Yongho Shin

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Research Interests

Online/approximation algorithms for combinatorial optimization problems

Education

Ph.D. in Computer Science, Yonsei University, South Korea Mar. 2018 – Aug. 2024

- Dissertation topic: Relaxing hard requirements of online optimization via learning augmentation and limited revocability
- Advisor: Hyung-Chan An

B.S. in Computer Science, Yonsei University, South Korea Mar. 2012 – Feb. 2018

- Awarded *high honors at graduation*

Research Papers

Yongho Shin, Changyeol Lee, and Hyung-Chan An. On optimal consistency-robustness trade-off for learning-augmented multi-option ski rental. *arXiv preprint arXiv:2312.02547*, 2023.

Yongho Shin, Changyeol Lee, Gukryeol Lee, and Hyung-Chan An. Improved learning-augmented algorithms for the multi-option ski rental problem via best-possible competitive analysis. In *Proceedings of the 40th International Conference on Machine Learning (ICML 2023)*, PMLR 202:31539-31561, 2023.

Kangsan Kim, **Yongho Shin**, and Hyung-Chan An. Constant-factor approximation algorithms for parity-constrained facility location and k-center. *Algorithmica 85*, 1883–1911, 2023.

Yongho Shin and Hyung-Chan An. Making three out of two: Three-way online correlated selection. In *Proceedings of the 32nd International Symposium on Algorithms and Computation (ISAAC 2021)*, 49:1-49:17, 2021.

Kangsan Kim, **Yongho Shin**, and Hyung-Chan An. Constant-factor approximation algorithms for the parity-constrained facility location problem. In *Proceedings of the 31st International Symposium on Algorithms and Computation (ISAAC 2020)*, 21:1-21:17, 2020.

Yongho Shin, Kangsan Kim, Seungmin Lee, and Hyung-Chan An. Online graph matching problem with a worst-case reassignment budget. *arXiv preprint arXiv:2003.05175*, 2020.

Awards

High honors at graduation, Yonsei University Feb. 2018

Talks and Presentations

Improved learning-augmented algorithms for the multi-option ski rental problem via best-possible competitive analysis

- ◇ Poster presentation at ICML 2023, Honolulu, HI, USA — July 2023

Making three out of two: Three-way online correlated selection

- ◇ Discrete Analysis Seminar, Yonsei University, Seoul, South Korea — June 2024
- ◇ Discrete Math Seminar, IBS DIMAG, Daejeon, South Korea — May 2024
- ◇ Theory Tea, Cornell University, Ithaca, NY, USA — Dec. 2022
- ◇ Presentation at ISAAC 2021, Fukuoka, Japan (virtual) — Dec. 2021
- ◇ Presentation at AAAC 2021, Tainan, Taiwan (virtual) — Oct. 2021

Constant-factor approximation algorithms for the parity-constrained facility location problem

- ◇ Presentation at ISAAC 2020, Hong Kong, China (virtual) — Dec. 2020

Research Experience

Intern, Cornell University — Sept. 2022 – Dec. 2022

- ◇ Director: David B. Shmoys

Undergraduate intern, Yonsei University — Jan. 2017 – Feb. 2018

- ◇ Advisor: Hyung-Chan An

Teaching Experience

Teaching assistant, Yonsei University

- ◇ CSI2103/CCO2103 Data Structures — Spring 2018 – 2021, 2023, 2024
- ◇ CSI3108 Algorithm Analysis — Fall 2018 – 2021, 2023
- ◇ AIC2130 Computer Algorithms for AI Applications — Fall 2023
- ◇ GEK6205 Design and Analysis of Optimization Algorithms — Fall 2023

Undergraduate voluntary tutor, Yonsei University

- ◇ CSI3108 Algorithm Analysis — Fall 2016, 2017
- ◇ CSI2103 Data Structures — Spring 2017

Miscellaneous Experience

Co-organizer of Yonsei CS theory student group, Yonsei University — Jan. 2023 – Feb. 2024

- ◇ Initiated a reading group of TCS students in and out of Yonsei University
- ◇ Organizing seminar talks on various topics including mechanism design and quantum computing

Web programmer, Republic of Korea Air Force — Nov. 2013 – Aug. 2015

- ◇ In fulfillment of mandatory military service