

Sungwon Kim

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RESEARCH INTEREST

Physics AI (Engineering), 3D Simulation, Data-driven AI, Data-Efficient Learning

PROFESSIONAL EXPERIENCE

AI SOFTWARE Of KOREA, Seoul, South Korea

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

Jul 2019 – Feb 2022

EDUCATION

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

- Ph.D. in Graduate School of Data Science
 - Research Interest: Learning-based 3D Simulation
 - Adviser: [Prof. Chanyoung Park](#)
- M.S. in Graduate School of Data Science
 - Research Interest: Data-efficient Learning, Federated Learning
 - Adviser: [Prof. Chanyoung Park](#)

Feb 2024 – Present

Korea University, Seoul, South Korea

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

Feb 2022 – Feb 2024

PUBLICATIONS

(*: Equal contribution)

CONFERENCES

[C10] Disentangling Hyperedges through the lens of Category Theory

Yoonho Lee, Junseok Lee, Sangwoo Seo, **Sungwon Kim**, Yeongmin Kim, Chanyoung Park
NeurIPS 2025 - The Thirty-Ninth Annual Conference on Neural Information Processing Systems

[C9] Thickness-aware E(3)-Equivariant 3D Mesh Neural Networks

Sungwon Kim, Namkyeong Lee, Yunyoung Doh, Seungmin Shin, Guimok Cho, Seung-Won Jeon, Sangkook Kim, Chanyoung Park
ICML 2025 - Forty-Second International Conference on Machine Learning

[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] DSLR: Diversity Enhancement and Structure Learning for Rehearsal-based Graph Continual Learning

Seungyoon 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, Seungyoon 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 Reviewer/Program Committee**
- International Conference on Learning Representations (ICLR) 2025 – 2026
 - The Web Conference (WWW) 2026
 - Conference on Neural Information Processing Systems (NeurIPS) 2024 – 2025
 - International Conference on Machine Learning (ICML) 2025
 - Conference on Information and Knowledge Management (CIKM) - Short/Applied Research 2025

Journal Reviewer

- IEEE Transactions on Network Science and Engineering (TSNE) 2025
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS) 2024
- IEEE Transactions on Cognitive and Developmental Systems (TCDS) 2024

TEACHING EXPERIENCE	<ul style="list-style-type: none"> ▪ AI Specialist Course, Samsung Electronics Teaching Assistant ▪ AI Specialist Course, Samsung Electronics Teaching Assistant ▪ DS503: Machine Learning for Data Science, KAIST Teaching Assistant ▪ AI Business Transformation Program, KAIST Researcher ▪ IE343: Statistical Machine Learning, KAIST Teaching Assistant 	2024 2023 2023 2022 2022
TALKS AND SEMINARS	<ul style="list-style-type: none"> ▪ Top Conference Session, Korea Computer Congress (KCC) Subgraph Federated Learning for Local Generalization ▪ Top Conference Session, Korea Software Congress (KSC) Task-Equivariant Graph Few-shot Learning 	2025 2023
REFERENCES	<ul style="list-style-type: none"> ▪ Prof. Chanyoung Park, Assistant Professor, KAIST Email: cy.park@kaist.ac.kr 	

[CV compiled on 2025-11-04]