GEON LEE

Email: geonlee0325@kaist.ac.kr
Homepage: http://geonlee0325.github.io

RESEARCH INTERESTS

Data Mining, Graph Neural Networks, Recommender Systems
Interested (but not limited to) in analyzing real-world unstructured data (e.g., graphs) to: (1) understand underlying mechanisms, (2) develop representation learning methods, and (3) design algorithms for enhanced applications (e.g., recommendation systems).

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST) — Seoul, South Korea
M.S. & Ph.D. in Artificial Intelligence — Sep. 2020 –
Advisor: Kijung Shin

Sungkyunkwan University (SKKU) — Suwon, South Korea
B.S. in Computer Science and Engineering — Mar. 2016 – Aug. 2019
GPA: 4.41/4.50; C.S.: 4.45/4.50 (Ranked 1st in the College of CSE)

WORK EXPERIENCE

NEC Labs America — Princeton, NJ, USA
Research Intern — May 2023 – Aug. 2023
Mentor: Wenchao Yu / Manager: Haifeng Chen

Amazon — San Francisco, CA, USA
Applied Scientist Intern — Sep. 2022 – Dec. 2022
Mentor: Zhonghao Luo / Manager: Tao Ye

AWARDS AND HONORS

Best Short Paper Candidates of RecSys 2024 — Oct. 2024
One of the Best-Ranked Papers of ICDM 2021 — Dec. 2021
Sungkyunkwan Presidential Award — Aug. 2019
Dean's List — 2016 – 2019
Sungkyunkwan Software Scholarship (Full tuition scholarship) — 2016 – 2019

TUTORIALS

[1] Mining of Real-World Hypergraphs: Patterns, Tools, and Generators
Geon Lee, Jaemin Yoo, and Kijung Shin
KDD 2023 & **WWW 2023** & **ICDM 2022** & **CIKM 2022**

PUBLICATIONS

[1] Resource2Box: Learning to Rank Resources in Distributed Search Using Box Embedding
Ulugbek Ergashev, Geon Lee, Kijung Shin, Eduard Dragut, and Weiyi Meng
ICDM 2024

[2] Revisiting LightGCN: Unexpected Inflexibility, Inconsistency, and
A Remedy Towards Improved Recommendation
Geon Lee, Kyungho Kim, and Kijung Shin

RecSys 2024 (Short Paper)
Selected as One of the Best Short Paper Candidates of RecSys 2024

[3] Post-Training Embedding Enhancement for Long-Tail Recommendation
Geon Lee, Kyungho Kim, and Kijung Shin
CIKM 2024 (Short Paper)

[4] Towards Better Utilization of Multiple Views for Bundle Recommendation
Kyungho Kim, Sunwoo Kim, Geon Lee, and Kijung Shin
CIKM 2024 (Short Paper)

[5] Representative and Back-in-Time Sampling from Real-world Hypergraphs
Minyoung Choe, Jaemin Yoo, Geon Lee, Woonsung Baek, U Kang, and Kijung Shin
Transaction on Knowledge Discovery from Data (SCIE Journal, 2024)

[6] VilLain: Self-Supervised Learning on Homogeneous Hypergraphs without Features via Virtual Label Propagation
Geon Lee, Soo Yong Lee, and Kijung Shin
WWW 2024

[7] Hypergraph Motifs and Their Extensions Beyond Binary
Geon Lee*, Seokbum Yoon*, Jihoon Ko, Hyunju Kim, and Kijung Shin (* equal contribution)
The VLDB Journal (SCI Journal, 2023)

[8] Random Walk with Restart on Hypergraphs:
Fast Computation and an Application to Anomaly Detection
Jaewan Chun, Geon Lee, Kijung Shin, and Jinhong Jung
Data Mining and Knowledge Discovery (SCI Journal, 2023)

[9] Hypercore Decomposition for Non-Fragile Hyperedges:
Concepts, Algorithms, Observations, and Applications
Fanchen Bu, Geon Lee, and Kijung Shin
Data Mining and Knowledge Discovery (SCI Journal, 2023)

[10] Temporal Hypergraph Motifs
Geon Lee and Kijung Shin
Knowledge and Information Systems (SCIE Journal, 2023)

[11] Set2Box: Similarity Preserving Representation Learning for Sets
Geon Lee, Chanyoung Park, and Kijung Shin
ICDM 2022

[12] HashNWalk: Hash and Random Walk Based Anomaly Detection in Hyperedge Streams
Geon Lee, Minyoung Choe, and Kijung Shin
IJCAI 2022

[13] MiDaS: Representative Sampling from Real-World Hypergraphs
Minyoung Choe, Jaemin Yoo, Geon Lee, Woonsung Baek, U Kang, and Kijung Shin
WWW 2022

[14] Simple Epidemic Models with Segmentation Can Be Better than Complex Ones
Geon Lee, Se-eun Yoon, and Kijung Shin
PLOS ONE (SCIE Journal, 2022)
Oral presentation at epiDAMIK workshop in KDD 2021

[15] THyMe+: Temporal Hypergraph Motifs and Fast Algorithms for Exact Counting
Geon Lee and Kijung Shin

ICDM 2021
Selected as One of the Best-Ranked Papers of ICDM 2021

[16] How Do Hyperedges Overlap in Real-World Hypergraphs? - Patterns, Measures, and Generators
Geon Lee*, Minyoung Choe*, and Kijung Shin (* equal contribution)
WWW 2021

[17] Hypergraph Motifs: Concepts, Algorithms, and Discoveries
Geon Lee, Jihoon Ko, and Kijung Shin
VLDB 2020

[18] MEGA: Multi-View Semi-Supervised Clustering of Hypergraphs
Joyce Jiyoung Whang, Rundong Du, Sangwon Jung, Geon Lee, Barry Drake, Qingqing Liu, Seonggoo Kang, and Haesun Park
VLDB 2020

[19] Hyperlink Classification via Structured Graph Embedding
Geon Lee, Seonggoo Kang, and Joyce Jiyoung Whang
SIGIR 2019 (Short Paper)

ACADEMIC SERVICES

Program Committee/Conference Reviewer

- AAAI Conference on Artificial Intelligence (AAAI) 2024 - 2025
- The Web Conference (WWW) 2024 - 2025
- ACM Conference on Knowledge Discovery and Data Mining (KDD) 2023 - 2025
- ACM International Conference on Information and Knowledge Management (CIKM) 2023 - 2024
- Learning on Graphs Conference (LoG) 2022 - 2024
- International Conference on Learning Representations (ICLR) 2025
- International Conference on Artificial Intelligence and Statistics (AISTATS) 2025
- Conference on Neural Information Processing Systems (NeurIPS) 2024
- SIAM International Conference on Data Mining (SDM) 2024

Journal Reviewer

- IEEE Transactions on Neural Networks and Learning Systems (TNNLS) 2023 - 2024
- IEEE Transactions on Knowledge and Data Engineering (TKDE) 2023 - 2024
- The VLDB Journal 2023 - 2024
- IEEE Transactions on Network Science and Engineering (TNSE) 2024
- Data Mining and Knowledge Discovery 2024
- PLOS ONE 2024
- Big Data Research 2024

Session Chair

- ACM International Conference on Information and Knowledge Management (CIKM) 2024

PROJECTS

AI-based Weather Forecast Support Development July 2021 –
COVID-19 Task Force Mar. 2020 – Sep. 2020

TEACHING

Teaching Assistant

- KAIST AI506 Data Mining and Search — Spring 2021, 2023
- KAIST AI607 Graph Mining and Social Network Analysis — Fall 2020, 2021, 2022, 2023
- KAIST AI617 Machine Learning for Robotics — Spring 2022
- SKKU CSE3036 Seminar in Computer Engineering — Fall 2019