

# Sungwon Kim

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## RESEARCH INTEREST

### Graph Neural Network

Learning-based 3D Simulation, Federated Learning, Data-Efficient Learning

## 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

- [C8] **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 (Oral, top 1.8%)** - The Thirteenth International Conference on Learning Representations
- [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

- [W4] **Capturing Functional Context of Genetic Pathways through Hyperedge Disentanglement**  
Yoonho Lee, Junseok Lee, Sangwoo Seo, Sungwon Kim, Yeongmin Kim, Chanyoung Park  
**ICLR 2025** - Workshop on Machine Learning for Genomics Explorations (MLGenX)
- [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 2024 (Best Paper Award)** - Workshop on Federated Learning for Data Mining and Graph Analytics
- [W2] **Interpretable Graph Model with Prototype-Based Graph Information Bottleneck**  
Sangwoo Seo, **Sungwon Kim**, Chanyoung Park  
**KDD 2024 (Best Paper Award)** - Workshop on Human-Interpretable AI
- [W1] **Deep single-cell RNA-seq data clustering with graph prototypical contrastive learning**  
Junseok Lee, **Sungwon Kim**, Dongmin Hyun, Namkyeong Lee, Yejin Kim, Chanyoung Park  
**ICML 2023** - Workshop on Computational Biology

## PROJECTS

- **3D Geometry-Based Graph Neural Networks for Engineering Simulation**, LG Electronics 2025 –
- **3D Geometry-Based Graph Neural Networks for Injection Molding**, LG Electronics 2024
- **Translating Korean Legal Case's Sentences into Common Terms**, AISoftKorea 2021– 2022  
Best award project at Seoul R&D research center (2021)
- **Sentence Similarity Model for Korean Legal Sentences**, AISoftKorea 2020  
Best award project at Seoul R&D research center (2020)
- **Big Data Analysis of Color Cognition in Older Adults and Disabled Children**, AISoftKorea 2017  
Development of Color Cognitive Test Kit and Multivariate Regression Analysis

## HONORS & AWARDS

- **Best Paper Award** 2024  
KDD 2024 -Workshop on Federated Learning for Data Mining and Graph Analytics (FedKDD), Barcelona, Spain
- **Best Paper Award** 2024  
KDD 2024 -Workshop on Human-Interpretable AI, Barcelona, Spain
- **30th Samsung Humantech Paper Award** 2024  
Gold Prize
- **Seoul Renovation Challenge**, Seoul Business Agency 2020  
Awarded for the best team out of 444 participants [\[news\]](#)[\[news\]](#)  
Systems and methods for providing quantified AI answering services for legal questions
- **National University Rowing Conference**, Korean Rowing Association 2015  
First place, Crew of Korea University Rowing Team [\[YouTube\]](#)

## PROFESSIONAL SERVICES

- Conference Reviews**
- Conference on Neural Information Processing Systems (NeurIPS) 2024 – 2025
  - International Conference on Machine Learning (ICML) 2025
  - International Conference on Learning Representations (ICLR) 2025
- Journal Reviews**
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS) 2024
  - IEEE Transactions on Cognitive and Developmental Systems (TCDS) 2024

## TEACHING EXPERIENCE

- **AI Specialist Course**, Samsung Electronics 2024  
Teaching Assistant
- **AI Specialist Course**, Samsung Electronics 2023  
Teaching Assistant
- **DS503: Machine Learning for Data Science**, KAIST 2023  
Teaching Assistant

- **AI Business Transformation Program**, KAIST  
Researcher 2022
- **IE343: Statistical Machine Learning**, KAIST  
Teaching Assistant 2022

#### TALKS AND SEMINARS

- **Top Conference Session**, Korea Software Congress (KSC)  
Task-Equivariant Graph Few-shot Learning 2023

#### REFERENCES

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

[CV compiled on 2025-04-30]