

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

	<p>[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 (Oral, Best Paper Award) - Workshop on Federated Learning for Data Mining and Graph Analytics</p> <p>[W2] Interpretable Graph Model with Prototype-Based Graph Information Bottleneck Sangwoo Seo, Sungwon Kim, Chanyoung Park KDD 2024 (Oral, Best Paper Award) - Workshop on Human-Interpretable AI</p> <p>[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</p>	
PROJECTS	<ul style="list-style-type: none"> ▪ 3D Geometry-Based Graph Network Model 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	<ul style="list-style-type: none"> ▪ 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 Systems and methods for providing quantified AI answering services for legal questions ▪ National University Rowing Conference, Korean Rowing Association 2015 Top award, Crew of Korea University Rowing Team 	
PROFESSIONAL SERVICES	<p>Conference Reviews</p> <ul style="list-style-type: none"> ▪ International Conference on Learning Representations (ICLR) 2025 ▪ Conference on Neural Information Processing Systems (NeurIPS) 2024 <p>Journal Reviews</p> <ul style="list-style-type: none"> ▪ 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 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 2022 Researcher ▪ IE343: Statistical Machine Learning, KAIST 2022 Teaching Assistant 	
TALKS AND SEMINARS	<ul style="list-style-type: none"> ▪ Top Conference Session, Korea Software Congress (KSC) 2023 Task-Equivariant Graph Few-shot Learning 	

REFERENCES

- **Prof. Chanyoung Park**, Assistant Professor, KAIST
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[CV compiled on 2024-11-05]