Songeun Kim

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Research Interests

Statistical Machine Learning, Robust Decision-making, Uncertainty Quantification, Trustworthy AI

Education

Seoul National University *2022 – Present*
B.S. in Statistics *Seoul, Korea*

- GPA: 3.94/4.30 (Major GPA: 3.96/4.30)

Relevant coursework:
Probability and Measure Theory, Stochastic Differential Equations, Bayesian Statistics, Topics in Applied Mathematics: RL & LLM (graduate), Nonparametric Function Estimation (graduate)

Korea Advanced Institute of Science and Technology (KAIST) *2020 – 2021*
Completed coursework in the Dept. of Biological Sciences *Daejeon, Korea*

Hansung Science High School *2018 – 2019*
Early graduation due to excellence in Mathematics & Science *Seoul, Korea*

Publications

- Seungyong Moon, Deokjae Lee, Hansang Lee, Munkhtselmeg Battsengel, Youngin Kim, Seonghyeon Yun, Sungjin Jeon, **SongEun Kim**, Jeongmin Park, Hyun Oh Song. Retiming Robot Demonstrations with a Learned Speed Prior. (under review)
- **SongEun Kim**, Seungyoo Lee, Edwin Fong, Hyungi Lee, Juho Lee (2026). From Drift to Coherence: Stabilizing Beliefs of LLMs. *International Conference on Machine Learning (ICML)* [arXiv]

Research Experience

Machine Learning Lab (MLLAB), Seoul National University *Jun 2026 – Present*
Advisor: Prof. Hyun Oh Song

- Investigating spatiotemporal uncertainty in VLA-generated trajectories to identify precision-critical regions and improve execution in contact-rich manipulation

Statistical Inference and Machine Learning Lab, KAIST AI *Jul 2025 – Jan 2026*
Advisor: Prof. Juho Lee

- Evaluated LLMs on natural-language QA benchmarks, showing that in-context learning deviates from Bayesian belief updating
- Proposed a self-consistency learning objective that accelerates the stabilization of LLM beliefs toward Bayesian-coherent behavior

High-Dimensional Multiple Testing Lab, Seoul National University *Dec 2024 – Jun 2025*
Advisor: Prof. Junyong Park

- Proposed an adaptive FDR control algorithm for zero-inflated data via EM optimization on a Gamma mixture, yielding 175% more true discoveries
- Developed a multiple hypothesis testing procedure that leverages covariate selection while maintaining FDR control

Work Experience

LinqAlpha *Feb 2026 – Jun 2026*
Forward Deployed Engineer Intern

- Designed multi-agent financial research systems with role-specialized agents, tool orchestration, and controlled information flow across heterogeneous data sources
- Developed an equity-research agent with temporally grounded news retrieval, reconstructing event timelines by aligning publication timestamps with event occurrence dates

Projects

Representation Debiasing for Toxicity Classification *Fall 2025*
Introudction to Natural Language Processing (M1522.006800):

- Proposed a representation-level learning algorithm that regularizes pairwise distances between identity-group embeddings to mitigate unintended bias in BERT toxicity classification without constructing contrastive pairs.

GPU-Efficient Fine-Tuning Qwen-3B for ARC-AGI *Spring 2025*
Basics of Deep Learning (M2177.004300):

- Fine-tuned Qwen-3B with a double-adapter architecture, task-specific data augmentation, and Cartesian prompt reformatting to improve ARC-AGI task accuracy

Teaching Experience

Teaching Assistant, Introduction to Modern Statistics (SNU) *Sep 2024 – Present*

- Leading review sessions for undergraduate students taking Statistics course

Honors and Awards

- **Dean's List**, College of Natural Sciences, SNU, with full-tuition scholarships *Fall 2024, Fall 2025*
- Award for Excellence in R&E (Physics & Chemistry), all three semesters *2018 – 2019*

Extracurricular Activities

Member, FIXERS *2026*
Fixed Income & Derivatives Research Society, SNU

Stage Team Member, LiberAct *2023*
Acting Club, SNU College of Liberal Arts

Member, SNU Habitat *2022*
Volunteer Club for Furniture Refurbishment, SNU

Skills & Languages

Programming: Python, R, Matlab, PyTorch
Languages: English (Proficient), Korean (Native)