

HYEONAH KIM

Ph.D. Candidate
Department of Industrial and Systems Engineering
KAIST

+82 10-8828-6415

hyeonah_kim@kaist.ac.kr

Republic of Korea

github.com/hyeonahkimm

/in/hyeonahkimm

hyeonahkimm.github.io

RESEARCH INTEREST AND SKILLS

Interests: Deep learning, AI4Science, drug discovery, combinatorial optimization, integer programming

Skills: Python, PyTorch, julia, Gurobi, PL/SQL

EDUCATION

3/2021 - 2/2025 (expected)	Ph.D. Candidate in Industrial and Systems Engineering System Intelligence Lab. & Computational Optimization Methods Lab.	KAIST
3/2019 - 2/2021	MS in Industrial Engineering Optimization and Operational Research Lab.	Seoul National University
3/2011 - 2/2015	BS in Industrial Engineering Information Design Lab.	Hanyang University

IN PROGRESS

In progress **Neural Genetic Operators for Combinatorial Optimization**
Hyeonah Kim^{*}, Sanghyeok Choi^{*}, Jaehyeok Lee, Jinkyoo Park, Changhyun Kwon

CONFERENCE

AISTATS, 2025	Ant Colony Sampling with GFlowNets for Combinatorial Optimization [arXiv] Minsu Kim [*] , Sanghyeok Choi [*] , <u>Hyeonah Kim</u> , Jiwoo Son, Jinkyoo Park, Yoshua Bengio
NeurIPS, 2024	Genetic-guided GFlowNets for Sample Efficient Molecular Optimization [arXiv] <u>Hyeonah Kim</u> , Minsu Kim, Sanghyeok Choi, Jinkyoo Park
NeurIPS, 2024 (Workshop)	Improved Off-policy Reinforcement Learning in Biological Sequence Design [arXiv] NeurIPS 2024 Workshop: AI for New Drug Modalities (AIDrugX) <u>Hyeonah Kim</u> , Minsu Kim, Taeyoung Yun, Sanghyeok Choi, Emmanuel Bengio, Alex Hernández-García, Jinkyoo Park
ICML, 2024	Symmetric Replay Training: Enhancing Sample Efficiency in Deep Reinforcement Learning for Combinatorial Optimization [arXiv] <u>Hyeonah Kim</u> , Minsu Kim, Sungsoo Ahn, Jinkyoo Park
AAAI, 2024	Equity-Transformer: Solving NP-hard Min-max Routing Problems as Sequential Generation with Equity Context [Paper Link] Jiwoo Son [*] , Minsu Kim [*] , Sanghyeok Choi, <u>Hyeonah Kim</u> , Jinkyoo Park
NeurIPS, 2023 (Workshop)	RL4CO: a Unified Reinforcement Learning for Combinatorial Optimization Library [Paper Link] NeurIPS 2023 Workshop: New Frontiers in Graph Learning Federico Berto [*] , Chuanbo Hua [*] , Junyoung Park [*] , Minsu Kim, <u>Hyeonah Kim</u> , Jiwoo Son, Haeyeon Kim, Joungho Kim, Jinkyoo Park
ICML, 2023	Meta-SAGE: Scale Meta-Learning Scheduled Adaptation with Guided Exploration for Mitigating Scale Shift on Combinatorial Optimization [Paper Link] Jiwoo Son [*] , Minsu Kim [*] , <u>Hyeonah Kim</u> , Jinkyoo Park

JOURNAL PUBLICATION

Published online
(23 Jan 2024) **A Neural Separation Algorithm for the Rounded Capacity Inequalities [Paper Link]**
INFORMS Journal on Computing (IJOC)
Hyeonah Kim, Jinkyoo Park, Changhyun Kwon

WORK EXPERIENCE

9/2020 - 2/2021	LGE ERP Manufacturing/Sales	LGCNS
<ul style="list-style-type: none">• Software Engineer. Developing HLDS (Hitach-LG Data Storage) ERP system• Oracle PL/SQL		

1/2015 – 6/2017 **LGE ERP Manufacturing** **LGCNS**
• **Software Engineer.** Developing and maintaining ERP manufacturing system of LG Electronics
• Plan/FP Module
• Oracle PL/SQL, java

RESEARCH PROJECT

11/2021 – 10/2023 **Learning to schedule multi-service robots using reinforcement learning** **Korea Telecom**
• **Role:** Project leader
• Algorithm design

10/2019 – 12/2019 **Design and implementation of key algorithms for autonomous operation and control of trains based on congestion** **Korea Railroad Research Institute**
• Algorithm design & implementation