

MYUNGWON LEE

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Education

Doctor of Philosophy in Statistics

UNIVERSITY OF EDINBURGH, SCHOOL OF MATHEMATICS

Edinburgh, United Kingdom

Sep 2022 - Present

- **Supervisor:** Dr. Daniel Paulin

Research Interest: Bayesian Statistics, Meta Learning, Machine Learning, Computational Statistics

Bachelor of Science (Honours) in Mathematics and Statistics

UNIVERSITY OF EDINBURGH, SCHOOL OF MATHEMATICS

Edinburgh, United Kingdom

Sep 2016 - May 2022

- 1st Honours Degree
- **Thesis:** "Semismooth Newton Augmented Lagrangian Method for solving Lasso Problems with Implementation in R" under the supervision of Dr. Daniel Paulin
- **Core Courses:** Bayesian Theory, Bayesian Data Analysis, Incomplete Data Analysis, Multivariate Data Analysis, Biomedical Data Science, Fundamental of Optimisation, Introductory Applied Machine Learning, Generalised Regression Model, Statistical Research Skills, Differential Equation, Python Programming

Bachelor of Science in Statistics

SEOUL NATIONAL UNIVERSITY, DEPARTMENT OF STATISTICS

Seoul, Republic of Korea

Sep 2018 - Jun 2019

- 3rd Year Exchange Student / Study Abroad Programme
- **Core Courses:** Time Series Analysis, Mathematical Statistics, Computational Statistics, Data Mining Methods and Lab, Understanding Big Data, Computer Application for Scientific Computation

Experiences

LG Chemical Patent Analysis & Samsung Securities News Curation Industry Research

DATA MINING LABORATORY INTERN, SEOUL NATIONAL UNIVERSITY

Seoul, Republic of Korea

Jun 2021 - Aug 2021

- Supervised by Prof. Sungzoon Cho, Dr. Hoonsik Shin and Dr. Hyejin Lee.
Analysed 1,198 solid-state battery cell patent documents to classify sentences into either problems or solutions by building unsupervised learning models such as **BERT, char-CNN and RNN** with NLTK, Scikit-learn and TensorFlow
- **Increased 20% of model accuracy (F1 score)** by performing text pre-processing / post-processing using **RE**
- **Decreased parsing error rate from 35% to 3%** by suggesting alternative parsing method for SEC Edgar 10-K reports using BeautifulSoup, RE, Gensim in Samsung Securities News Curation Project team

Financial Value Insight Data Research: ETFs & Glassdoor Research

DATA MINING LABORATORY INTERN, SEOUL NATIONAL UNIVERSITY

Seoul, Republic of Korea

Jun 2019 - Aug 2019

- Supervised by Prof. Sungzoon Cho, Dr. Hyunyong Kim and Elaine Pak.
Integrated large-scale web-crawling on *morningstar.com*, *finance.naver.com*, *comp.fnguide.com* | *glassdoor.com* & *jobplanet.com* using **Python** packages such as Selenium Webdriver, BeautifulSoup, RE and Pandas
- **Identified correlation between company's annual profit and anonymous company's reviews** through natural language processing such as doc2vec and NTF-IDF
- Nominated by team leader as a presenter in the weekly lab seminar on behalf of the Glassdoor research team.
- **Gathered and recalculated the missing financial fundamentals** for 435 Exchange Traded Fund from Korea Exchange. Involved in building database schema to store collected data using SQL and Django Framework

DataAssembly

CO-FOUNDER & CONSULTANT, BUCHANAN INSTITUTE, UNIVERSITY OF EDINBURGH

Edinburgh, United Kingdom

Feb 2018 - Aug 2019

- A student-led data consultancy **DataAssembly**, providing pro-bono data analytics to small local businesses and third sector industries through student's engagement in the real-world problem using **R** and **Python**
- Represented **DataAssembly** at DataFest Event 2018 organised by the Scottish Government
- Acknowledged, fulfilled and identified the needs of team members and clients, by approaching clients from door to door and guiding students from non-statistical backgrounds with structured curriculum and opportunities.

Projects

Semismooth Newton Augmented Lagrangian Method for Solving Lasso Problems with Implementation in R

SUPERVISED BY DR. DANIEL PAULIN

Edinburgh, United Kingdom

Sep 2021 - Apr 2022

- With the advantage of the second order sparsity of the problem, we aimed to reduce the expensive computational cost and result in a fast and highly efficient algorithm to solve Lasso regression
- Implemented the algorithm in **R** with **C++** on UCI/Statlib and Methylation Profiling data with cross-validation and showed having lower Mean Squared Error than glmnet
- R package available on github <https://www.github.com/johnnymdoubleu/lassoSSNAL>

News Letter Mall Project

SUPERVISED BY DR. HYEJIN LEE

Seoul, Republic of Korea

Mar 2021 - Aug 2021

- Identified the need of rapid supply of accurate news in the Korean stock market to mitigate investment risk
- With Kiwoom Securities trading's **REST API**, Naver's **OpenAPI**, and telegram **API**, developed a real-time bot sending out newsletters. Developed an auto trading algorithm based on the information crawled.
- Utilised **Mecab** tokeniser from **KoNLPy** package to pre-process and censor unwanted AI generated news and advertisements.

Pattern Analysis of New York Airplanes Data Research

Seoul, Republic of Korea

Sep 2018 - Dec 2018

- Analysed 120 million records of flight arrival and departure data of commercial flights within the USA using **R** & **SQL**
- Provided graphical and visual summary of the best **time of day / day of week / time of year** to fly to optimise delay hours with supervised learning such as linear regression, logistic regression, ridge regression, lasso regression, linear discriminant analysis, quadratic discriminant analysis, decision trees, random forest and boosting.

Skills

Machine Learning:Python / R | **Front End:**HTML / CSS / JS | Pitching | Presentations | Proactive | Teamwork
Microsoft Office Specialist-Masters (Jun 2017) — Word Expert | Excel Expert | PowerPoint Core | Access Core

Military Service

HONOURABLY DISCHARGED FROM 36th Infantry Division, Department of Intelligence

Seoul, Republic of Korea

Aug 2019 - Mar 2019