JAEHOAN KIM

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Education

Texas A&M University College station, TX — Aug. 2022 – Present
Ph.D. Student, Statistics

Seoul National University Seoul, Korea — Mar. 2016 – Aug. 2022
B.S., Statistics and Mechanical Engineering (Double major, Summa Cum Laude) — ** 2-year leave of absence for military service*

- *Thesis title: Fluid dynamic analysis of ping-pong ball trajectory* (Github link)
- *Statistics GPA 4.18/4.3*

Gyeonggi Science High School Suwon, Korea — Mar. 2013 – Feb. 2016
Math and science specialized high School, 1 year early entrance

Publications

1. **Jaehoan Kim**, Jaeyong Lee,"Identifiability of Covariance Kernels in the Gaussian Process Regression Model", *Journal of the Korean data & information Science Society*, 32(6), 1373–1392 (2021), https://doi.org/10.7465/jkdi.2021.32.6.1373

Manuscript under preparation

2. **Jaehoan Kim**, Debdeep Pati, "Scalable and optimal Gaussian process regression using lattice extrapolation"

3. **Jaehoan Kim**, Hoyoung Park, Junyong Park, "High dimensional classification rules with shrinkage estimators of covariance matrix and mean vector"

Research Experience

High dimensional multiple testing Laboratory, *Seoul National University* — Jun. 2021 – Nov. 2022
Undergraduate researcher (Advisor: Prof. Junyong Park)

- Proved the asymptotic property of linear discriminant rules based on the shrinkage mean estimator using f-modeling strategy
- Compared the performance of linear classifiers built upon multiple precision estimation strategies in high dimensional situation

Bayesian Statistics Research Laboratory, *Seoul National University* — Aug. 2020 – Jun. 2021
Undergraduate researcher (Advisor: Prof. Jaeyong Lee)

- Proved the sufficient condition for identifiability in a Gaussian process with a mixed covariance kernel
- Designed an experiment to analyze the thermal conductivity of metals in the Bayesian aspect

Work Experience

Intellicon Lab, Inc. Seoul, Korea — Feb. 2022 – Apr. 2022
Research Intern in a project related to image recognition and classification

- Compared the performance of multiple convolutional autoencoders for image classification
- Devised and implemented several image similarity measures and image scoring system

KBrainLab LLC. Yongin, Korea — Jun. 2021 – Jun. 2022
Startup which provides Korean lottery number recommendation service

- Developed and implemented an algorithm that improved the expected value of lottery customers by 9%
- Formulated an algorithm that ensures 100% of winning the high-rank lottery in a group aspect
- Took an initiative of founding as a Chief Technical Officer / Co-founder

20^{th} Fighter Wing, *Republic of Korea Air Force* — Feb. 2018 – Jan. 2020

- Served and honorably discharged from Republic of Korea Air Force, Staff Sergeant

Awards

University Mathematics Competition, *Korean Mathematical Society*

- **1^{st} place**, grand prize, 2020 (Awarded $\$1,000$)
- **2^{nd} place**, gold prize, 2019

Korean Mathematics Competition, *Korean Society of Mathematical Education*

- **1^{st} place**, grand prize, 2015

Honors

Overseas Ph.D. Scholarship, *Yongwoon Scholarship Foundation* Aug. 2022

- Merit-based scholarship for promising Ph.D. students studying out of Korea (USD 25,000 $)
- Selected as one of four recipients in 2022

Young Engineer's Honor Society Sep. 2020 – Present

- National Academy of Engineering of Korea

SNU Engineering Honor Society (STEM) Sep. 2020 – Present

- College of Engineering, SNU

Merit-Based Scholarship, *Hyunsong Educational & Cultural Foundation* Feb. 2017 – Dec. 2021

- Merit-based scholarship for undergraduate student (USD 6,000 $ per year)
- Nominated as the representative of the Department of Engineering

Coursework

Graduate Courses

- **Theory of Statistics (A+, class rank: 2/35)**, Seoul National University
- **Probability Theory (midterm class rank: 1/15), Statistical Computations, Theory of Linear Models (midterm class rank: 1/15)**, Texas A&M University

Teaching Experiences

Overview of Mathematical Statistics (STAT630), Texas A&M University Fall' 2022

- Worked as a graduate assistant in teaching for STAT 630 (graduate course)
- Hosted weekly TA sessions and graded 10+ homework of 40+ students

Mathematical Statistics 2, Seoul National University Fall' 2021

- Selected as an undergraduate tutor and hosted 10+ tutoring sessions in Mathematical Statistics 2, a requisite course for juniors in Statistics

Dynamics and Fluid Mechanics, Seoul National University Sep. 2020 – Feb. 2021

- Selected as an undergraduate tutor and hosted 10+ tutoring sessions in Dynamics and Fluid Mechanics, a requisite course for juniors in Mechanical Engineering

Calculus 1, Seoul National University Winter' 2020, Winter' 2021

- Assisted 10 freshmen with 5+ assignments and feedback about calculus 1 course

Extracurricular Activities

AI Tech Play Jan. 2021 – Aug. 2021

- Led the Technology Team to deliver free AI education to 200+ middle school students struck by COVID-19
- Created a coding education booklet based on the autonomous RACECAR code materials from MIT Lincoln Lab.

Campus Mentoring Program, Seoul National University Aug. 2020 – Dec. 2020

- Assisted the adaptation of 15 freshmen to university life as a mentor group leader

SNU Buddy Spring 2020, Spring 2021, Fall 2021

- Official buddy program for the international exchange students in Seoul Nationalw University

Global Inter–culturing and Volunteering, Seoul National University Mar. 2016 – Feb. 2018

- Organized the volunteering education camp for equal opportunity of education for students in underprivileged areas as a vice president
- Performed community service in Cambodia for two weeks; educated elementary school students with self-planned material, built a community garden and provided free rice to people *(Summer' 2016)*
- Educated math for elementary school students with a self-devised curriculum in underprivileged areas for a week as a team leader *(Summer' 2017, Winter' 2017, 2018*)

X-corps (Practical Issue Research Contest) Jul. 2017 – Jan. 2018

- Established a drone-based automated survivor detection system in a fire scene using a path-planning algorithm
- Devised a signal filtering algorithm using the variance in fast Fourier transform and improved the accuracy significantly

Dream Camp Mentoring Jul. 2017

- Designed the mentoring program and educated high school students in the countryside

Skills

- **Programming:** R, Python, MATLAB, C, C++
- **English:** iBT: 109 (R30, L30, S22, W27), GRE: Verbal 157, Writing 4.0
- **GRE Subject Test:** Mathematics (Scaled score: 970, Percentile: 97%)