

Soheun Yi

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Education

Carnegie Mellon University, *PhD, Statistics*.

09.2023–Present

Seoul National University, *BS, Mathematical Sciences*.

03.2017–08.2023

- *Summa Cum Laude*, GPA: 4.19/4.3.
- Fall 2019–Spring 2021: On leave for mandatory military service.

Research Interests

- **Statistics** and **Optimization Theory**.
- **Machine Learning** and its applications to **Physical Sciences**.

Publications

(* for equal contribution.)

- [1] J. Lee*, **Soheun Yi***, and E. K. Ryu. "Convergence Analyses of Davis–Yin Splitting via Scaled Relative Graphs". *Accepted in SIAM Journal on Optimization* (2024).
- [2] **Soheun Yi**, J. Alison, and M. Kuusela. "Toward Model-Agnostic Detection of New Physics Using Data-Driven Signal Regions". *ML4PS Workshop at the 38th conference on Neural Information Processing Systems, Machine Learning and the Physical Sciences* (2024). arXiv: 2409.06960.
- [3] **Soheun Yi** and S. Lee. "Filter, Rank, and Prune: Learning Linear Cyclic Gaussian Graphical Models". *Proceedings of The 27th International Conference on Artificial Intelligence and Statistics*. 2024.
- [4] **Soheun Yi** and E. K. Ryu. "Convergence Analyses of Davis–Yin Splitting via Scaled Relative Graphs II: Convex Optimization Problems" (2022). arXiv: 2211.15604.

Research Experience

Graduate Research Assistant, *Dept. of Statistics & DS*, CMU,

01.2024–Present

Advisor: John Alison and Mikael Kuusela.

Topic: Toward Model-Agnostic Detection of New Physics Using Data-Driven Signal Regions. [2]

Visiting Researcher, *Deep Learning Div.*, Krafton.

04.2023–07.2023

Topic: Contrastive Learning, Neural Radiance Field

Research Intern, *Graduate School of Data Science*, Seoul National Univ.,

03.2022–08.2023

Advisor: Sanghack Lee.

Topic: Causal discovery on linear cyclic Gaussian graphical models. [3]

Research Intern, *Dept. of Mathematical Sciences*, Seoul National Univ.,

01.2022–12.2022

Advisor: Ernest K. Ryu .

Topic: Convergence Analyses of Davis–Yin Splitting via Scaled Relative Graphs. [1]

Employment

Quantitative Analyst, *Hyperithm*, Seoul.

08.2019–08.2021

- Developed and implemented quantitative trading strategies.
- Maintained transaction review systems.
- Programming experiences:
 - Transaction log parsing (RegEx, BigQuery),
 - Processing and visualizing market data (Pandas),
 - Options pricing and trading simulation (NumPy, SciPy).

Teaching Experience

Teaching Assistant, *Intermediate Statistics (36705)*.

Fall 2024

- PhD level course on mathematical statistics.

Teaching Assistant, *Advanced Data Analysis (36402)*.

Spring 2024

Teaching Assistant, *Modern Regression (36401)*.

Fall 2023

Teaching Assistant, *Mathematical and Numerical Optimization*.

Fall 2022

Deputy Leader, *Team Korea at Romanian Master of Mathematics*.

02.2019

Teaching Assistant, *Korea Mathematics Olympiad Winter School*.

01.2018

Awards and Honors

Korea Foundation for Advanced Studies, *Overseas PhD Scholarship*.

2023–Present

Simon Marais Mathematics Competiton, *Pair Merit Prize*.

2020

- Top $4/150 = 3\%$ of participants.

Korea Foundation for Advanced Studies, *Undergraduate Scholarship*.

2019–2023

Korea Undergraduates Mathematics Competition, *Field 1 Gold Prize*.

12.2018

Korea Student Aid Foundation, *Presidential Science Scholarship*.

2017–2023

Korean Mathematical Society, *Finalist for International Mathematical Olympiad*.

2016

- Top 13 participants in Korea.

Romanian Master of Mathematics, *Silver Medal*.

2016

Selected Graduate Courses

- Scalable High Performance Computing.
 - Implemented the fastest CUDA program among 100 participants in the term project. [🔗](#)