

Yongho Shin

Postdoctoral researcher

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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*

EMPLOYMENT

Institute of Computer Science, University of Wrocław, Poland Nov. 2024 – present

◊ Postdoctoral researcher

◊ Advisor: Jarosław Byrka

RESEARCH PAPERS

Jarosław Byrka and **Yongho Shin**. Online rounding for set cover under subset arrivals. *arXiv preprint arXiv:2507.13159*, 2025.

Davin Choo, Billy Jin, and **Yongho Shin**. Learning-augmented online bipartite fractional matching. *arXiv preprint arXiv:2505.19252*, 2025.

Changyeol Lee, **Yongho Shin**, and Hyung-Chan An. Improved algorithms for overlapping and robust clustering of edge-colored hypergraphs: An LP-based combinatorial approach. *arXiv preprint arXiv:2505.18043*, 2025.

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

HALG 2025, ETH Zurich, Zurich, Switzerland June 2025

- ◊ Title: Learning-augmented algorithms for the multi-option ski rental problem
- ◊ Contributed talk and poster presentation

COG Seminar, University of Wrocław, Wrocław, Poland May 2025

- ◊ Title: Learning-augmented online bipartite fractional matching

COG Seminar, University of Wrocław, Wrocław, Poland Dec. 2024

- ◊ Title: Online correlated selection

Discrete Analysis Seminar, Yonsei University, Seoul, South Korea June 2024

- ◊ Title: Three-way online correlated selection

Discrete Math Seminar, IBS DIMAG, Daejeon, South Korea May 2024

- ◊ Title: Three-way online correlated selection

ICML 2023, Honolulu, HI, USA July 2023

- ◊ Title: Improved learning-augmented algorithms for the multi-option ski rental problem via best-possible competitive analysis
- ◊ Poster presentation

Theory Tea, Cornell University, Ithaca, NY, USA Dec. 2022

- ◊ Title: Three-way online correlated selection

ISAAC 2021, Fukuoka, Japan (virtual) Dec. 2021

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

AAAC 2021, Tainan, Taiwan (virtual) Oct. 2021

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

ISAAC 2020, Hong Kong, China (virtual) Dec. 2020

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

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

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| ◇ 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

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| ◇ 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