SE YOON LEE

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EDUCATION

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

Advisor: Prof. Bani K. Mallick

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

Advisor: Prof. Joseph H.T. Kim

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

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

Grades for core mathematics courses: [Click]

RESEARCH INTEREST

Clinical Trials, Bayesian Adaptive Design, Group Sequential Design, Survival Analysis, Machine Learning (Artificial Intelligence & Deep 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.

Senior Biostatistician

Apr 2022 – present Irvine, CA

- · Developed Bayesian adaptive clinical trials designs to evaluate the safety and effectiveness of medical devices (Bayesian basket trial designs, power-prior designs, Bayesian group sequential designs, etc).
- · Provided advanced biostatistical supports (e.g., power analysis, primary endpoint analyses, clinical trial designs, etc) to clinicians with main focus on cardiovascular diseases.
- · Led working groups of experts (Machine Learning/Statistical Methodology & Consulting) as leader
- · Led the development of basket trial designs and authored Statistical Analysis Plan for SECURE, a Post-Market Study [ClinicalTrials.gov ID: NCT04750798]

Amgen Inc.
Scientist - Modeling & Simulations

May 2021 – Apr 2022 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] <u>Se Yoon Lee</u>, Bowen Lei, and Bani K. Mallick. (2020) "Estimation of COVID-19 spread curves integrating global data and borrowing information," *PLOS ONE*; [Github]
- [3] <u>Se Yoon Lee</u>*, 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] <u>Se Yoon Lee</u> and Bani K. Mallick. (2021) "Bayesian Hierarchical modeling: application towards production results in the Eagle Ford Shale of South Texas," $Sankhy\bar{a}$: The Indian Journal of Statistics, $Series\ B$; [Github]
- [5] <u>Se Yoon Lee</u>. (2021) "Gibbs sampler and coordinate ascent variational inference: a set-theoretical review," *Communications in Statistics Theory and Methods*
- [6] <u>Se Yoon Lee</u>, 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] <u>Se Yoon Lee</u>. (2022) "Bayesian Nonlinear Models for Repeated Measurement Data: An Overview, Implementation, and Applications," *Mathematics*
- [8] Se Yoon Lee. (2022) "The Use of a Log-Normal Prior for the Student t-Distribution," Axioms

[9] Hyung-Kyu Chae, Hyun Jeong Hong, <u>Se Yoon Lee</u>, Jung-Hoon Park, Woo Joo Choi, Seungkuk Oh, Seoyeoun Ji, Yeon-Jung Hong. (2022) "Factors Affecting the Outcome of Medical Treatment in Cats with Obstructive Ureteral Stones Treated with Tamsulosin: 70 Cases (2018–2022)," Veterinary Sciences

Conference Paper/Poster

- [1] <u>Se Yoon Lee</u>, 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," *American Conference on Pharmacometrics* 11
- [2] Se Yoon Lee, Po-Wei Chen, Naren Narayanan, Sandeep Dutta, and Malidi Ahamadi. (2022) "Performance of nlmixr vs NONMEM for the Estimation of Pharmacometrics Models with Different Degrees of Non-linearity; an AMGEN experience," American Society for Clinical Pharmacology & Therapeutics 2022 Annual Meeting

Under review

- [1] <u>Se Yoon Lee</u>, Peng Zhao, Debdeep Pati, Bani K. Mallick. (2023+) "Tail-adaptive Bayesian Shrinkage"; [Slides]
- [2] <u>Se Yoon Lee</u>. (2023+) "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)
- · Computational Geosciences (Impact Factor: 2.948)
- · Journal of Applied Statistics (Impact Factor: 1.416)

HONORS AND AWARDS

| Travel fund for an invited talk at Yonsei University | Dec~2019 |
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| Given to an invited speaker for the presentation | |
| Travel fund for an invited talk at University of Michigan | Jun~2019 |
| Given to an invited speaker for an annual meeting about wind energy | |
| Travel fund for poster presenter for the Houston Geological Society | Mar 2018 |
| Given to a poster presenter | |
| Anant Kshirsagar fellowship | Jul~2018 |
| Given to graduate students who demonstrate excellence in making progress in research | |
| The 1st place prize in SETCASA poster session in 2018 | Apr~2018 |
| Given to only one winner for the poster session | |

Graduate student travel award for JSM

Jul 2017, 2018

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
- · "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]
- · bayesestdft; Written in R; [Github]

SKILLS

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