TAEYOUNG YUN

Ph.D student @ KAIST

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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. Specifically, I'm interested in building an amortized sampler with generative models (e.g., Diffusion / Flow-based models) that can extract crucial latent variables for generating desired samples during the online experimentation loop. To accomplish this, my research focuses on the amortizing inference of generative models with off-policy RL approaches.

I'm also interested in various decision making problems such as Multi-turn/Multi-agent RL. I've also participated in several transportation-related projects based on high-dimensional black-box optimization methods.

EDUCATION

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

Supervised by Jinkyoo Park

08/2022 - 02/2024 **M.S in Graduate School of AI** ***KAIST***

Supervised by Jinkyoo Park
MS Thesis: Offline Meta Black-box Optimization Framework for Intelligent Traffic Light Management System

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

INTERNSHIPS

06/2025 - 08/2025 **Visiting Intern at Mila** ***Montreal, Canada***

Hosted by Yoshua Bengio
RL-based red-teaming with evolving environments by safety fine-tuning the victim LLM to promote easy-to-hard exploration.

09/2024 - 03/2025 **Visiting Intern at 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 at Kakao Recommendation Team** ***Seoul, Korea***

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

INDUSTRIAL PROJECTS

09/2024 - 09/2025 **Traffic Network Layout Optimization** ***Daejeon, Korea***

Collaborate with GS
Develop a Generative model-based design algorithm for optimizing traffic network layout on a given traffic pattern.

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.

PUBLICATIONS

*: Equal Contribution

2025

Arxiv, 2025 **Improving Sampling Distribution of Off-policy Training in Generative Flow Networks**
Taeyoung Yun, Sujin Yun, Jinkyoo Park, and Ling Pan
Paper / Code

Arxiv, 2025 **Active Attacks: Red-teaming LLMs via Adaptive Environments**
Taeyoung Yun, Pierre-Luc St-Charles, Jinkyoo Park, Yoshua Bengio, and Minsu Kim
Paper / Code

Arxiv, 2025 (based on NIPSW) **Posterior Inference in Latent Space for Scalable Constrained Black-box Optimization**
Kiyoung Om*, Kyuil Sim*, **Taeyoung Yun***, Hyeongyu Kang, and Jinkyoo Park
Paper / Code

KDD, 2025 **Wind Farm Layout Optimization with Diffusion Models**
Yujin Shin*, **Taeyoung Yun***, Sujin Yun, Sungpil Woo, Sunhwan Lim, and Jinkyoo Park
Paper / Code

ICML, 2025 (based on ICLRW) **Posterior Inference with Diffusion Models for High-dimensional Black-box Optimization**
Taeyoung Yun*, Kiyoung Om*, Jaewoo Lee, Sujin Yun, and Jinkyoo Park
Paper / Code

ICML, 2025 (based on NIPSW) **Improved Off-Policy Reinforcement Learning in Biological Sequence Design**
Hyeonah Kim, Minsu Kim, **Taeyoung Yun**, Sanghyeok Choi, Emmanuel Bengio, Alex Hernández Garcia, and Jinkyoo Park
Paper / Code

CVPR, 2025 **Learning to Sample Effective and Diverse Prompts for Text-to-Image Generation**
Taeyoung Yun, Dinghuai Zhang, Jinkyoo Park, and Ling Pan
Paper / Code

ICLR, 2025 **Adaptive Teachers for Amortized Samplers**
Minsu Kim*, Sanghyeok Choi*, **Taeyoung Yun**, Emmanuel Bengio, Leo Feng, Jarrid Rector-Brooks, Sungsoo Ahn, Jinkyoo Park, Nikolay Malkin, and Yoshua Bengio
Paper / Code

2024

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

NeurIPS, 2024 (based on ICLRW) **GTA: Generative Trajetory Augmentation with Guidance for Offline Reinforcement Learning**
Jaewoo Lee*, Sujin Yun*, **Taeyoung Yun**, 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 (based on NIPSW)
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

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

2025 **Teaching Assistant** ***KAIST***
IE343: Statistical Machine Learning

2024 **Teaching Assistant** ***KAIST***
IE481: Manufacturing & Artificial Intelligence

2023-2025 **Teaching Assistant** ***KAIST***
IE437: Data-Driven Decision Making and Control

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

ACADEMIC SERVICES

2025 **Reviewer**
ICLR, AAMAS, AISTATS, ICML, KDD, TMLR, NeurIPS, NeurIPSW@SPIGM

2026 **Reviewer**
AAAI, KDD, ICLR, AAMAS, AISTATS, TMLR

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