

Soheun Yi

E-mail: soheunyi@gmail.com
Homepage: soheunyi.github.io

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

- **Applied Statistics and Machine Learning for Sciences.**
- **Optimization Theory** and its applications.

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.

Experience

Research

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

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*. **09.2023–Present**

Simon Marais Mathematics Competiton, *Pair Merit Prize*. **10.2020**
• Top 4/150 = 3% of participants.

Korea Foundation for Advanced Studies, *Undergraduate Scholarship*. **03.2019–03.2023**

Korea Undergraduates Mathematics Competition, *Field 1 Gold Prize*. **12.2018**

Korea Student Aid Foundation, *Presidential Science Scholarship*. **03.2017–03.2023**

Korean Mathematical Society, *Final Candidates for IMO*. **03.2016**
• Top 13 participants in Korea.

Romanian Master of Mathematics, *Silver Medal*. **02.2016**

Selected Graduate Courses

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