

Summary

ML engineer and applied researcher with industry experience in **LLM evaluation** (Google/Gemini) and **ads bidding** (Moloco). Strong background in statistical modeling and data-driven analysis; research focus on **semi-supervised learning** problems.

Education

Ph.D. in Statistics and Operations Research , University of North Carolina at Chapel Hill (UNC) <ul style="list-style-type: none">Advisor: Dr. Vlasdas Pipiras	Chapel Hill, NC Aug 2021 – May 2026
M.S. in Statistics , Seoul National University (SNU) <ul style="list-style-type: none">Advisor: Dr. Hee-Seok Oh	Seoul, South Korea Mar 2019 – Feb 2021
B.S. in Statistics, Minored in Computer Science and Engineering , Seoul National University (SNU)	Mar 2015 – Feb 2019

Work Experience

Google Software Engineer Intern Google Research <ul style="list-style-type: none">Developed an LLM factuality evaluation metric of Gemini responses to search queries, using Python.Validated the metric against human raters and auto-raters; collaborated with Research scientists on iterative metric design.	San Francisco, CA May 2025 – Aug 2025
Moloco Software Engineer Research Intern Ads Bidding <ul style="list-style-type: none">Built experimentation workflows to evaluate ads bidding quality and understand revenue impact.Identified data distribution shift in ML pipeline; developed reweighting strategy (arXiv) using SQL and Python.Partnered with ML engineers to translate experimental findings into production system improvements.	Seattle, WA May 2023 – Aug 2023
Lawrence Livermore National Laboratory (LLNL) NSF Mathematical Sciences Graduate Intern <ul style="list-style-type: none">Built data-driven methods in libROM, a scalable C++ library for high-performance physics simulations.	Livermore, CA May 2022 – Jul 2022

Research Experience

Semi-supervised learning for data-efficient ML; rare/extreme event prediction; neural network architectures.

Multi-Fidelity and Semi-Supervised Learning Methods for Data-Efficient Estimation (UNC) [1,2,4]

- Developed **semi-supervised and multi-fidelity methods** leveraging abundant low-cost (unlabeled) data to improve estimation with limited high-cost (labeled) data, with focus on predicting **rare/extreme events**. Published in top statistics journals.

Neural Network Architectures for Spatio-Temporal Modeling (UNC) [3]

- Designed a latent-space architecture for learning dynamics of spatio-temporal data in latent space using **PyTorch**. Published at **NeurIPS 2024 Workshop**.

Multi-scale Time-Series Clustering (SNU) [5]

- Built clustering methods for large-scale behavioral data (wearable devices), detecting multi-scale time-series patterns.

Course Projects (UNC) RL: [RLHF for Human Preference Alignment](#) / ML: [Generative diffusion models](#) / OT: [Optimal Transport](#)

Teaching Experience

Instructor [UNC] STOR 155, Introduction to Data Models and Inference (24F, sole instructor for 50 students; full course ownership).

Teaching Assistant [UNC] Statistical Theory (25F), Introduction to Deep Learning (22Sp), Methods of Data Analysis (22Sp, 21F), etc.

Selected Honors and Awards

Cambanis-Hoeffding-Nicholson Award (2022) UNC, for outstanding academic performance in first-year doctoral program.

NSF Mathematical Sciences Graduate Internship (2022) Oak Ridge Institute for Science and Education.

Korean Government Scholarship for Overseas Study (2021, \$80K) Korean Government, 5 students in the Intelligent Infrastructure field selected nationwide for a doctoral study abroad program.

The Presidential Science Scholarship (2015, Tuitions and incentives) Top national scholarship for outstanding STEM students.

Selected Publications

- M. Kim**, B. Brown, V. Pipiras, (2026), 'Parametric multi-fidelity Monte Carlo estimation with applications to extremes', *Technometrics*, accepted.
- M. Kim**, K. O'Connor, V. Pipiras, T. Sapsis, (2025), 'Sampling low-fidelity outputs for estimation of high-fidelity density and its tails', *SIAM/ASA J. Uncertainty Quantification*, **13**, pp. 30–62.
- M. Kim**, T. Wen, K. Lee, Y. Choi, (2024), 'Physics-informed reduced order model with conditional neural fields', *NeurIPS 2024 Workshop on ML and Physical Sciences*.
- M. Kim**, V. Pipiras, A. Reed, K. Weems, (2023), 'Calibration of low-fidelity ship motion programs through regressions of high-fidelity forces', *Ocean Engineering* **290**, 116321.
- M. Kim**, H. Oh, Y. Lim, (2023), 'Zero-Inflated Time-Series Clustering Via Ensemble Thick-Pen Transform', *Journal of Classification* **40**, pp. 407–431.

Technical Skills

Tools: Python, SQL, C++, R, PyTorch, TensorFlow **ML:** Classifiers, rare event prediction, LLM evaluation, experimentation pipelines