TAEYOUNG YUN

Ph.D student @ KAIST

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RESEARCH INTEREST

My research interest lies in controllable generative modeling with large models (e.g., LLMs, Diffusion/Flow-based models) via exploring their latent spaces. Especially, I'm interested in building an amortized sampler that can extract crucial latents for generating desired samples. 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
Divide-and-conquer style automated red-teaming for robust safety fine-tuning of LLMs.

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 - Current **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
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
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

2023,2024 **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

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