

SE YOON LEE

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EDUCATION

Ph.D. Statistics, Texas A&M University, College Station, U.S.A.

May 2021

Advisor: Prof. Bani K. Mallick

Overall GPA: 3.78/4

M.A. Applied Statistics, Yonsei University, Seoul, South Korea

Feb 2016

Advisor: Prof. Joseph H.T. Kim

Overall GPA: 3.86/4

B.S. Mathematics, Yonsei University, Seoul, South Korea

Feb 2013

Graduated with the 2nd highest class rank out of 43 students

Overall GPA: 3.84/4

Grades for core mathematics courses: [\[Click\]](#)

RESEARCH INTEREST

Bayesian Analysis, Adaptive Designs, Survival Analysis, Deep Learning, Machine Learning

DISSERTATION AND THESIS

- “Bayesian Hierarchical Modeling: Application towards Complex and High-dimensional Data,” *Texas A&M University*, Doctoral Dissertation ; [\[Link\]](#)
- “Exponentiated generalized Pareto distribution: an alternative to the generalized Pareto distribution,” *Yonsei University*, Master’s Thesis ; [\[Link\]](#)

WORK EXPERIENCE

Johnson & Johnson.

Apr 2022 – present

Senior Biostatistician

Irvine, CA

- Researched on adaptive clinical trials designs for the purpose of medical device development to get approval from government agency.
- Researched on various biostatistical problems (e.g., sample size determination, power analysis, etc) and machine learning models applied to various cardiovascular disease with main focus on atrial fibrillation.

Amgen Inc.

May 2021 – Apr 2022

Scientist - Modeling & Simulations

Thousand Oaks, CA

- Developed Pharmacokinetics/Pharmacodynamics/Cox hazard regression models for Phase I cancer clinical trials of AMG160 to treat a metastatic castration-resistant prostate cancer (mCRPC).
- Researched machine learning and deep neural network models to fit single dose data for subsequent simulation of multiple dosing scenarios.

Novartis International AG.
Biostatistics Summer Intern

May 2020 – Aug 2020
East Hanover, NJ

- Developed a Bayesian linear mixed effect model for patients who have wet age-related macular degeneration to predict best-corrected visual acuity over the maintenance phase and suggest a personalized dose regimen. The proposed model has been trained by actual patients' data from HAWK and HARRIER studies (Number of patients is around 1,800 patients). ; [\[Abstract\]](#)

EMD Serono Inc. Merck KGaA.
Pharmacometrics Summer Intern

May 2019 – Aug 2019
Billerica, MA

- Developed a Bayesian adaptive clinical trial design in Phase I cancer clinical trials, which aimed at utilizing grade information from the Common Toxicity Criteria for Adverse Events provided by the National Cancer Institute. ; [\[Abstract\]](#) ; [\[Poster\]](#)

Texas A&M University.
Graduate Research/Teaching Assistant

Aug 2016 – May 2021
College Station, TX

- Researched on applications and developments of various statistical models (e.g. non-linear mixed effect model, nonparametric/semiparametric longitudinal model, clustering analysis, classification, hierarchical Poisson model, etc) to various industrial problems arising from biomedical, petroleum, wind energy industries, and COVID-19 outbreak.

PUBLICATIONS

Journal Article

- [1] **Seyoon Lee**, Joseph H.T. Kim. (2018) “Exponentiated generalized Pareto distribution: Properties and applications towards extreme value theory,” *Communications in Statistics - Theory and Methods*, 48:8, 2014-2038
- [2] **Se Yoon Lee**, Bowen Lei, and Bani K. Mallick. (2020) “Estimation of COVID-19 spread curves integrating global data and borrowing information,” *PLOS ONE* ; [\[Github\]](#)
- [3] **Se Yoon Lee***, Kahkashan Afrin*, Ashif Iquebal*, Mostafa Karimi*, Allyson Larsen*, and Bani K Mallick*. (2020) “Directionally Dependent Multi-View Clustering Using Copula Model,” *PLOS ONE* (* : equal contribution, authors are alphabetically ordered in the last name.)
- [4] **Se Yoon Lee** and Bani K. Mallick. (2021) “Bayesian Hierarchical modeling: application towards production results in the Eagle Ford Shale of South Texas,” *Sankhyā: The Indian Journal of Statistics, Series B* ; [\[Github\]](#)
- [5] **Se Yoon Lee**. (2021) “Gibbs sampler and coordinate ascent variational inference: a set-theoretical review,” *Communications in Statistics - Theory and Methods*
- [6] **Se Yoon Lee**, Alain Munafo, Pascal Girard, and Kosalaram Goteti. (2022) “Optimization of dose selection using multiple surrogates of toxicity as a continuous variable in Phase I cancer trial,” *Contemporary Clinical Trials* ; [\[Github\]](#)
- [7] **Se Yoon Lee**. (2022) “Bayesian Nonlinear Models for Repeated Measurement Data: An Overview, Implementation, and Applications,” *Mathematics*

Conference Paper/Poster

[1] **Se Yoon Lee**, Shankar Lanke, Alain Munafo, Pascal Girard, and Kosalaram Goteti. (2020) “Optimization of dose selection using multiple surrogates of toxicity as continuous variable in Phase I cancer trial,” *ACoP11, ISSN:2688-3953, Vol 2*

Under review

[1] **Se Yoon Lee**, Peng Zhao, Debdeep Pati, Bani K. Mallick. (2022+) “Tail-adaptive Bayesian Shrinkage” ; [Slides]

[2] **Se Yoon Lee**. (2022+) “The use of a log-normal prior for the Student-t distribution”

[3] **Se Yoon Lee**. (2022+) “A Dose-Response Modeling Framework Based on Continuous Toxicity Outcomes in Phase I Cancer Clinical Trials”

PROFESSIONAL ACTIVITIES

Invited Peer Reviewers

- European Journal of Clinical Investigation (Impact Factor: 3.481)
- Artificial Intelligence Review (Impact Factor: 8.139)
- The Journal of Clinical Pharmacology (Impact Factor: 3.126)
- Statistics in Medicine (Impact Factor: 2.373)
- Frontiers in Public Health (Impact Factor: 3.709)
- The R Journal (Impact Factor: 3.984)

HONORS AND AWARDS

Travel fund for an invited talk at Yonsei University	<i>Dec 2019</i>
Given to an invited speaker for the presentation	
Travel fund for an invited talk at University of Michigan	<i>Jun 2019</i>
Given to an invited speaker for an annual meeting about wind energy	
Travel fund for poster presenter for the Houston Geological Society	<i>Mar 2018</i>
Given to a poster presenter	
Anant Kshirsagar fellowship	<i>Jul 2018</i>
Given to graduate students who demonstrate excellence in making progress in research	
The 1st place prize in SETCASA poster session in 2018	<i>Apr 2018</i>
Given to only one winner for the poster session	
Graduate student travel award for JSM	<i>Jul 2017, 2018</i>
Given to graduate students who make a presentation at the conference	

INVITED TALKS

- “Prediction of best-corrected visual acuity for wet age-related macular degeneration patients in HAWK and HARRIER studies via a Bayesian hierarchical linear model”
Organization: Novartis International AG, Internship Project Presentation *Aug 2020*

- “Estimation of COVID-19 spread curves integrating global data and borrowing information” *Jul 2020*
Organization: Mathophilia 2020, IQAC, Banwarilal Bhalotia College, Asansol, India
- “Bayesian Hierarchical Model: Application towards Wind Farm Data” *Jun 2020*
Organization: National Science Foundation, University of Connecticut, Mansfield, CT, U.S.A.
- “Continuous shrinkage prior revisited: a collapsing behavior and remedy” ; [\[Abstract\]](#) *Dec 2019*
Organization: Yonsei University, Department of Applied Statistics, Seoul, South Korea
- “Tutorial: understanding offshore wind energy data and spatial modeling” *Jun 2019*
Organization: National Science Foundation, University of Michigan, Ann Arbor, MI, U.S.A.

SOFTWARE

Software used in papers

- Bayesian Hierarchical Richards Model ; Written in R ; [\[Download\]](#) ; [\[Github\]](#)
- Spatial Weibull Model ; Written in R ; [\[Github\]](#)

SKILLS

Language	Fluent in English and Korean; Elementary in Chinese and Japanese
Computer Language	Proficient in R, Python, SQL, Microsoft Access, SAS, and NONMEM
Certificate	Cognigen NONMEM Workshop