

HYEONAH KIM

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RESEARCH INTEREST AND SKILLS

Interests: Deep learning, combinatorial optimization, chemical discovery, routing problems, 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

Under review	Improved Off-policy Reinforcement Learning in Biological Sequence Design Hyeonah Kim, Minsu Kim, Taeyoung Yun, Sanghyeok Choi, Emmanuel Bengio, Alex Hernández-García, Jinkyoo Park
Under review	Ant Colony Sampling with GFlowNets for Combinatorial Optimization [arXiv] Minsu Kim*, Sanghyeok Choi*, Hyeonah Kim, Jiwoo Son, Jinkyoo Park, Yoshua Bengio
In progress	Neural Genetic Operators for the Traveling Salesmen Problem Hyeonah Kim, Jaehyeok Lee, Jinkyoo Park, Changhyun Kwon

CONFERENCE

NeurIPS, 2024	Genetic-guided GFlowNets for Sample Efficient Molecular Optimization [arXiv] Hyeonah Kim, Minsu Kim, Sanghyeok Choi, Jinkyoo Park
ICML, 2024	Symmetric Replay Training: Enhancing Sample Efficiency in Deep Reinforcement Learning for Combinatorial Optimization [arXiv] Hyeonah Kim, 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, Hyeonah Kim, 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, Hyeonah Kim, 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*, Hyeonah Kim, Jinkyoo Park

JOURNAL PUBLICATION

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

9/2020 - 2/2021	LGE ERP Manufacturing/Sales • Software Engineer. Developing HLDS (Hitach-LG Data Storage) ERP system • Oracle PL/SQL	LGCNS
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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