

# JINWOO KIM

Ph.D. Student  
Graph & Geometric DL

[jw9730.github.io](https://jw9730.github.io)  
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## Education

<b>M.S./Ph.D. in Computer Science</b> Korea Advanced Institute of Science and Technology (KAIST) <ul style="list-style-type: none"><li>• Advisor: Seunghoon Hong</li><li>• Research focus: Deep learning for graphs and geometric data.</li></ul>	Mar 2021 – Feb 2026 (expected) South Korea
<b>B.S. in Brain Engineering and Computer Science (Double Major)</b> Korea Advanced Institute of Science and Technology (KAIST) <ul style="list-style-type: none"><li>• GPA 4.05/4.3 (Summa Cum Laude)</li></ul>	Mar 2016 – Feb 2021 South Korea

## Experience

<b>New York University</b> , Visiting Scholar Host: Kyunghyun Cho, Rajesh Ranganath	Nov 2025 – Jan 2026 New York, NY, US
<b>LG AI Research</b> , Research Intern Host: Moontae Lee, Honglak Lee	Jan – Jul 2022 South Korea

## Publications

(P: preprint, C: conference, J: journal, W: workshop, \*: equal contribution)

- [P2] **Inverting Data Transformations via Diffusion Sampling**  
Jinwoo Kim\*, Sékou-Oumar Kaba\*, Jiyun Park, Seunghoon Hong, Siamak Ravanbakhsh  
Under review 2025
- [P1] **Flock: A Knowledge Graph Foundation Model via Learning on Random Walks**  
Jinwoo Kim\*, Xingyue Huang\*, Krzysztof Olejniczak, Kyungbin Min, Michael Bronstein, Seunghoon Hong, İsmail İlkan Ceylan  
arXiv 2025
- [C11] **Sequence Modeling with Spectral Mean Flows**  
Jinwoo Kim, Max Beier, Petar Bevanda, Nayun Kim, Seunghoon Hong  
NeurIPS 2025
- [C10] **Revisiting Random Walks for Learning on Graphs**  
Jinwoo Kim, Olga Zaghen\*, Ayhan Suleymanzade\*, Youngmin Ryou, Seunghoon Hong  
ICLR 2025; ICML 2024 GRaM Workshop  
**Spotlight Presentation (380/11672=3.26%)**
- [C9] **3D Denoisers are Good 2D Teachers: Molecular Pretraining via Denoising and Cross-Modal Distillation**  
Sungjun Cho, Dae-Woong Jeong, Sung Moon Ko, Jinwoo Kim, Sehui Han, Seunghoon Hong, Honglak Lee, Moontae Lee  
AAAI 2025  
**Oral Presentation**
- [C8] **Simulation-Free Training of Neural ODEs on Paired Data**  
Semin Kim\*, Jaehoon Yoo\*, Jinwoo Kim, Yeonwoo Cha, Saehoon Kim, Seunghoon Hong  
NeurIPS 2024
- [W1] **Learning Symmetrization for Equivariance with Orbit Distance Minimization**  
Tien Dat Nguyen\*, Jinwoo Kim\*, Hongseok Yang, Seunghoon Hong  
NeurIPS 2023 NeurReps Workshop
- [C7] **Learning Probabilistic Symmetrization for Architecture Agnostic Equivariance**  
Jinwoo Kim, Tien Dat Nguyen, Ayhan Suleymanzade, Hyeokjun An, Seunghoon Hong  
NeurIPS 2023  
**Spotlight Presentation (378/12345=3.06%)**
- [C6] **Universal Few-shot Learning of Dense Prediction Tasks with Visual Token Matching**  
Donggyun Kim, Jinwoo Kim, Seongwoong Cho, Chong Luo, Seunghoon Hong  
ICLR 2023  
**Outstanding Paper Award (4/4955=0.08%)**

- [C5] **Pure Transformers are Powerful Graph Learners**  
Jinwoo Kim, Tien Dat Nguyen, Seonwoo Min, Sungjun Cho, Moontae Lee, Honglak Lee, Seunghoon Hong  
NeurIPS 2022
- [C4] **Transformers meet Stochastic Block Models: Attention with Data-Adaptive Sparsity and Cost**  
Sungjun Cho, Seonwoo Min, Jinwoo Kim, Moontae Lee, Honglak Lee, Seunghoon Hong  
NeurIPS 2022
- [C3] **Equivariant Hypergraph Neural Networks**  
Jinwoo Kim, Saeyoon Oh, Sungjun Cho, Seunghoon Hong  
ECCV 2022
- [C2] **Transformers Generalize DeepSets and Can be Extended to Graphs and Hypergraphs**  
Jinwoo Kim, Saeyoon Oh, Seunghoon Hong  
NeurIPS 2021
- [C1] **SetVAE: Learning Hierarchical Composition for Generative Modeling of Set-Structured Data**  
Jinwoo Kim\*, Jaehoon Yoo\*, Juho Lee, Seunghoon Hong  
CVPR 2021
- [J1] **Spontaneous Retinal Waves Can Generate Long-Range Horizontal Connectivity in Visual Cortex**  
Jinwoo Kim\*, Min Song\*, Jaeson Jang, Se-Bum Paik  
The Journal of Neuroscience 40(34) 2020

## Honors

### Awards

- **Outstanding Researcher Award**, KAIST-Mila Prefrontal AI Research Center 2024
- **ELLIS Mobility Grant** [C10], ICML 2024 GRaM Workshop 2024
- **Outstanding Paper Award** [C6], ICLR 2023 2023
- **Samsung Humantech Paper Award** [C6], Silver Prize 2023
- **Qualcomm Innovation Fellowship Korea** [C2] 2022
- **KAIST Engineering Innovator Award**, 1 of 5 Recipients in the College of Engineering 2020

### Scholarships and fellowships

- **Kwanjeong Education Foundation Scholarship** 2022 – 2023
- **Korea National Science & Technology Scholarship** 2018 – 2019
- **KAIST Alumni Fellowship** 2017 – 2020
- **KAIST Presidential Fellowship** 2016 – 2020
- **Hansung Scholarship for Gifted Students** 2015 – 2016

## Invited Talks

### Sequence Modeling with Spectral Mean Flows [C11]

- Ben-Gurion University of the Negev (BGU) (Host: Ilan Naiman) Dec 2025

### Architecture-Agnostic Invariances for Deep Learning [C7, W1, C10]

- Mila – Quebec AI Institute (Host: Minsu Kim, Junyeob Baek) Jul 2025
- KAIST AI899 Geometric DL (Host: Sungsoo Ahn) May 2025
- Mila – Quebec AI Institute (Host: Siamak Ravanbakhsh, Sékou-Oumar Kaba) Dec 2024
- KAIST–Mila Prefrontal AI Research Center (Host: Sungjin Ahn) Nov 2024
- Sungkyunkwan University (SKKU) (Host: Chang Woo Myung) Aug 2024
- Pohang University of Science and Technology (POSTECH) (Host: Sungsoo Ahn) Nov 2023

### Universal Few-shot Learning of Dense Prediction Tasks with Visual Token Matching [C6]

- KAIST–Samsung Electronics DS Division Exchange Meetup (Host: Chulmoo Kang) Aug 2023

### Pure Transformers are Powerful Graph Learners [C5]

- Microsoft USA (Host: Nabiha Asghar) Jan 2023
- NeurIPS 2022 at KAIST (Host: Dongkwan Kim) Nov 2022
- Learning on Graphs and Geometry Reading Group (LoGaG) (Host: Hannes Stärk) Aug 2022

### Higher-order Transformers for Sets, Graphs, and Hypergraphs [C2]

- Qualcomm Korea (Host: Jaewon Choi) Jan 2023
- KAIST AI Workshop 21/22 (Host: Dongkwan Kim) Jan 2022
- NeurIPS 2021 Social: ML in Korea (Host: Jung-Woo Ha) Dec 2021

**Hierarchical Variational Autoencoders for Generative Modeling of Sets [C1]**

- Naver AI Author Meetup for CVPR 2021 (Host: Jung-Woo Ha) Sep 2021
- Korean Conference on Computer Vision 2021 (Host: Jongwoo Lim) Sep 2021

**Retinal Waves and Prenatal Wiring of Primary Visual Cortex [J1]**

- Society for Neuroscience, Chicago, IL, US Oct 2019

**Academic Services**

**Conference Reviewer:** AISTATS 2025–2026, ICLR 2025–2026, NeurIPS 2022–2025, ICML 2023–2025, IJCNN 2025, LoG 2022–2025, TAG-DS 2025, IJCNN 2025, ICCV 2025 SP4V Workshop, ICML 2024 GRaM Workshop, CVPR 2022, ACCV 2022

**Journal Reviewer:** Neural Networks 2023, 2025, IJCV 2025, TMLR 2024

**Teaching****Teaching Assistant, KAIST School of Computing**

- Undergraduate Research Program (URP) 2022, 2024
- Introduction to Deep Learning (CS492I) 2021, 2022, 2023
- Computer Vision (CS576) 2022, 2023
- School of Computing Colloquium (CS966/CS986) 2021

**Teaching Assistant, Samsung Electronics**

- Samsung Research AI Expert Program 2021 – 2024

**Student Mentoring and Collaboration**

- Chanhuk Lee, M.S. Student @ KAIST 2025 – present
- Jiyun Park, B.S. Student @ KAIST [P2] → M.S. Student @ KAIST 2024 – present
- Kyunghbin Min, B.S. Student @ KAIST [P1] 2025
- Nayun Kim, B.S. Student @ KAIST [C11] → Intern @ EPFL LTS4 2024
- Youngmin Ryou, B.S. Student @ KAIST [C10] → on leave for mandatory military service 2023 – 2024
- Nicole Shen, B.S. Student @ MIT → Intern @ MIT LIDS 2024
- Semin Kim, M.S. Student @ KAIST [C8] → Ph.D. Student @ KAIST 2023 – 2024
- Ayhan Suleymanzade, B.S. Student @ KAIST [C7, C10] → Intern @ TU Munich 2023 – 2024
- Olga Zaghen, M.S. Student @ UniTrento [C10] → Ph.D. Student @ UvA Amsterdam 2023
- Tien Dat Nguyen, B.S. Student @ KAIST [C5, C7, W1] → M.S. Student @ UWaterloo 2021 – 2023
- Daniel Sungho Jung, B.S. Student @ Penn State → Ph.D. Student @ SNU 2021
- Saeyoon Oh, B.S. Student @ KAIST [C2, C3] → Engineer @ FuriosaAI 2021

**Projects**

**Extending Language Models for Physical Data Understanding** 2024 – 2025

Korea National Research Foundation (NRF)

**Image Inpainting with Visual Commonsense Reasoning** 2021 – 2023

Korea Ministry of Science and ICT

**Cooperative Intelligence for Heterogeneous Robots** 2021 – 2023

Korea National Research Foundation (NRF)

**References**

[Seunghoon Hong](#), Associate Professor at KAIST

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