

RESEARCH INTEREST

Algorithms, Optimization, Machine Learning, and Data Mining

EDUCATION

- 09/2021 – **Georgia Institute of Technology**, GA, United States
◦ Ph.D. in Computer Science
- 03/2015 – 08/2021 **Korea Advanced Institute of Science and Technology (KAIST)**, Daejeon, Korea
◦ B.S. in Mathematical Sciences (Advanced program) & Graduation with Honor (Summa Cum Laude)
◦ Left for mandatory military service (Jan 2017–Oct 2018)
- 03/2012 – 02/2015 **Korea Science Academy of KAIST (KSA)**, Busan, Korea
◦ Graduated as salutatorian in mathematics; Graduated with distinction in GPA

PUBLICATIONS

- Conferences
- [1] Vertex Sparsification for Edge Connectivity
with Parinya Chalermsook, Syamantak Das, Buntit Laekhanukit, Yang P. Liu, Richard Peng, Mark Sellke, and Daniel Vaz
SODA 2021, available at DOI:[10.1137/1.9781611976465.74](https://doi.org/10.1137/1.9781611976465.74)
- [2] Evolution of Real-world Hypergraphs: Patterns and Models without Oracles (full)
[Yunbum Kook](#), Jihoon Ko, and Kijung Shin
IEEE ICDM 2020, available at DOI:[10.1109/ICDM50108.2020.00036](https://doi.org/10.1109/ICDM50108.2020.00036) (*Selected as one of the best papers for possible publication in the Knowledge and Information Systems (KAIS) Journal, Springer*)
- [3] Incremental Lossless Graph Summarization
[Yunbum Kook*](#), Jihoon Ko*, and Kijung Shin
KDD 2020, available at DOI:[10.1145/3394486.3403074](https://doi.org/10.1145/3394486.3403074)

TALKS

- 01/2021 [Vertex Sparsification for Edge Connectivity](#), SODA 2021, Virtual
- 11/2020 [Evolution of Real-world Hypergraphs: Patterns and Models without Oracles](#), IEEE ICDM 2020, Virtual
- 08/2020 [Incremental Lossless Graph Summarization](#), KDD 2020, Virtual
- 08/2020 [Vertex Sparsification for Edge Connectivity](#), *Discrete Math Seminar*, IBS Discrete Mathematics Group, Daejeon, Korea

HONORS & AWARDS

Scholarships/Fellowships

- 08/2020 **KFAS Graduate Scholarship**, Korea Foundation for Advanced Studies
◦ For graduate study abroad (4 students selected in CS nationwide) (\$20,000/year)
- 06/2020 – 08/2021 **General Alumni Scholarship**, KAIST Alumni Association
◦ For undergraduate study (\$16,000 + mentorship by prominent alumni of KAIST)
- 03/2020 **Department Senior Scholarship**, Dept. of Mathematical Science, KAIST
◦ Awarded to the top student in a previous semester
- 03/2019 – 08/2021 **KFAS Undergraduate Scholarship**, Korea Foundation for Advanced Studies
◦ For undergraduate study (4 students selected in Mathematics nationwide) (\$8,500)
- 03/2015 – 08/2021 **KAIST Presidential Fellowship (KPF)**, KAIST

- Granted to top 3% students. Grantees choose a mentor professor for academic consultation, join KPF honor society, and receive financial support for research and academic travels (\$30,000)
 - KPF Mentor: Prof. Sang-il Oum
- 03/2015 – 12/2016 **National Science & Technology Scholarship**, Korea Student Aid Foundation
- Others
- 11/2020 **Best Paper Candidate for KAIS Publication**, IEEE ICDM 2020
- 10/2020 **Patent**, Korean Patent Application 10-2020-0087574
- With Jihoon Ko and Kijung Shin, “Electronic Device for Incremental Lossless Summarization of Massive Graphs and Operation Method Thereof”
- 06/2019 **Undergraduate Research Program**, KAIST
- Research grant for project “Graph summarization for dynamic graphs” (\$5,000)
- 2019, 2015 **Dean’s List**, KAIST
- Dept. of Mathematical Sciences, KAIST (Spring 2019)
 - School of Freshmen, KAIST (Spring 2015)
- 12/2018 **Silver**, The College Students Mathematics Competition, Korean Mathematical Society
- 08/2016 **1st Prize**, KAIST Math Problem of the Week
- Weekly math problem challenges run by Dept. of Mathematical Sciences during each semester

TEACHING & WORK EXPERIENCE

- Spring 2019 **Teaching Assistant**, Linear Algebra (MAS212), KAIST
- 12/2018 – 02/2019 **Machine Learning Engineer Intern**, Kakao Corporation, Seongnam, Korea
- Enhance a large-scale recommendation system for *Brunch* service via solving contextual multi-armed bandit (MAB) problems; offered a full-time position
- 01/2017 – 10/2018 **Korean Augmentation to the U.S. Army**, Republic of Korea Army
- Fall 2016 **Undergraduate T.A.**, Calculus II (MAS102), KAIST

Last Updated: 08/2021