Namkyeong Lee

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RESEARCH INTEREST

Applied Machine Learning

By leveraging the power of Machine Learning, I'm interested in bringing insights and advancements to various scientific fields, including chemistry, biology, and more.

- Graph Neural Networks for Chemistry and Biology
- Graph Representation Learning

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 — Dec 2022 – Feb 2023

Seongnam, Korea

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

AISoftKorea — Jun 2020 – Mar 2021

Seoul, Korea

- Co-founder of an AI-based legal counseling startup company.
- AI model for providing qualified answers to Korean legal questions.

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, Seungyoon 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†, Heewoong Noh†, 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)

Sentence Similarity Model for Korean Legal Sentences — June 2020 – Dec 2020
- 1st Awarded project at Seoul R&D research center (2020)

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
- Building AI model for providing quantified answers to Korean legal questions.
  - Awarded for the best team 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
- 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

Workshop Reviews
- Computational Biology (WCB) @ ICML 2023
- Structured Probabilistic Inference & Generative Modeling (SPIGM) @ ICML 2023

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

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