

# Namkyeong Lee

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## RESEARCH INTEREST

### Graph Machine Learning

Anything connected to or can be represented as graphs.

- Graph Representation Learning (e.g., Self-supervised, Semi-supervised Learning on graphs)
- Graph Neural Networks for Chemistry and Bioinformatics
- Graph Neural Networks for Recommendation System

## EDUCATION

### KAIST (Korea Advanced Institute of Science and Technology)

- Ph.D. in Industrial and Systems Engineering Mar 2023 – Present
  - Research Interest: Graph Representation Learning, AI4Science
  - Advisor: [Prof. Chanyoung Park](#)

### KAIST (Korea Advanced Institute of Science and Technology)

- M.S. in Industrial and Systems Engineering Mar 2021 – Feb 2023
  - GPA: 3.85/4.3
  - Research Interest: Graph Representation Learning, Graph Mining
  - Advisor: [Prof. Chanyoung Park](#)

### Korea University

- B.S. in Industrial Management Engineering Mar 2015 – Feb 2021
  - GPA: 3.9/4.5
  - Dean's List (Spring 2021)

## WORK EXPERIENCE

### NAVER

Seongnam, Korea

Dec 2022 – Feb 2023

- Research Intern
  - Project: Learning Continual User Representation for Recommendation

### AIsoftKorea

Seoul, Korea

Jun 2020 – Mar 2021

- Co-founder of AI-based legal counseling startup company.
  - Grand prize at Seoul Innovation challenge 2020.

## PUBLICATIONS

(† : EQUAL CONT.)

### CONFERENCES

- [C8] Shift Robust Molecular Relational Learning with Causal Substructure  
**Namkyeong Lee**, Kanghoon Yoon, Gyoung S. Na, Sein Kim, Chanyoung Park  
ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD 2023**)
- [C7] Task Relation-aware Continual User Representation Learning  
Sein Kim, **Namkyeong Lee**, Donghyun Kim, Min-Chul Yang, Chanyoung Park  
ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD 2023**)
- [C6] Task-Equivariant Graph Few-shot Node Classification  
Sungwon Kim, Junseok Lee, **Namkyeong Lee**, Wonjoong Kim, Seungyeon Choi, Chanyoung Park  
ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD 2023**)
- [C5] Conditional Graph Information Bottleneck for Molecular Relational Learning  
**Namkyeong Lee**, Dongmin Hyun, Gyoung S. Na, Sungwon Kim, Junseok Lee, Chanyoung Park  
International Conference on Machine Learning (**ICML 2023**)
- [C4] Heterogeneous Graph Learning for Multi-modal Medical Data Analysis  
Sein Kim, **Namkyeong Lee**, Junseok Lee, Dongmin Hyun, Chanyoung Park  
AAAI Conference on Artificial Intelligence (**AAAI 2023 Oral Presentation**)
- [C3] Relational Self-Supervised Learning on Graphs  
**Namkyeong Lee**, Dongmin Hyun, Junseok Lee, Chanyoung Park  
ACM International Conference on Information and Knowledge Management (**CIKM 2022**)

- [C2] GraFN: Semi-Supervised Node Classification on Graph with Few Labels via Non-Parametric Distribution Assignment  
Junseok Lee, Yunhak Oh, Yeonjun In, **Namkyeong Lee**, Dongmin Hyun, Chanyoung Park  
ACM SIGIR Conference on Research and Development in Information Retrieval (**SIGIR 2022 Short Paper**)
- [C1] Augmentation-Free Self-Supervised Learning on Graphs  
**Namkyeong Lee**, Junseok Lee, Chanyoung Park  
AAAI Conference on Artificial Intelligence (**AAAI 2022**)

#### JOURNALS

- [J2] 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)
- [J1] Self-Supervised Graph Representation Learning via Positive Mining  
**Namkyeong Lee**, Junseok Lee, Chanyoung Park  
**Information Sciences** (2022)

#### WORKSHOPS

- [W1] Predicting Density of States via Multi-modal Transformer  
**Namkyeong Lee<sup>†</sup>**, Heewoong Noh<sup>†</sup>, Sungwon Kim, Dongmin Hyun, Chanyoung Park  
ICLR Workshop on Machine Learning for Materials (**ML4Materials 2023**)

#### PROJECTS

- Retrosynthesis Analysis for Inorganic Materials** May 2023 – Present  
▪ Collaboration with Korea Research Institute of Chemical Technology (KRICT)
- Learning Continual Universal User Representation for Recommendation** Jul 2022 – Present  
▪ Collaboration with NAVER Shopping
- Predicting Molecular Properties after Chemical Interaction** Mar 2022 – Dec 2022  
▪ Collaboration with Korea Research Institute of Chemical Technology (KRICT)
- Predicting Density of States based on the Structure of Materials** May 2021 – Mar 2022  
▪ Collaboration with Korea Research Institute of Chemical Technology (KRICT)

#### AWARDS & SCHOLARSHIPS

- CIKM Travel Award** Sep 2022  
▪ SIGIR student travel grants for CIKM 2022.
- Grand Prize at Seoul Innovation Challenge 2020**, Seoul Business Agency Jan 2021  
▪ Barlaw: AI-based legal counseling start-up.  
• 1st place among 444 teams.
- Dean's List**, Korea University Spring 2019  
▪ Academic Excellence Award for attaining a semester GPA of 4.5/4.5.
- Special Scholarship for the Student Affairs Office**, Korea University Fall 2019, Spring 2020
- Veritas Scholarship**, Korea University Spring 2020  
▪ Research on optimize drone routing with trucks for on-demand services  
• Advisor: Prof. Taesu Cheong
- Certificate**, Korea National Police Agency Fall 2018  
▪ An exemplary auxiliary police.

#### TEACHING EXPERIENCE

- Teaching Assistant**  
▪ IE343: Statistical Machine Learning Spring 2021, 2022, 2023  
▪ CoE202: Basics of Artificial Intelligence Fall 2021

#### PROFESSIONAL SERVICES

- Conference Reviews**  
▪ ICML Workshop on Computational Biology (WCB), 2023  
▪ Conference on Neural Information Processing Systems (NeurIPS), 2023  
▪ AAAI Conference on Artificial Intelligence (AAAI), 2023

### **Journal Reviews**

- ACM Transactions on Knowledge Discovery from Data (TKDD)
- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- World Wide Web

### **TALKS AND SEMINARS**

#### **Relational Self-Supervised Learning on Graphs**

- Top Conference Session of Korea Software Congress (KSC) 2022

#### **Augmentation-Free Self-Supervised Learning on Graphs**

- Top Conference Session of Korea Computer Congress (KCC) 2022

### **REFERENCES**

#### **Prof. Chanyoung Park**

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