

TAEYOUNG YUN
Ph.D student @ KAIST

✉ 99yty@kaist.ac.kr
🔄 dbxsodud-11

in Taeyoung Yun
🌐 dbxsodud-11.github.io

RESEARCH INTEREST

My research interests lie in controllable generative modeling with large models (e.g., LLMs, Diffusion / Flow-based models) by exploring their latent spaces. In particular, I'm interested in building an amortized sampler that can extract crucial latents to generate desired samples. To accomplish this, my research focuses on amortized inference for generative models using off-policy reinforcement learning (RL) methods.

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 - 11/2025 **Research 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.

Collaborate with KT

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

PUBLICATIONS

*: Equal Contribution

Preprints

- Arxiv, 2025 **[P3] Improving Sampling Distribution of Off-policy Training in Generative Flow Networks**
Taeyoung Yun, Sujin Yun, Jinkyoo Park, and Ling Pan
Paper / Code
- Arxiv, 2025 **[P2] 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) **[P1] Posterior Inference in Latent Space for Scalable Constrained Black-box Optimization**
Kiyoung Om*, Kyuil Sim*, Taeyoung Yun*, Hyeongyu Kang, and Jinkyoo Park
Paper / Code

Conference Publications

- ICLR, 2026 **[IC12] Diffusion Alignment as Variational Expectation-Maximization**
Jaewoo Lee, Minsu Kim, Sanghyeok Choi, Inhyuck Song, Sujin Yun, Hyeongyu Kang, Woocheol Shin, Taeyoung Yun, Kiyoung Om, and Jinkyoo Park
Paper / Code
- WSDM, 2026 **[IC11] Urban Traffic Network Layout Optimization with Guided Discrete Diffusion Models**
Taeyoung Yun, Inhyuck Song, Woocheol Shin, Yujin Shin, Sungpil Woo, Sunhwan Lim, and Jinkyoo Park
Paper / Code
- KDD, 2025 **[IC10] 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) **[IC9] 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) **[IC8] 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 **[IC7] 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 **[IC6] Adaptive Teachers for Amortized Samplers**
Minsu Kim*, Sanghyeok Choi*, Taeyoung Yun, Emmanuel Bengio, Leo Feng, Jarrod Rector-Brooks, Sungsoo Ahn, Jinkyoo Park, Nikolay Malkin, and Yoshua Bengio
Paper / Code
- NeurIPS, 2024 **[IC5] 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)	[C4] GTA: Generative Trajectory Augmentation with Guidance for Offline Reinforcement Learning Jaewoo Lee*, Sujin Yun*, <u>Taeyoung Yun</u> , and Jinkyoo Park Paper / Code
KDD, 2024	[C3] An Offline Meta Black-box Optimization Framework for Adaptive Design of Urban Traffic Light Management Systems <u>Taeyoung Yun</u> *, 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)	[C2] Learning to Scale Logits for Temperature-conditional GFlowNets Minsu Kim*, Juhwan Ko*, <u>Taeyoung Yun</u> *, Dinghuai Zhang, Ling Pan, Woochang Kim, Jinkyoo Park, and Yoshua Bengio Paper / Code
ICLR, 2024 (Spotlight)	[C1] Local Search GFlowNets Minsu Kim, <u>Taeyoung Yun</u> , Emmanuel Bengio, Dinghuai Zhang, Yoshua Bengio, Sungsoo Ahn, and Jinkyoo Park Paper / Code

Journal Publications

TMLR, 2026 (Survey Certification)	[J1] Offline Model-Based Optimization: Comprehensive Review Minsu Kim, Jiayao Gu, Ye Yuan, <u>Taeyoung Yun</u> , Zixuan Liu, Yoshua Bengio, Can Chen Paper / Code
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TEACHING EXPERIENCES

2025	Teaching Assistant IE343: Statistical Machine Learning IE437: Data-Driven Decision Making and Control	KAIST
2024	Teaching Assistant IE437: Data-Driven Decision Making and Control IE481: Manufacturing & Artificial Intelligence	KAIST
2022	Teaching Assistant MAS480: Introduction to Scientific Machine Learning	KAIST

HONORS & AWARDS

2025	Qualcomm Innovation Fellowship Finalist Paper: Learning to Sample Effective and Diverse Prompts for Text-to-Image Generation	Seoul, Korea
2025	Top Reviewer Honor for Top 8% Reviewers	NeurIPS
2021	Dean's List Honor for Top 2% Students	KAIST
2021	Excellence Award (2nd Place) Big Data Competition Hosted by NH	Seoul, Korea