

# Byungwoo Lee

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## EDUCATION

**University of California, Davis, Davis, CA**

*Ph.D. in Statistics*

Sep. 2024 – Jun. 2029 (expected)

- GPA: 4.00 / 4.00

**Seoul National University, Seoul, Republic of Korea**

*M.S. in Statistics Advisor: Byeong Uk Park*

Mar. 2022 – Feb. 2024

- **Thesis:** Privacy Budget Allocation for Interactive Differential Privacy Queries
- GPA: 4.08 / 4.30 (3.92 / 4.00)

**Seoul National University, Seoul, Republic of Korea**

*B.S. in Statistics Advisor: Chae Young Lim*

Mar. 2016 – Feb. 2022

- **Thesis:** Analysis of Stock Index as Spatio-temporal Data using GARCH Model
- Overall GPA: 4.08 / 4.30 (3.89 / 4.00), Major GPA: 4.20 / 4.30
- 2-year leave of absence for military service
- Summa Cum Laude

## RESEARCH INTERESTS

Nonparametric Statistics, Statistical Computing, Differential Privacy, Time Series Analysis

## RESEARCH EXPERIENCES

**Maeil Dairies Co., Ltd, Seoul, Republic of Korea**

*Research Assistant*

Mar. 2023 – Dec. 2023

- **Guide:** Byeong Uk Park
- **Topic:** Intelligent Sewage Treatment System using Reinforcement Learning
- Recommended the operation of the blower for an efficient sewage treatment system through reinforcement learning
- Created a model that predicts outcomes nonparametrically

**Spatial Statistics Lab, Seoul, Republic of Korea**

*Research Assistant*

Mar. 2021 – Aug. 2021

- **Guide:** Chae Young Lim
- **Topic:** Analysis of stock price as spatio-temporal data
- Clustered and metricated companies using daily return data
- Analyzed representative stock index of each country using spatio-temporal GARCH model

**Seoul School Safety and Insurance Association, Seoul, Republic of Korea**

*Part-time*

Mar. 2021 – Apr. 2021

- **Topic:** Analysis of school safety accident data

**Statistical Computing Lab, Seoul, Republic of Korea**

*Research Assistant*

Jun. 2020 – Aug. 2020

- **Guide:** Joong Ho Won
- **Topic:** Learning Structured Data using Generative Model
- Reproduced "Ornstein Auto-Encoders"

**Korea Institute of Science and Technology (KIST), Seoul, Republic of Korea**

*Research Intern*

Aug. 2016 – Sep. 2016

- **Topic:** 3D Modeling of the Turtle Ship
- Developed an algorithm which can generate 3D-Printable pieces that can be assembled solidly

## AWARDS and HONORS

**Scholarship:** Kwanjeong Education Foundation (USD 20,000) (2022 - 2023)

**The Korean Statistical Society President Award:** The Korean Statistical Society (Feb 2022)

**Scholarship:** Kwanjeong Education Foundation (USD 20,000) (2020 - 2021)

**Eminence Scholarship (100%):** Seoul National University (Sep 2017)

**Dean's List:** 3 times, College of Natural Science, Seoul National University (2017 - 2021)

**Merit-based Scholarship (70%):** Seoul National University (Mar 2017)

**Eminence Scholarship (100%):** Seoul National University (Sep 2016)

**11th Place:** International Collegiate Programming Contest(ICPC), Korea (Nov 2016)

**Gold Prize:** 2nd place, Korean Young Physicists' Tournament(KYPT), Korea (Jan 2015)

**Silver Prize:** 3rd place, Korea Olympiad in Informatics(KOI), Korea (2014, 2015)

**Grand Prize:** 1st place, Creative Problem Solving(CPS) Festival, Korea (2013, 2014)

## PROJECTS

### Improving DeepFashion Images Classifier using Clustering,

Seoul National University

Sep. 2022 – Dec. 2022

- Used Deep Adaptive Clustering Model(DAC) to cluster label
- Proposed scoring system of multilabel clustering
- Produced better performance compared to the previous methods

### COVID-19 National Policy Analysis with SIR model,

Seoul National University

Oct. 2021 – Dec. 2021

- Proved causality between the number of COVID-19 confirmed cases and government policy
- Derived that the effectiveness of the government policy only occurs between 2 and 4 weeks using SIR model

### Trend Analysis and Prediction of Traffic Accidents,

Seoul National University

Apr. 2021 – Jun. 2021

- Fitted and predicted the number of traffic accidents in Korea
- Conducted seasonal ARIMA with weather data as covariates
- Separated model by day of the week

### A Replicate of Gali with Recent Korea data, and a Study on Interval Estimation,

Seoul National University

Apr. 2021 – Jun. 2021

- Refuted to Real Business Cycle Theory(RBC) like Gali(1999)
- Analyzed the correlation between productivity and work hours conditional to technology shock and nontechnology shock
- Calculated interval estimation of parameters by bootstrapping in Vector AutoRegression model

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## TEACHING EXPERIENCES

### Statistics,

Teaching Assistant, UC Davis

Fall 2024

- Led a discussion section for 50 students

### Statistics Lab.,

Lecturer, Seoul National University

Fall 2023

- Gave a lecture to about 40 students

### Statistics,

Teaching Assistant, Seoul National University

Spring 2022, Fall 2022, Spring 2023

- Assigned to statistics for major students once and taught more deeply

### An Open Lecture on R,

Teaching Assistant, SNU Statistical Research Institute

Winter 2022

- Assisted with the code problem of 50 students

### Calculus 1,

Tutor, Seoul National University

Spring 2022

- Assisted 5 students with their assignments and hosted tutoring sessions weekly

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## EXTRACIRRICULAR ACTIVITIES

### Seoul National University Philharmonic Orchestra (SNUPO),

Double bass player

Mar. 2016 – Mar. 2018

- 3 regular concerts and 4 ensemble performances

### Republic of Korea Army,

Sergeant

Apr. 2018 – Dec. 2019

- Honorably discharged

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## SKILLS and INTERESTS

**Programming:** R, C, Python, Julia, Java, JavaScript, HTML/CSS, PHP, Matlab, Git

**Soft Skills:** Time Management, Creative Problem Solving, Concentration, Optimistic, Patience

**Algorithm:** Participate contests of codeforces

**Development:** Apps(DutchPay, Asset Inquiry, Chinese Memorizer), Games(Flip the Cup, Econolife, Chemistry, etc.)

**Games:** Boardgames, card games, Baduk(Go), Janggi(Korean chess)