Donghyun Park

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Education

Seoul National University, Seoul, Republic of Korea (2021.03 – present)

- Major in Department of Statistics (GPA 4.3/4.3)
- Double Major in Department of Mathematical Sciences (GPA 4.3/4.3)
- Minor in Department of Computer Science and Engineering (GPA 3.9/4.3)
- Cumulative GPA 4.15/4.3

Seoul Science High School, Seoul, Republic of Korea (2018.03 – 2021.02)

Research Interest

- Statistical Learning
- Algebraic Topology

Project Experience

Team Project Experience

Prediction of property damage amount caused by fire (2023.03~2023.04)
- Combined two datasets: Fire response data, Demographic data
- Adapted Linear Regression with various selection methods, Ridge, Lasso, Spline, GAM and compared the performance.
- Role: Implemented a range of models with R. Evaluated the performance of each model

Prediction of stock price fluctuations based on financial statements (2023.05~2023.06)
- Combined five datasets: Corporate quarterly financial disclosures, Corporate stock price, Quarterly economic metrics, News related data, Corporate industry classification
- Adapted Logistic Regression based models, Generative method models, Tree based models, Support vector machines, KNN and compared the performance.
- Identify important variables and analyze the influence
- Role: Implemented a range of models with R. Created and implemented a Monte Carlo-based method to assess the impact of variable effects on the model.

Coding Experience

Numerical Optimization method implementation (2024.12 ~ 2024.01)
- Implemented convex optimization methods, acquired through the 'Mathematical and Numerical Optimization' course, using C++
- Conducted a comparative analysis of the execution times for each model applied to specific convex optimization problems
- https://github.com/DongHyun-Park-1021/Optimization

Selected Courses

Statistics
Mathematical Statistics (I, II), Regression Analysis and Lab, Bayesian Statistics and Lab, Data Mining Methods and Lab

Mathematics
Mathematical Foundations of Deep Neural Networks, Mathematical and Numerical Optimization, Numerical Linear Algebra, Partial Differential Equation

Personal Study

Analysis
Fourier Analysis, Complex Analysis, Measure theory and Lebesgue integration, Distribution theory, Probability theory, Brownian Motion

Textbook Referenced
- Elias M.Stein & Rami Shakarchi, Fourier Analysis, Complex Analysis, Real Analysis, Functional Analysis

Topology
Point Set Topology, Fundamental Group, Covering Space, Homology, Cohomology

Textbook Referenced
- James Munkres, Topology
- Allen Hatcher, Algebraic Topology

Selected Awards & Honors

2021 Spring   **National Science & Technology Scholarship**, Korea Student Aid Foundation
~ 2023 Spring

2021 Autumn   **Dean's List**, SNU College of Natural Sciences
2022 Spring
2022 Autumn
2023 Spring

Extracurricular Activities

2021.01   **Meari**, School band of SNU
~ 2023.01

Skills

- Programming Language: R (Intermediate), C++ (Advanced), Python (Intermediate)
- Language: English (Proficient, TEPS 425/600)