi Long, Tianlong Chen
AAAI GenAI4Health 2025

[W3] Subgraph Federated Learning for Local Generalization
Sungwon Kim, Yoonho Lee, Yunhak Oh, Namkyeong Lee, **Sukwon Yun**, Junseok Lee, Sein Kim, Carl Yang, Chanyoung Park
KDD FedKDD 2024 Best Paper Award

[W2] Noise Robust Graph Learning under Feature-Dependent Graph-Noise
Yeonjun In, Kanghoon Yoon, **Sukwon Yun**, Kibum Kim, Sungchul Kim, Chanyoung Park
WWW DCAI 2024 Oral

[W1] Single-cell RNA-seq data imputation using Feature Propagation
**Sukwon Yun***, Junseok Lee*, Chanyoung Park
ICML 2023 WCB Best Paper Award

## RESEARCH EXPERIENCES

**Massachusetts Institute of Technology (MIT)**, Cambridge, MA — Aug 2023 – Jul 2024
- Remote Research Intern in Kellis Lab.
  - Mentors: Dr. Tianlong Chen, Dr. Zunpeng Liu, Dr. Leandro Z. Agudelo, Dr. Lei Xiong

**Tokyo Institute of Technology (Tokyo Tech)**, Tokyo, Japan — Oct 2022 – Feb 2023
- Visiting Researcher in Murata Lab.
  - Host: Prof. Tsuyoshi Murata

**Korea Advanced Institute of Technology (KAIST)**, Daejeon, South Korea — Dec 2020 – Feb 2021
- Research Intern in Data Science & Artificial Intelligence Lab. (DSAIL)
  - Mentor: Prof. Chanyoung Park

**Hanyang University**, Seoul, South Korea — Sep 2020 – Aug 2021
- Student Researcher in Intelligent Data Systems Lab. (IDSL)
  - Mentor: Prof. Kichun Lee

## TEACHING EXPERIENCE

**KAIST**
- IE343: Statistical Machine Learning — Spring, 2022

## AWARDS & SCHOLARSHIPS

**Best Paper Award** — 2024
- KDD Workshop on Federated Learning for Data Mining and Graph Analytics, Barcelona, Spain

**Best Paper Award** — 2023
- ICML Workshop on Computational Biology, Honolulu, Hawai'i, USA

**Korea National Scholarship** — 2021 – 2023
- 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 an auxiliary police by Seoul Metropolitan Police

## PROFESSIONAL SERVICES

**Event Organizations**
- Session Chair, Knowledge Representation 3, Birmingham, UK, CIKM (2023)

**Program Committee**

- AAAI (2025)

**Conference Reviews**

- NeurIPS (2023, 2024), ICLR (2024, 2025), ICML (2024), CVPR (2025), ECCV (2024), CPAL (2024)

**Workshop Reviews**

- ML4LMS @ ICML (2024), ASEA @ AAAI (2024)