YOUNG JIN PARK

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ABOUT ME

I build more **reliable and efficient AI** systems at scale. From robotics to recommender systems to LLMs, I've consistently tackled each era's most critical challenges with cutting-edge solutions. Currently pursuing my PhD at MIT while leveraging **4+ years** of experience deploying **billion-scale** models at **Meta** and **NAVER**, specialized in translating cutting-edge research into high-impact product.

RESEARCH EXPERTISE

AREAS: Large Language Models, AI Safety & Alignment, Test-time Compute, Personalization, Planning & Control
TOPICS: Inference-time Scaling, Reward Modeling, Uncertainty Quantification, Sequential Decision Making

TECHNICAL SKILLS

DEEP LEARNING Transformers (LLMs, VLMs), Model Calibration, Reinforcement Learning, Time-Series
ENGINEERING Systems (vLLM, TRL, Distributed Training), SQL (Hive, Presto, Spark), Workflow Orch. (Airflow)

PROFESSIONAL EXPERIENCE [4+ Years of Full-Time Experience in ML Research]

ML SWE Intern @ META	Menlo Park, CA
Designed LLM features for Instagram ads; offline evaluation showed +0.03% CTR uplift.	May 2025 – Aug 2025
Visiting Student Researcher @ MIT-IBM WATSON AI LAB	Cambridge, MA
Developed methods for reward model calibration and efficient LLM reasoning	Sept 2024 – May 2025
Developed a reliability estimation method for pre-trained embedding models.	Mar 2024 – May 2024
Research Intern @ MITSUBISHI ELECTRIC RESEARCH LABORATORIES (MERL)	Cambridge, MA
Investigated time-series foundation models for probabilistic forecasting.	May 2024 – Aug 2024
**Research Engineer @ NAVER AI LAB	CLOVA**	Seongnam-si, Korea
Built and deployed large-scale e-commerce recommender systems for NAVER & LINE.	Feb 2019 – Aug 2022

EDUCATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT)	Cambridge, MA
Ph.D. Candidate in Mechanical Eng. (Focus: Machine Learning, GPA: 5.0/5.0)	Sept. 2022 – May 2026
KOREA ADVANCED INSTITUTE OF SCIENCE AND TECHNOLOGY (KAIST)	Daejeon, Korea
M.S. in Aerospace Eng. (Focus: Machine Learning, GPA: 4.12/4.3)	Feb. 2017 – Feb. 2019
KOREA ADVANCED INSTITUTE OF SCIENCE AND TECHNOLOGY (KAIST)	Daejeon, Korea
B.S. in Aerospace Eng. & Mathematical Sciences (GPA: 4.03/4.3)	Mar. 2013 – Feb. 2017

HONORS & AWARD

Wunsch Foundation Award for excellence in a graduate student	Dept. of MechE., MIT	July 2024
Best Poster Awards	NeurIPS ICBINB Workshop	Dec. 20220
M.S. Outstanding Paper Award	Dept. of Aerospace Engineering, KAIST	Oct. 2019
Exemplary Academic Achievement Award	Dept. of Aerospace Engineering, KAIST	Sept. 2017
Summa Cum Laude (Graduation Honors)	KAIST	Feb. 2017
KAIST Presidential Fellowship – Awarded to the top 10 students of the Class of 2017	Mar. 2013

PUBLICATIONS | Full publication list available at [Google Scholar]

*Authors contributed equally.

Selected Publications

1. **Know What You Don't Know: Uncertainty Calibration of Process Reward Models** (paper, slides)
   Y.J. Park, K. Greenewald, K. Alim, H. Wang, and N. Azizan.
   In *Neural Information Processing Systems (**NeurIPS**)*, 2025.

2. **Test-Time-Scaling for Zero-Shot Diagnosis with Visual-Language Reasoning** (paper)
   J.Y. Byun, Y.J. Park, N. Azizan, and R. Chellappa.
   In *IEEE Winter Conference on Applications of Computer Vision (**WACV**), submitted*.
   In *Neural Information Processing Systems (**NeurIPS**), Workshop on GenAI for Health, 2025.*

3. **Quantifying Representation Reliability in Self-Supervised Learning Models** (paper, slides, poster)
   Y.J. Park, H. Wang, S. Ardeshir, and N. Azizan.
   In *Conference on Uncertainty in Artificial Intelligence (**UAI**)*, 2024. [Spotlight @ 2023 RSS Workshop]

4. **A Large-Scale Ensemble Learning Framework for Demand Forecasting** (paper, slides)
   Y.J. Park, D. Kim, F. Odermatt, J. Lee, and K.M. Kim.
   In *IEEE International Conference on Data Mining (**ICDM**)*, 2022. [Oral Presentation]

5. **Distilling a Hierarchical Policy for Planning & Control via Representation and Reinforcement Learning** (paper)
   J.S. Ha*, Y.J. Park*, H.J. Chae, S.S. Park, and H.L. Choi.
   In *IEEE International Conference on Robotics and Automation (**ICRA**)*, 2021.

Additional Publications

6. **Distributional Process Reward Models: Calibrated Prediction of Future Rewards via Conditional Optimal Transport**
   R. Ma, Y.J. Park, D. Hadfield-Menell, K. Greenewald.
   Work in Progress.

7. **MaxMin Decoding: Inference-Time Scaling under Reward Uncertainty**
   K. Alim, Y.J. Park, H. Wang, K. Greenewald, and N. Azizan.
   Work in Progress.

8. **Quantifying the Reliability of Predictions in Detection Transformers** (paper, slides)
   Y.J. Park*, C. Sobolewski*, and N. Azizan.
   IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), in revision.

9. **Probabilistic Forecasting for Building Energy Systems using Time-Series Foundation Models** (paper)
   Y.J. Park, F. Germain, J. Liu, Y. Wang, T. Akino, G. Wichern, N. Azizan, C. Laughman, and A. Chakrabarty.
   Energy and Buildings, 2025.

10. **Uncertainty-Aware Meta-Learning for Analytically Tractable Posterior** (paper)
    Y.J. Park*, C. Almecija*, A. Sharma, and N. Azizan
    In *Conference on Artificial Intelligence and Statistics (AISTATS)*, submitted, 2026.
    In *Neural Information Processing Systems (NeurIPS), Workshop on Meta-Learning*, 2022.

11. **Online Gaussian Process SSM: Learning and Planning for Partially Observable Dynamical Systems** (paper)
    S.S. Park, Y.J. Park, Y. Min, and H.L. Choi.
    International Journal of Control, Automation and Systems, 2022.

12. **Interpretable Unsupervised Learning of Nonparametric SSM for Multi-modal Dynamics** (paper)
    Y.J. Park, S.S. Park, and H.L. Choi.
    Journal of Aerospace Information Systems, 2021.

13. A **Neural Process Approach for Probabilistic Reconstruction of No-Data Gaps in Lunar DEMs** (paper)
    Y.J. Park, and H.L. Choi.
    Aerospace Science and Technology, 2021.

14. **Tripartite heterogeneous graph propagation for large-scale social recommendation** (paper)
    K.M. Kim*, D. Kwak*, H. Kwak*, Y.J. Park*, S. Sim, J.H. Cho, M. Kim, J. Kwon, N. Sung, and J.W Ha.
    In *ACM Recommender Systems (RecSys), Late-Breaking Results*, 2019

15. **Adaptive Path-Integral Autoencoders: Representation Learning and Planning for Dyn. Sys**. (paper, video)
    J.S. Ha, Y.J. Park, H.J. Chae, S.S. Park, and H.L. Choi.

In *Neural Information Processing Systems (NeurIPS)*, 2018.

16. **Deep Gaussian Process-Based Bayesian Inference for Contaminant Source Localization** ([paper](#))
Y.J. Park, P.M. Tagade, and H.L. Choi.
IEEE Access, 2018.

17. **Efficient Sensor Network Planning Method using Approximate Potential Game** ([paper](#))
S.J. Lee, Y.J. Park, and H.L. Choi.
International Journal of Distributed Sensor Networks, 2018.

Technical Reports and Workshop Papers

18. **One4all User Representation for Recommender Systems in E-commerce** ([paper](#))
K. Shin, H. Kwak K.M. Kim, M. Kim, Y.J. Park, J. Jeong, and S. Jung

19. **Adaptive Memory using Dynamic Graph Networks for Staleness Problem in RecSys** ([paper](#))
I.J. Kwon, K.M. Kim, J. Jeong, K. Shin, Y.J. Park, and B.T. Zhang.
In *Knowledge Discovery and Data mining (KDD), Workshop on OARS*, 2021. [Spotlight]

20. **A Worrying Analysis of Probabilistic Time-series Models for Sales Forecasting** ([paper](#))
S. Jung*, K.M. Kim*, H. Kwak*, and Y.J. Park*.
In *Neural Information Processing Systems (NeurIPS), ICBINB Workshop, PMLR*, 2020. [Best Poster Awards]

21. **VQ-AR: Vector Quantized Autoregressive Probabilistic Time Series Forecasting** ([paper](#))
K. Rasul, Y.J. Park, M. Ramström, and K.M. Kim.

22. **Hop Sampling: A Simple Regularized Graph Learning for Non-Stationary Environments** ([paper](#))
Y.J. Park, K. Shin, and K.M. Kim.
In *Knowledge Discovery and Data mining (KDD), Workshop on MLG*, 2020.

23. **Multi-Manifold Learning for Large-scale Targeted Advertising System** ([paper](#))
K. Shin, Y.J. Park, and K.M. Kim.
In *Knowledge Discovery and Data mining (KDD), AdKDD Workshop*, 2020.

24. **div2vec: Diversity-Emphasized Node Embedding** ([paper](#))
J. Jeong, J.M. Yun, H. Keam, Y.J. Park, Z. Park, and J. Cho.
In *ACM Recommender Systems (RecSys), Workshop on the IRS*, 2020.

SELECTED PRESENTATIONS

@Red Hat AI: *Instance-Adaptive Inference-Time Scaling*	Oct. 2025
@Meta: *Uncertainty Calibration of Process Reward Models*	July 2025
@MERL: *Towards Time-Series Foundation Models for Modeling Building Disturbance Inputs*	Aug. 2024
@MIT-IBM Watson AI Lab: *Representation Reliability and Its Impact on Downstream Tasks*	June 2023
@NAVER DEVIEW 2021: *The secrets Behind NAVER's Demand Forecasting: HyperCLOVA*	Nov. 2021

MENTORSHIP

Mihika Dusad (Massachusetts Institute of Technology, undergraduate researcher at MIT), 2025
· *Project: LLM inference-time scaling leveraging model uncertainty and reward models.*

Addison Kristanto Julistiono (Massachusetts Institute of Technology, MEng student at MIT), 2025
· *Project: Ensemble-free Quantification for Representation Reliability*

Carson Sobolewski (University of Florida, summer intern at MIT), 2024
· *Project: Uncertainty quantification in object detection Transformer (submitted a paper to IEEE TPAMI).*

Frédéric Odermatt (ETH Zürich MSc, intern at NAVER CLOVA), 2021-2022
· *Project: A large-scale deep forecasting models (published a paper in ICDM 2022).*

Donghyun Kim (Seoul National University, intern at NAVER CLOVA), 2021-2022
· *Project: An ensemble framework for demand forecasting (published a paper in ICDM 2022).*