

Kyuhan Lee

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Education

Korea Advanced Institute of Science and Technology (KAIST)

M.S. & PH.D. IN ARTIFICIAL INTELLIGENCE

- Advisor: Prof. Kijung Shin

Seoul, Korea

February 2025 (expected)

Hanyang University

BACHELOR OF SCIENCE IN COMPUTER SCIENCE, GPA: 4.14/4.5, MAJOR GPA: 4.21/4.5 (SUMMA CUM LAUDE)

- **National Science & Technology Scholarship, KOSAF** — Full tuition exemptions for 8 semesters.
- **Korea Advanced Institute of Science and Technology (KAIST)**, Daejeon, Korea — Winter Session 2017, Summer Session 2018, Winter Session 2019
- **University of California, Irvine**, Irvine, CA — Summer Session 2017

Seoul, Korea

February 2020

Publications

Accepted Papers

[W1] Deep-Learning-Based Precipitation Nowcasting with Ground Weather Station Data and Radar Data
In IEEE ICDMW 2022
Jihoon Ko*, [Kyuhan Lee](#)*, Hyunjin Hwang, and Kijung Shin

[C1] Personalized Graph Summarization: Formulation, Scalable Algorithms, and Applications
In IEEE ICDE 2022
Shinwhan Kang, [Kyuhan Lee](#), and Kijung Shin

[J1] Effective Training Strategies for Deep Learning-Based Precipitation Nowcasting and Estimation
In Computers & Geosciences
Jihoon Ko*, [Kyuhan Lee](#)*, Hyunjin Hwang*, Seok-Geun Oh, Seok-Woo Son, and Kijung Shin

[C2] Are Edge Weights in Summary Graphs Useful? - A Comparative Study
In PAKDD 2022
Shinwhan Kang, [Kyuhan Lee](#), and Kijung Shin

[C3] SLUGGER: Lossless Hierarchical Summarization of Massive Graphs
In IEEE ICDE 2022
[Kyuhan Lee](#)*, Jihoon Ko*, and Kijung Shin

[C4] DPGS: Degree-Preserving Graph Summarization
In SIAM SDM 2021
Houquan Zhou, Shenghua Liu, [Kyuhan Lee](#), Kijung Shin, Huawei Shen, and Xueqi Cheng

[C5] MONSTOR: An Inductive Approach for Estimating and Maximizing Influence over Unseen Social Networks
In IEEE/ACM ASONAM 2020
Jihoon Ko, [Kyuhan Lee](#), Kijung Shin, and Noseong Park

[C6] SSumM: Sparse Summarization of Massive Graphs
In ACM KDD 2020
[Kyuhan Lee](#)*, Hyeonsoo Jo*, Jihoon Ko, Sungsu Lim, and Kijung Shin

Patents

Patents [1] Method and System for Sparse Summarization of Massive Graphs
Korean Patent 10-2429040
[Kyuhan Lee](#), Hyeonsoo Jo, Jihoon Ko, Sungsu Lim, and Kijung Shin

Pending Patents [1] Method Computer Device, and Computer Program for Deep-Learning-Based Precipitation Nowcasting with Ground Weather Station Data and Radar Data
Korean Patent Application 10-2022-0136274
Jihoon Ko, [Kyuhan Lee](#), Hyunjin Hwang, and Kijung Shin

[2] Method and Apparatus for Effective Training for Deep Learning-based Precipitation Nowcasting and Estimation
Korean Patent Application 10-2021-0105149
Jihoon Ko, [Kyuhan Lee](#), Hyunjin Hwang, and Kijung Shin

Research Experience

KAIST Data Mining Lab

M.S. & PH.D. STUDENT, ADVISED BY PROF. KIJUNG SHIN

- Developing scalable algorithms for analyzing large-scale graphs
- Developing deep-learning based precipitation nowcasting algorithms funded by National Institute of Meteorological Sciences, Republic of Korea

Seoul, Korea

Mar. 2020 - Current

KAIST Data Mining Lab

UNDERGRADUATE RESEARCH INTERN, ADVISED BY PROF. KIJUNG SHIN

- Developed lossy graph summarization algorithm, SSUMM
- Developed an inductive approach for estimating and maximizing influence over unseen social networks, MONSTOR

Daejeon, Korea

Jun. 2019 - Feb. 2020

Hanyang University

CULMINATING PROJECT, ADVISED BY PROF. TAEHYUN KIM

- Developed a program that detects Fracture neck of femur by modifying DenseNet architecture

Seoul, Korea

Jan. 2019 - Nov. 2019

KAIST CS496(MAD Camp)

CAMP PARTICIPANT

- Developed Android applications using Java
- Developed Web-pages using Node.js, and MongoDB
- Applied deep reinforcement learning to our own developed game
- Developed games using Unity and C#

Daejeon, Korea

Dec. 2017 - Jan. 2018

Dutt Research Group

UNDERGRADUATE RESEARCH INTERN, ADVISED BY PROF. BRYAN DONYANAVARD

- Evaluated NVIDIA Jetson TX2 board and Parallella board by modifying the operating speed
- Designed a benchmarking program that compares matrix multiplication between normal CPU(Zynq) and Parallella board
- Manipulated a matrix multiplication algorithm that highly supports parallel computing

Irvine, CA

Jun. 2017 - Aug. 2017

Teaching Experience

KAIST AI503 Mathematics for AI

TEACHING ASSISTANT

Seoul, Korea

FALL 2023

KAIST AI617 Machine Learning for Robotics

TEACHING ASSISTANT

Seoul, Korea

Spring 2022

KAIST AI506 Data Mining and Search

TEACHING ASSISTANT

Seoul, Korea

Spring 2021, 2023

KAIST AI607 Graph Mining and Social Network Analysis

TEACHING ASSISTANT

Seoul, Korea

Fall 2021, 2022

Hanyang University GEN1031(Creative Computing for Engineers)

TEACHING ASSISTANT

- Undergraduate T.A

Seoul, Korea

Mar. 2019 - Jun. 2019

KAIST CS496(MAD Camp)

TEACHING ASSISTANT

- Undergraduate T.A

Daejeon, Korea

Jun. 2018 - July. 2018

Skills

Languages Korean (mother tongue), English (fluent) - TOEIC 965

Computer Skills Working knowledge of various computer languages such as Python, Java, R, and C/C++
Proficient in back-end development using Node.js, MongoDB and MariaDB
Proficient with Pytorch and Tensorflow

Additional Information

YEHS (Young Engineers Honor Society, The National Academy of Engineering of Korea)

VICE PRESIDENT

- Managed YEHS Strategy & Planning 3 Dpt

Dec. 2018 - Dec. 2019