

# Byungwoo Lee

Statistics PhD at UC Davis

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## Education

### University of California, Davis

Davis, CA

Ph.D. in Statistics (Expect: Jun 2029)

Sep 2024 - Present

- overall GPA : 4.0/4.0
- Working as a TA

### Seoul National University

Seoul, Republic of Korea

M.S. in Statistics

Mar 2022 - Feb 2024

- **Advisor:** Byeong Uk Park
- overall GPA : 4.08/4.3 (3.92/4.0)
- Working as a TA and RA

### Seoul National University

Seoul, Republic of Korea

B.S. in Statistics (Combined Minor : Financial Economics)

Mar 2016 - Feb 2022

- **Thesis:** Analysis of Stock Index as Spatio-temporal Data using GARCH Model
- **Advisor:** Chae Young Lim
- Overall GPA : 4.08/4.3 (3.89/4.0), Major GPA : 4.2/4.3
- 2-year leave of absence for military service
- Summa Cum Laude

### Gyeonggi Science High School

Gyeonggi, Republic of Korea

High School Diploma

Mar 2013 - Feb 2016

- Specialized in Mathematics, Computer Science

## Research Interests

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

## Research Experiences

### Maeil Dairies Co., Ltd

Seoul National University

Researcher

Mar 2023 - Present

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

### Spatial Statistics Lab

Seoul National University

Research Intern

Mar 2021 - Aug 2021

- **Advisor:** Chae Young Lim
- **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

- **Analysis of school safety accident data**

### Statistical Computing Lab

Seoul National University

Research Intern

Jun 2020 - Aug 2020

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

**Korea Institute of Science and Technology (KIST)**

Research Student

*Seoul, Republic of Korea*

*Aug 2016 - Sep 2016*

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

## Awards and Honors

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2022 - 2023 **Scholarship**, Kwanjeong Education Foundation (USD 20,000\$)  
Feb 2022 **The Korean Statistical Society President Award**, The Korean Statistical Society  
2020 - 2021 **Scholarship**, Kwanjeong Education Foundation (USD 20,000\$)  
Sep 2017 **Eminence Scholarship (100%)**, Seoul National University  
2017-2021 **Dean's List**, 3 times, College of Natural Science, Seoul National University  
Mar 2017 **Merit-based Scholarship (70%)**, Seoul National University  
Sep 2016 **Eminence Scholarship (100%)**, Seoul National University  
Nov 2016 **11th Place**, International Collegiate Programming Contest(ICPC), Korea  
Jan 2015 **Gold Prize**, 2nd place, Korean Young Physicists' Tournament(KYPT), Korea  
2014, 2015 **Silver Prize**, 3rd place, Korea Olympiad in Informatics(KOI), Korea  
2013, 2014 **Grand Prize**, 1st place, Creative Problem Solving(CPS) Festival, Korea

## Projects

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### Improving DeepFashion Images Classifier using Clustering

Seoul, Republic of Korea

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, Republic of Korea

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, Republic of Korea

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, Republic of Korea

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

## Teaching Experiences

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### Statistics Lab.

Present

Lecturer, Seoul National University

- Gave a lecture to about 40 students

### Statistics

Spring 2022, Fall 2022, Spring 2023

Teaching Assistant, Seoul National University

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

### An Open Lecture on R

Winter 2022

Teaching Assistant, SNU Statistical Research Institute

- Assisted with the code problem of 50 students

### Calculus 1

Spring 2022

Tutor, Seoul National University

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

## Extracirricular Activity

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### Seoul National University Philharmonic Orchestra (SNUPO)

Double bass player

- 3 regular concerts and 2 ensemble performances

Seoul, Republic of Korea

Mar 2016 - Mar 2018

### Korean Army

Military Service

- Honorably discharged

Gangwon, Republic of Korea

Apr 2018 - Dec 2019

## Skills and Interests

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

**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.)

**English Talking** Phone call with foreign friends

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

References available upon request.