Donghyun Park

Undergraduate, Department of Statistics, Seoul National University
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Research Experience

Research Internship 2025.04 - present

– 'Statistics and Artificial Intelligence with Topology' Lab, Advised by Jisu Kim.

– Studied Various reconstruction methods of distribution support from samples, Overall pipeline of topological data analysis, Application of topological data analysis to artificial intelligence.

Student-Directed Education Program 2025.09 - 2025.12

– Collaborative work with two undergraduate colleagues (Taehyoung Kim and Junhyun An), Advised by Jisu Kim.

– Conducted research to develop a confidence bound of persistent diagrams via time-delayed embedding.

– Theoretically analyzed the geometric behavior of time-delay embedding of signal data and homological feature when embedding dimension increases.

Teaching Experience

Mentoring Program on College of Natural Science 2025.12 - present

– Designed and delivered a 4-week intensive lecture series titled *"An Invitation to the p-adic numbers"* for a cohort of 6 undergraduate peers.

– Key topics included analysis and algebra on p-adic numbers, Hensel's lemma, and Gauss's sum of three squares theorem.

Education

2021.03 - present	Bachelor's Degree at **Seoul National University**	(GPA: 4.15/4.3)
	- Major in Department of Statistics	(GPA: 4.3/4.3)
	- Double Major in Department of Mathematical Sciences	(GPA: 4.3/4.3)
	- Double Major in Department of Computer Science and Engineering	(GPA: 3.9/4.3)
2023.07 - 2025.04	Military service at Republic of Korea Air Force	

Publications

Park, Donghyun et al. (2025). *Subsampling Confidence Bound for Persistent Diagram via Time-delay Embedding*. arXiv: 2512.06324 [math.ST]. URL: https://arxiv.org/abs/2512.06324.

Selected Awards & Honors

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

43th Korean College Mathematics Competition, Gold Medal 2025.12

2025 Simon Marais Mathematics Competition East Division, 3rd place 2025.12

National Science & Technology Scholarship 2021.03 - present

Relevant Coursework

Statistics Mathematical Statistics (1, 2), Regression Analysis and Lab, Bayesian Statistics and Lab, Data Mining Methods and Lab, Probability theory 2, Deep Learning: Statistical Perspective

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

Extracurricular Activities

Meari, School band of SNU 2021.01 - 2023.01

Skills

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