Youngrok Park

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Interests

Agentic AI, Generative Models, Stochastic Process, Quantum Computing

Education

Korea Advanced Institute of Science & Technology (KAIST) Mar. 2024 - Present
Ph.D Student in KAIST AI Seoul, Korea

- Advisor: Se-Young Yun

Korea University Mar. 2018 - Feb. 2024
Undergraduate Student Seoul, Korea

- Bachelor of Science in Industrial and Management Engineering (Major GPA: 4.5 / 4.5)
- Bachelor of Economics in Statistics (Major GPA: 4.5 / 4.5)
- Honors: *Highest Honors*
- Leave of absence (Mar.2020 - Feb.2022), served in the Republic of Korea Army

Honors and Awards

Selected Participant, Machine Learning Summer School (MLSS), Columbia University, 2026
Silver Reviewer Award, ICML, 2026
Best Paper Award, Korea Software Congress, 2024
President's List, Korea University, 2023
Suklim Scholarship (department's sole recipient), Korea University Faculty Scholarship Foundation, 2022, 2023
Veritas Program (Research) Scholarship (selected as an outstanding research), Korea University, 2022, 2023
Academic Excellence Scholarship, Korea University, 2022, 2023
Semester High Honors, Korea University, 2018, 2019, 2022, 2023
KU Alumni Scholarships, Korea University, 2022
Dean's List, Korea University, 2020, 2022
Honors Scholarships, Korea University, 2019, 2022
Bronze Prize in National undergraduate Industrial Engineering Project Competition, Korean Institute of Industrial Engineers, 2019
First prize in Future Industrial Engineering Leaders and Dreamers Competition, Korean Institute of Industrial Engineers, 2019
First prize in Quantum Computing Project Contest, National Research Foundation of Korea and Korea University, 2019
Semester Honors, Korea University, 2018

Publications

* Equal contribution; † Corresponding author.

Youngrok Park*, Sangmin Bae*, Hojung Jung, Jongwoo Ko, Yunseon Choi, Young Jin Kim, Pashmina Cameron, Aaron Courville, Se-Young Yun. Eliciting Weak-to-Strong Generalization with On-Policy Reverse Distillation. *NeurIPS Workshop on CL4FMAgents* · ***Oral*** (2026). *Submitted to ICLR 2027.* [Pdf]

Hojung Jung, Youngrok Park, Sihyun Yu, Jaehyeong Jo, Sangwon Jang, Juhyeong Kim, Sangmin Bae, Se-Young Yun. R-DiT: Recursive Diffusion Transformer. *Submitted to ICLR 2027.*

Jaeyo Chang, Yuchan Lee, Seohyun Kim, Youngrok Park†. Remember, Don't Descend: Online Retrieval Episodic Memory for Test-Time Adaptation in Time-Series Forecasting. *Submitted to ICLR 2027.*

Seohyun Kim, Jaeyo Chang, Youngrok Park†. ReXformer: A Retrieval-Augmented Cross-Attention Plug-and-Play Module for Long-Term Time Series Forecasting. *Preprint.*

Youngrok Park*, Hojung Jung*, Sangmin Bae, Se-Young Yun. Temporal Alignment Guidance: On-manifold Sampling in Diffusion Models. *NeurIPS 2025 Workshop on Structured Probabilistic Inference & Generative Modeling. NeurIPS 2026.* [Pdf]

Hojung Jung, Rodrigo Hormazabal, Jaehyeong Jo, Youngrok Park, Kyunggeun Roh, Se-Young Yun, Sehui Han, Dae-Woong Jeong. MolHIT: Advancing Molecular-Graph Generation with Hierarchical Discrete Diffusion Models. *NeurIPS 2026* [Pdf]

Hojung Jung*, Juhyeong Kim*, Jaehyun Kwak, Boryeong Cho, Junhyeok Yang, Youngrok Park, Sangmin Bae, Se-Young Yun. DualDrift: Combining Forward and Reverse Drifts for One-Step Generative Modeling. *NeurIPS 2026* [Pdf]

Segyu Lee*, Boryeong Cho*, Hojung Jung*, Seokhyun An, Jaehyun Kwak, Juhyeong Kim, Yongjin Yang, Sangwon Jang, Youngrok Park, Wonjun Chang, Se-Young Yun. UniSAFE : A Comprehensive Benchmark for Safety Evaluation of Unified Multimodal Models. *NeurIPS Workshop on Trustworthy AI for Good* · ***Oral*** (2026). [Pdf]

Seohyun Kim*, Sunwoo Hong*, Hojung Jung, Youngrok Park, Se-Young Yun. KL-Adaptive Stability Sampling for Fast Inference in Masked Diffusion Models. *NeurIPS* ***Spotlight*** (2025). [Pdf]

Hojung Jung*, Youngrok Park*, Laura Schmid, Jaehyeong Jo, Dongkyu Lee, Bongsang Kim, Se-Young Yun and Jinwoo Shin. Conditional Synthesis of 3D Molecules with Time Correction Sampler. In *NeurIPS* (2024). [Pdf]

Sung Won Cho, Jae Hyeok Lee, Youngrok Park, Yanjie Zhou, Wonhee Lee, Chulung Lee. Coverage path planning for multiple UAVs in prioritized regions using ant colony optimization. *Soft Computing* (2026). [Pdf]

Hojung Jung, Laura Schmid, Youngrok Park, Minchan Jeong, Minu Kim, Se-Young Yun. Quantum bandit: bandit algorithms for efficient quantum states learning in adversarial environment. In *Korea Software Congress* (2023). [Pdf]

Youngrok Park, Jaehyeok Lee, and In-Chan Choi. QUBRIC: Quantum Unified Benchmarking for Research in Circuit optimization - A Comprehensive Survey and Proposal. In *Fall Conference of the Korean Society of Industrial Engineers* (2023). [Pdf]

Youngrok Park, Jaehyeok Lee, and In-Chan Choi. Empirical Comparison of Meta-Heuristic Approaches to Quantum Circuit Optimization: Evaluating the Impact of Non-Simplifi-cation ZX-Rules with Architecture Variations. In *Spring Conference of the Korean Society of Industrial Engineers* (2023). [Pdf]

Youngrok Park, Dongwon Son, and Hamin Choi. Residential ESS Peak Management System utilizing Solar and Grid Power. In *Fall Conference of the Korean Society of Industrial Engineers* (2019). [Pdf]

Research Experience

Optimization and Statistical Inference Lab @ KAIST AI — June. 2023 - Present
Graduate Research Assistant (Advisor: Prof. Se-Young Yun) — Seoul, Korea

System Optimization Laboratory — July. 2022 - June. 2023
Research Intern (Advisor: Prof. In-Chan Choi) — Seoul, Korea

Logistics/Transportation Information System Lab — May. 2022 - Dec. 2022
Undergraduate researcher (Advisor: Prof. Chul Ung Lee) — Seoul, Korea

Projects

LG AI Research Feb. 2026 - present
Project Manager Seoul, Korea
- SSM Hybrid architecture for time-series forecasting.
- Long-context AI Memory for Agentic AI.

Distributed Neural Network Optimization Sept. 2024 - present
Project Manager Seoul, Korea
with Electronics and Telecommunications Research Institute (ETRI)
- Aimed at developing a collaborative learning framework for multi-agent systems.

Quantum Machine Learning Sept. 2023 - June. 2024
Researcher (with LG Electronics) Seoul, Korea
- Leverage quantum machine learning tools to develop a new type of diffusion model that is better at creating molecules with good chemical properties.

Global Capstone Design Project II Aug. 2023
Undergraduate researcher (Advisor: Prof. Tim Huh, Taesu Cheong) Vancouver, Canada
- Analyzed and improved logistics at Canada Post's Pacific Processing Center by identifying inefficiencies and proposing AI and automated solutions.

Coverage Path Planning (CPP) for UAV Mar. 2023 - Nov. 2023
Undergraduate researcher (Advisor: Prof. Sungwon Cho) Seoul, Korea
- Proposed and developed a MILP-based CPP model for multi-drones, and implemented heuristic algorithms for efficient real-world solutions.

Global Capstone Design Project I Jan. 2023
Undergraduate researcher (Advisor: Prof. Tim Huh, Chul Ung Lee) Vancouver, Canada
- Developed a supplier performance measurement system for Vancouver's SCM department, including key metrics and a process for gathering stakeholder input.
- Collaborated with CoV's CPO Alexander Ralph and received guidance from Prof. Tim Huh (University of British Columbia) for 10 days, culminating in a presentation to Vancouver officials.

Teaching

Machine Learning Theory (AI603) Fall 2026
Teaching Assistant (Instructor: Prof. Se-Young Yun) KAIST
- Course topics: PAC learning, VC dimension, Rademacher complexity, concentration inequalities, online learning and convex optimization, multi-armed bandits, and sampling methods.
- Conduct individual oral examinations on proofs and problem-solving in learning theory.

Data Science and Artificial Intelligence Spring 2022
Teaching Assistant (Lecturer: Prof. Eun Kyong Shin) Seoul, Korea
- GEST 151 Data Science and Artificial Intelligence at the Institute of Data Science with 600+ students enrolled
- Ran laboratories for over 50 students, had office hours (R programming clinic) every week, answered questions in person and online, marked assignments and final end-term projects
- Hosted and facilitated a two-day Data Science Conference with 50+ students, providing comprehensive instruction on data science methodologies, including advanced statistical techniques, throughout two months preparation period

Technical Skills

Advanced R, Python
Moderate LaTeX, SQL
Novice SAS, SPSS, C

Language Proficiency	Fluent in **English**, Moderate in **Mandarin** and Native in **Korean** • 5 years of experience at the British International School Shanghai, China (Feb. 2009 - Aug. 2013)
Relevant Courseworks	Anaylsis I, Analysis II, ML Theory, Bayesian Deep Learning, Convex Optimization, Probability Theory, Generative Model, Reinforcement Learning, Bayesian Statistics, Causal Inference, Multivarate Statistics, Mathematical Statistics, Operations Research I, Operations Research II, Time Series Analysis