

# Jeonghwan Lee

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**Citizenship:** Republic of Korea

## Research interests

- ◇ **Theory of statistics:** high-dimensional and non-parametric statistics.
- ◇ **Causal inference** with an emphasis on (non-asymptotic) theoretical viewpoints.
- ◇ **Machine learning theory:** statistical foundations of reinforcement learning, statistical learning under distribution shift, optimization, and learning in games.
- ◇ **Probability theory:** learning in the space of probability measures (e.g., sampling algorithms, diffusion models, and geometry of the space of probability measures).

## Education

### **The University of Chicago**

Chicago, IL, United States

- ◇ Ph.D. candidate in **Statistics**: Sep. 2022 – .
- ◇ **Advisor:** Professor [Cong Ma](#).

### **Korea Advanced Institute of Science and Technology**

Daejeon, Republic of Korea

- ◇ Bachelor of Science in **Mathematical Sciences**: Mar. 2015 – Feb. 2022.
- ◇ Graduated with honors (Summa Cum Laude and the KAIST Presidential Award).
- ◇ Left for mandatory military service: Oct. 2018 – Aug. 2020.

## Publications

Here, \* denotes equal contribution.

### **Peer-reviewed conference papers**

- C1. **Off-policy estimation with adaptively collected data: the power of online learning**
  - ◇ **Jeonghwan Lee** and Cong Ma.
  - ◇ *The 38<sup>th</sup> Annual Conference on Neural Information Processing Systems (NeurIPS)*, to appear, Dec. 2024. (Link: [arXiv:2411.12786](https://arxiv.org/abs/2411.12786)).
- C2. **A Generalized Worker-Task Specialization Model for Crowdsourcing: Optimal Limits and Algorithm**
  - ◇ Doyeon Kim\*, **Jeonghwan Lee\***, and Hye Won Chung.
  - ◇ *The proceedings of IEEE International Symposium on Information Theory (ISIT)*, Jul. 2022. (Link: [arXiv:2111.12550](https://arxiv.org/abs/2111.12550)).

### **Journal articles**

- J1. **A Worker-Task Specialization Model for Crowdsourcing: Efficient Inference and Fundamental Limits**
  - ◇ Doyeon Kim\*, **Jeonghwan Lee\***, and Hye Won Chung.
  - ◇ *IEEE Transactions on Information Theory*, vol. 70, no. 3, pp. 2076–2117, Mar. 2024. (Link: [arXiv:2111.12550](https://arxiv.org/abs/2111.12550)).

## J2. **Robust Hypergraph Clustering via Convex Relaxation of Truncated MLE**

- ◇ **Jeonghwan Lee**, Daesung Kim, and Hye Won Chung.
- ◇ *IEEE Journal on Selected Areas in Information Theory (JSAIT)*, vol. 1, no. 3, pp. 613–631, Nov. 2020. (Link: [arXiv:2003.10038](https://arxiv.org/abs/2003.10038)).

### Honors and scholarships

**Doctoral Overseas Scholarship.** Sep. 2022 –

- ◇ [Kwanjeong Educational Foundation](#).

**The KAIST Presidential Award.** Feb. 2022

- ◇ The 2022 Commencement Ceremony of [KAIST](#).

**KAIST Math Problem Of the Week (POW).** Jun. 2019

- ◇ [Department of Mathematical Sciences](#) at [KAIST](#).
- ◇ Excellence award.

**University Students Contest of Mathematics.** Dec. 2017

- ◇ [Korean Mathematical Society](#).
- ◇ Silver prize (for majors).

**Dean's List.** Sep. 2017

- ◇ [College of Natural Sciences](#) at [KAIST](#).

**Honor Student at KAIST.** Aug. 2017 – Present

**National Excellence Scholarship for Science & Engineering.** Mar. 2017 – Jun. 2021

- ◇ [Korea Student Aid Foundation](#).

**Department Honorary Scholarship.** Mar. 2017 – Jun. 2017

- ◇ [Department of Mathematical Sciences](#) at [KAIST](#).
- ◇ Awarded to the top student in the previous semester.

### Teaching experience

**Teaching assistants at the University of Chicago.**

- ◇ STAT 22000: Statistical methods and applications. Autumn 2023
- ◇ STAT 22000: Statistical methods and applications. Winter 2023

### Work experience

**Learning support volunteer activity.** Mar. 2019 – Dec. 2019

- ◇ The place of work: Jinju Dong Middle School.
- ◇ Worked as a mathematics learning support assistant for two semesters.

**Republic of Korea Air Force.** Oct. 2018 – Aug. 2020

- ◇ The place of work: Education and Training Command of the Republic of Korea Air Force.
- ◇ Worked as an aerographer (Mandatory military service).
- ◇ Starting position: Airman Basic / Ending position: Staff Sergeant.

**KAIST Undergraduate Math Colloquium (KUMC).** Sep. 2016 – Jun. 2018

- ◇ [Department of Mathematical Sciences](#) at [KAIST](#).
- ◇ Worked as a colloquium organizer.

Attended  
schools  
& programs

**38<sup>th</sup> Annual Conference on Neural Information Processing Systems (NeurIPS).**  
Dec. 2024  
◇ The NeurIPS Foundation.

**Statistics annual winter workshop: Causal inference and its applications.**  
Jan. 2024  
◇ Department of Statistics and Department of Economics at the University of Florida.

**Big Data and Machine Learning in Econometrics, Finance, and Statistics.**  
Oct. 2022  
◇ The Stevanovich Center for Financial Mathematics at the University of Chicago.

**The 2nd Workshop on Seeking Low-dimensionality in Deep Neural Networks.**  
Nov. 2021  
◇ IEEE Information Theory Society.

**Summer School on Random Structures in Optimizations & Related Applications.**  
Jun. 2021  
◇ The School of Mathematics at the University of Minnesota, Twin Cities.

**The 17th KIAS Combinatorics Workshop.**  
Aug. 2017  
◇ Korea Institute for Advanced Study.  
◇ A special event as *Summer School for Combinatorics*.

Skills

**Computer skills**

- ◇ Programming experiences: Python, C++, Java, MATLAB, R.
- ◇ Softwares & Tools:  $\LaTeX$ , Excel.

**Languages**

- ◇ Korean: Native.
- ◇ English: Fluent.
- ◇ Japanese: Moderate.

References

Professor [Cong Ma](#).

- ◇ *Assistant Professor* in the [Department of Statistics](#) at the [University of Chicago](#).
- ◇ E-mail: [congm@uchicago.edu](mailto:congm@uchicago.edu).

Professor [Hye Won Chung](#).

- ◇ *Associate Professor* in the [School of Electrical Engineering](#) (jointly affiliated with the [School of Computing](#)) at [KAIST](#).
- ◇ E-mail: [hwchung@kaist.ac.kr](mailto:hwchung@kaist.ac.kr).