HYEONAH KIM

Postdoctoral Researcher
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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 **Ph.D. in Industrial and Systems Engineering** **KAIST**
System Intelligence Lab. & Computational Optimization Methods Lab.

3/2019 - 2/2021 **MS in Industrial Engineering** **Seoul National University**
Optimization and Operational Research Lab.

3/2011 - 2/2015 **BS in Industrial Engineering** **Hanyang University**
Information Design Lab.

PUBLICATIONS

Preprinted **Neural Genetic Search in Discrete Spaces**
Hyeonah Kim*, Sanghyeok Choi*, Jinkyoo Park, Changhyun Kwon

AISTATS, 2025 **Ant Colony Sampling with GFlowNets for Combinatorial Optimization [arXiv]**
Minsu Kim*, Sanghyeok Choi*, Hyeonah Kim, Jiwoo Son, Jinkyoo Park, Yoshua Bengio

NeurIPS, 2024 **Genetic-guided GFlowNets for Sample Efficient Molecular Optimization [arXiv]**
Hyeonah Kim, 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)
Hyeonah Kim, 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]**
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

IJOC, 2024 **A Neural Separation Algorithm for the Rounded Capacity Inequalities [Paper Link]**
INFORMS Journal on Computing (IJOC), 36(4), 987-1005
Hyeonah Kim, Jinkyoo Park, Changhyun Kwon

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

HONORS AND AWARDS

Google Conference Scholarship
NeurIPS 2024
Paper: Genetic-guided GFlowNets for Sample Efficient Molecular Optimization

KAIST Graduate Student Outstanding Paper Award 2024
Paper: A Neural Separation Algorithm for the Rounded Capacity Inequalities