

# SE YOON LEE

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## EDUCATION

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**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

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

## DISSERTATION AND THESIS

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- “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

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**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

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### 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

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### 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)

## HONORS AND AWARDS

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

## INVITED TALKS

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- “Prediction of best-corrected visual acuity for wet age-related macular degeneration patients in HAWK and HARRIER studies via a Bayesian hierarchical linear model” *Aug 2020*  
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

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### Software used in papers

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

## SKILLS

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