TAEYOUNG YUN

Ph.D student @ KAIST

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Taeyoung Yun
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RESEARCH INTEREST

My research interest lies in solving complex and high-dimensional black-box optimization problems through the lens of conditional generative modeling. I'm interested in Diffusion Models, Generative Flow Networks (GFlowNets), and their applications to real-world tasks, e.g, biological sequence design, material discovery, and mechanical design.

Recently, I found out that many crucial problems in ML can be reduced as a posterior inference problem. To this end, I'm currently interested in developing algorithms for amortizing intractable multi-modal posterior inference that can impact real-world applications.

EDUCATION

03/2024 - Current **Ph.D Student in Industrial and Systems Engineering** ***KAIST***

Supervised by Jinkyoo Park

08/2022 - 02/2024 **MS in Graduate School of AI** ***KAIST***

Supervised by Jinkyoo Park

03/2018 - 08/2022 **BS in Industrial and Systems Engineering & Computer Science** ***KAIST***

Double major

INTERNSHIPS

09/2024 - Current **Visiting Intern in HKUST** ***Remote***

Hosted by Ling Pan
Fine-tuning LLM with GFlowNets to generate diverse and effective prompts for text-to-image diffusion models.

03/2021 - 08/2021 **Research Intern in Kakao Recommendation Team** ***Seoul, Korea***

Develop contextual bandit algorithms for a personal recommendation.
Analyze the gap between simulation and real-world deployment.

INDUSTRIAL PROJECTS

03/2023 - 03/2024 **Incentive Design for Managing Taxi Fleet** ***Daejeon, Korea***

Collaborate with ETRI
Develop an RL-based incentive design algorithm for rebalancing taxi fleets to resolve the taxi imbalance problem.

03/2022 - 03/2023 **Traffic Light Optimization** ***Seoul, Korea***

Collaborate with KT
Develop a Bayesian optimization algorithm for managing multiple traffic lights in the real world to reduce congestion.

HONORS & AWARDS

2021 **Dean's List** ***KAIST***

Honor for Top 2% Students

2021 **Excellence Award (2nd Place)** ***Seoul, Korea***

Big Data Competition Hosted by NH

PUBLICATIONS

*: Equal Contribution

Arxiv, 2024
Guided Trajectory Generation with Diffusion Models for Offline Model-based Optimization
Taeyoung Yun, Sujin Yun, Jaewoo Lee and Jinkyoo Park
Paper / Code

KDD, 2024
An Offline Meta Black-box Optimization Framework for Adaptive Design of Urban Traffic Light Management Systems
Taeyoung Yun*, Kanghoon Lee*, Sujin Yun, Ilmyung Kim, Won-Woo Jung, Min-Cheol Kwon, Kyujin Choi, Yoohyeon Lee, and Jinkyoo Park
Paper / Code

ICML, 2024
Learning to Scale Logits for Temperature-conditional GFlowNets
Minsu Kim*, Juhwan Ko*, **Taeyoung Yun***, Dinghuai Zhang, Ling Pan, Woochang Kim, Jinkyoo Park, and Yoshua Bengio
Paper / Code

ICLRW, 2024 (Spotlight)
GTA: Generative Trajetory Augmentation with Guidance for Offline Reinforcement Learning
Jaewoo Lee*, Sujin Yun*, **Taeyoung Yun**, and Jinkyoo Park
Paper / Code

ICLR, 2024 (Spotlight)
Local Search GFlowNets
Minsu Kim, **Taeyoung Yun**, Emmanuel Bengio, Dinghuai Zhang, Yoshua Bengio, Sungsoo Ahn, and Jinkyoo Park
Paper / Code

TEACHING EXPERIENCES

2023,2024 **Teaching Assistant** ***KAIST***
IE437: Data-Driven Decision Making and Control

2022 **Teaching Assistant** ***KAIST***
MAS480: Introduction to Scientific Machine Learning

ACADEMIC SERVICES

2024 **NIPS Reviewer**