

# GEON LEE

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Homepage: <http://geonlee0325.github.io>

## RESEARCH INTERESTS

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Data Mining, Graph Mining, Machine Learning, Deep Learning, Social Network Analysis

## EDUCATION

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**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

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**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

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Selected as 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

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- [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

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- [1] VilLain: Self-Supervised Learning on Homogeneous Hypergraphs without Features via Virtual Label Propagation

Geon Lee, Soo Yong Lee, and Kijung Shin

**WWW 2024**

- [2] 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)

- [3] 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)

- [4] 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)
- [5] Temporal Hypergraph Motifs  
Geon Lee and Kijung Shin  
**Knowledge and Information Systems** (SCIE Journal, 2023)
- [6] Set2Box: Similarity Preserving Representation Learning for Sets  
Geon Lee, Chanyoung Park, and Kijung Shin  
**ICDM 2022**
- [7] HashNWalk: Hash and Random Walk Based Anomaly Detection in Hyperedge Streams  
Geon Lee, Minyoung Choe, and Kijung Shin  
**IJCAI 2022**
- [8] MiDaS: Representative Sampling from Real-World Hypergraphs  
Minyoung Choe, Jaemin Yoo, Geon Lee, Woonsung Baek, U Kang, and Kijung Shin  
**WWW 2022**
- [9] 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***
- [10] 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***
- [11] How Do Hyperedges Overlap in Real-World Hypergraphs? - Patterns, Measures, and Generators  
Geon Lee\*, Minyoung Choe\*, and Kijung Shin (\* equal contribution)  
**WWW 2021**
- [12] Hypergraph Motifs: Concepts, Algorithms, and Discoveries  
Geon Lee, Jihoon Ko, and Kijung Shin  
**VLDB 2020**
- [13] 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**
- [14] Hyperlink Classification via Structured Graph Embedding  
Geon Lee, Seonggoo Kang, and Joyce Jiyoung Whang  
**SIGIR 2019** (Short Paper)

## ACADEMIC SERVICES

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### Program Committee

- SIAM International Conference on Data Mining (**SDM**) 2024
- AAAI Conference on Artificial Intelligence (**AAAI**) 2024
- Learning on Graphs Conference (**LoG**) 2022 - 2023

### Program Committee (Tutorial Track)

- ACM International Conference on Information and Knowledge Management (**CIKM**) 2023

### Conference Reviewer

- The Web Conference (**WWW**) 2024
- ACM Conference on Knowledge Discovery and Data Mining (**KDD**) 2023 - 2024

### Journal Reviewer

- Big Data Research 2024
- The VLDB Journal 2023
- IEEE Transactions on Knowledge and Data Engineering (**TKDE**) 2023
- IEEE Transactions on Neural Networks and Learning Systems (**TNNLS**) 2023

### PROJECTS

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

### TEACHING

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#### 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