

# Sungwon Kim

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## RESEARCH INTEREST

### Graph Neural Network

- Data-Efficient Deep Learning, Federated Learning, Learning-based Simulation

## PROFESSIONAL EXPERIENCE

### AI SOFTWARE Of KOREA, Seoul, South Korea

- Co-CEO, Co-Founder Jul 2019 – Feb 2022
  - Development of AI for Socially Vulnerable Groups (information disadvantaged, older persons, children)
  - Management

## EDUCATION

### KAIST (Korea Advanced Institute of Technology), Daejeon, South Korea

- Ph.D. in Graduate School of Data Science Feb 2024 – Present
  - Research Interest: Learning-based 3D Simulation via GNN
  - Adviser: [Prof. Chanyoung Park](#)
- M.S. in Graduate School of Data Science Feb 2022 – Feb 2024
  - Research Interest: Graph Few-shot Learning, Graph Federated Learning
  - Adviser: [Prof. Chanyoung Park](#)

### Korea University, Seoul, South Korea

Mar 2014 – Feb 2022

- B.S. in Civil, Environmental and Architectural Engineering

## PUBLICATIONS

(\*: Equal contribution)

## CONFERENCES

- [C7] **Self-Explainable Temporal Graph Networks based on Graph Information Bottleneck**  
Sangwoo Seo, **Sungwon Kim**, Jihyeong Jung, Yoonho Lee, Chanyoung Park  
**KDD 2024** - ACM SIGKDD Conference on Knowledge Discovery and Data Mining
- [C6] **Unsupervised Episode Generation for Graph Meta-learning**  
Jihyeong Jung, Sangwoo Seo, **Sungwon Kim**, Chanyoung Park  
**ICML 2024** – International Conference on Machine Learning
- [C5] **DSLRL: Diversity Enhancement and Structure Learning for Rehearsal-based Graph Continual Learning**  
Seungyeon Choi\*, Wonjoong Kim\*, **Sungwon Kim**, Yeonjun In, Sein Kim, Chanyoung Park  
**WWW 2024 (Oral)** – The Web Conference
- [C4] **Interpretable Prototype-based Graph Information Bottleneck**  
Sangwoo Seo, **Sungwon Kim**, Chanyoung Park  
**NeurIPS 2023** - In Conference on Neural Information Processing Systems (NeurIPS)  
**- Gold Prize at the 2023 Samsung Humantech Paper Award**
- [C3] **Density of States Prediction of Crystalline Materials via Prompt-guided Multi-Modal Transformer**  
Namkyeong Lee\*, Heewoong Noh\*, **Sungwon Kim**, Dongmin Hyun, Gyoung S. Na, Chanyoung Park  
**NeurIPS 2023** - In Conference on Neural Information Processing Systems (NeurIPS)
- [C2] **Task-Equivariant Graph Few-shot Learning**  
**Sungwon Kim**, Junseok Lee, Namkyeong Lee, Wonjoong Kim, Seungyeon Choi, Chanyoung Park  
**KDD 2023** - ACM SIGKDD Conference on Knowledge Discovery and Data Mining
- [C1] **Conditional Graph Information Bottleneck for Molecular Relational Learning**  
Namkyeong Lee, Dongmin Hyun, Gyoung S Na, **Sungwon Kim**, Junseok Lee, Chanyoung Park  
**ICML 2023** - International Conference on Machine Learning

## JOURNALS

- [J1] **Deep Single-cell RNA-seq Data Clustering with Graph Prototypical Contrastive Learning**  
Junseok Lee, **Sungwon Kim**, Dongmin Hyun, Namkyeong Lee, Yejin Kim, Chanyoung Park  
**Bioinformatics 2023 (SCI)**

## WORKSHOPS

- [W2] **Subgraph Federated Learning for Local Generalization**  
**Sungwon Kim**, Yoonho Lee, Yunhak Oh, Namkyeong Lee, Sukwon Yun, Junseok Lee, Sein Kim, Carl Yang, Chanyoung Park  
**FedKDD 2024 (Oral, Best Paper Award)** - KDD 2024 Workshop on Federated Learning for Data Mining and Graph Analytics
- [W1] **Interpretable Graph Model with Prototype-Based Graph Information Bottleneck**  
Sangwoo Seo, **Sungwon Kim**, Chanyoung Park  
**HI-AI 2024 (Oral, Best Paper Award)** - KDD 2024 Workshop on Human-Interpretable AI

PROJECTS	▪ <b>Translating Korean Legal Case's Sentences into Common Terms</b> 2021– 2022 Best award project at Seoul R&D research center (2021)
	▪ <b>Sentence Similarity Model for Korean Legal Sentences</b> 2020 Best award project at Seoul R&D research center (2020)
	▪ <b>Analysis of Color Cognitive of Older Persons or Children with Disabilities by Big Data</b> 2017 Development of Color Cognitive Test Kit and Multivariate Regression Analysis
HONORS & AWARDS	▪ <b>Best Paper Award</b> 2024 KDD 2024 -Workshop on Federated Learning for Data Mining and Graph Analytics (FedKDD), Barcelona, Spain
	▪ <b>Best Paper Award</b> 2024 KDD 2024 -Workshop on Human-Interpretable AI, Barcelona, Spain
	▪ <b>30th Samsung Humantech Paper Award</b> 2024 Gold Prize
	▪ <b>Seoul Renovation Challenge</b> , Seoul Business Agency 2020 Awarded for the best team out of 444 participants Systems and methods for providing quantified AI answering services for legal questions
	▪ <b>National University Rowing Conference</b> , Korean Rowing Association 2015 Top award, Crew of Korea University Rowing Team
TEACHING EXPERIENCE	▪ <b>AI Specialist Course</b> , Samsung Electronics 2024 Teaching Assistant
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	▪ <b>DS503: Machine Learning for Data Science</b> , KAIST 2023 Teaching Assistant
	▪ <b>AI Business Transformation Program</b> , KAIST 2022 Researcher
	▪ <b>IE343: Statistical Machine Learning</b> , KAIST 2022 Teaching Assistant
TALKS AND SEMINARS	▪ <b>Top Conference Session</b> , Korea Software Congress (KSC) 2023 Task-Equivariant Graph Few-shot Learning
REFERENCES	▪ <b>Prof. Chanyoung Park</b> , Assistant Professor, KAIST Email: cy.park@kaist.ac.kr

[CV compiled on 2024-08-16 for Acme Corporation]