Dohyeong Ki

Statistics Ph.D. Candidate

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Education

Ph.D. in Statistics, University of California, Berkeley   Expected 2026
- Advisor: Adityanand Guntuboyina

B.S. in Mathematics, *Summa Cum Laude*, Seoul National University   2020

Papers & Preprints

[1] **Ki, D.** and Guntuboyina, A. (2025+) What Functions Does XGBoost Learn? In preparation. Current version (PDF).

[2] **Ki, D.** and Guntuboyina, A. (2025+) Totally Concave Regression. Under minor revision at the *Journal of the American Statistical Association*. Available at https://arxiv.org/abs/2501.04360.

[3] **Ki, D.**, Fang, B., and Guntuboyina, A. (2024) MARS via LASSO. *Annals of Statistics* 52(3), 1102-1126.

[4] **Ki, D.** and Park, B. U. (2021) Intrinsic Hölder Classes of Density Functions on Riemannian Manifolds and Lower Bounds to Convergence Rates, *Statistics & Probability Letters* 169, 108959.

Work in Progress

[1] Nearly Log-Concave Density Estimation. With Arlene K. H. Kim and Adityanand Guntuboyina.

Software

[1] **regmdc**: R package for fitting nonparametric regression models with mixed derivative constraints (on GitHub). Available methods include MARS via LASSO and totally concave regression.

Talks

What Functions Does XGBoost Learn?
- International Conference on Statistics and Data Science (ICSDS), Seville, Spain, Dec. 2025.

Totally Concave Regression
- Joint Statistical Meetings (JSM), Nashville, TN, USA, Aug. 2025.
- Bernoulli-IMS 11th World Congress in Probability and Statistics, Bochum, Germany, Aug. 2024.
- CAMSE-CLIMB Mini-Conference (CAMSE-CLIMB), Berkeley, CA, USA, Apr. 2024.

MARS via LASSO
- International Indian Statistical Association Conference (IISA), Denver, CO, USA, Jun. 2023.
- Joint Statistical Meetings (JSM), Washington, D.C., USA, Aug. 2022.
- San Francisco Bay Area Chapter of the American Statistical Association (SFASA), Online, Jun. 2022.

Poster Presentations

What Functions Does XGBoost Learn?
- 1st International New Researchers Conference (INRC), Seville, Spain, Dec. 2025.
- Berkeley Statistics Annual Research Symposium (BSTARS), Berkeley, CA, USA, Sep. 2025.

Totally Concave Regression
- Berkeley Statistics Annual Research Symposium (BSTARS), Berkeley, CA, USA, Apr. 2024.

Awards

ICSDS Student Travel Award, Institute of Mathematical Statistics	2025
KISS Outstanding Student Paper Award, Korean International Statistical Society	2025
IMS Hannan Graduate Student Travel Award, Institute of Mathematical Statistics	2024
IISA Student Paper Award, International Indian Statistical Association	2023
Outstanding GSI Award, Graduate Division, University of California, Berkeley	2023
SFASA Student Travel Award, San Francisco Bay Area Chapter of the ASA	2022
Overseas Ph.D. Scholarship, Korea Foundation for Advanced Studies (KFAS)	2020 – 2025
Gold Medal, University Students Contest of Mathematics, Korean Mathematical Society	2016, 2018, 2019
Outstanding Tutor Award, Faculty of Liberal Education, Seoul National University	2018
Presidential Science Scholarship, Korea Student Aid Foundation (KOSAF)	2013 – 2019

Teaching

University of California, Berkeley
Graduate Student Instructor (GSI)

Stat 153/248: Introduction to Time Series/Analysis of Time Series	Spring 2025, Fall 2025
Stat 210A: Theoretical Statistics	Fall 2021, Fall 2024
Stat 151A: Linear Modelling: Theory and Applications	Spring 2024
Stat 2: Introduction to Statistics	Fall 2023
Stat 201A: Introduction to Probability at an Advanced Level	Fall 2022
Stat 134: Concepts of Probability	Spring 2022

Seoul National University
Undergraduate Tutor

Calculus for Humanities and Social Sciences 2	Fall 2018
Differential and Integral Calculus 1	Spring 2018
Calculus 2	Fall 2017

Seoul National University Children's Hospital School

Mathematics Teacher	2017 – 2020

Professional Services

Reviewing Service: Annals of Statistics; Biometrika

Organizational Activities

UC Berkeley Statistics Student Seminar (Head Organizer)	2024 –
UC Berkeley Statistics Undergraduate Mentorship Program	2023 – 2024

Mentoring

UC Berkeley Statistics Undergraduate Mentorship Program	2023 –
UC Berkeley Statistics Ph.D. Mentorship Program	2021 – 2023