

Contact Information

US Food and Drug Administration
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Work Experience

- Mathematical Statistician, US Food and Drug Administration** Nov 2024 – Present
Center for Biologics Evaluation and Research
- Ph.D. Research Intern, Regeneron Pharmaceuticals Inc.** May 2022 – Aug 2022
Mentor: Dr. Chenguang Wang

Education

- Ph.D., Statistics, University of Florida** Aug 2024
Dissertation: Bayesian approaches to causal inference and missing data
Advisor: Dr. Michael J. Daniels
- ◇ Research Assistant, Department of Statistics May 2020 – Aug 2024
 - ◇ Teaching Assistant, Department of Statistics Aug 2018 – May 2020
- M.A., Statistics, Yonsei University** Feb 2018
Thesis: R package afttest for checking semiparametric accelerated failure time models
Advisor: Dr. Sangwook Kang
- ◇ Research Assistant, Department of Applied Statistics Sep 2016 – Feb 2018
 - ◇ Teaching Assistant, Department of Applied Statistics Sep 2016 – Feb 2018
- B.S., Mathematics and B.E., Economics, Kyung Hee University** Feb 2016

Research Interests

Bayesian method, non/semiparametric method, casual inference, mediation analysis, survival analysis, methods for incomplete data (intercurrent event & missing data), hierarchical model, software development

Skills

Software: High performance computing, R, Rcpp, RcppArmadillo, Stan, SAS, MATLAB, L^AT_EX, GitHub

Papers

† : Co-first author

Working Papers

5. **Bae, W.**, Daniels, M., and Wang, CG. (2025+) Missing data introduced by applying hypothetical strategies: are they really missing?
4. **Bae, W.**, Daniels, M., Hogan, J., and Chrysanthopoulou, S. (2025+) Semiparametric Bayesian inference for causal mediation in cluster randomized trials.
3. **Bae, W.**, Choi, D., Yan, J., and Kang, S. (2025+) `afttest`: model diagnostics for semiparametric accelerated failure time models in R

Published & Preprint

2. **Bae, W.**, Daniels, M., and Perri, M. (2024) A Bayesian nonparametric approach for causal mediation with a post-treatment confounder, *Biometrics*, 80 (3), [link](#)
1. Choi, D.[†], **Bae, W.**[†], Yan, J., and Kang, S. (2024) A general model-checking procedure for semiparametric accelerated failure time models, *Statistics and Computing*, 34 (3), 117, [link](#)

Software

R package & source code

`afttest` Model diagnostics for accelerated failure time models ([CRAN](#), [GitHub](#))
`EDPmediationPOST` Causal mediation with a post-treatment confounder ([GitHub](#))
`ICEmissing` Missing data introduced by applying hypothetical strategies ([GitHub](#))
`rBARTmediation` Mediation analysis using BART models with correlated random effects ([GitHub](#))
`TSBBmediation` Mediation analysis using two-stage Bayesian bootstrapping ([GitHub](#))

Presentation

† : Virtually

Invited Talk

Missing data introduced by applying hypothetical strategies: are they really missing?, *Regeneron*, Tarrytown, NY.[†] Oct 2023
A Bayesian nonparametric approach for causal mediation with a post-treatment confounder, *International Chinese Statistical Association China Conference*, Chengdu, Sichuan, China.[†] Jun 2023
Missing data introduced by applying hypothetical strategies: are they really missing?, *Society for Clinical Trials*, Baltimore, MD. May 2023
A Bayesian nonparametric approach for causal mediation with a post-treatment confounder, *Yonsei University*, Seoul, Korea. Dec 2022
Missing data introduced by applying hypothetical strategies: are they really missing?, *ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop*, Washington, D.C. Sep 2022

Topic Contributed Talk

Missing data introduced by applying hypothetical strategies: are they really missing?, *Joint Statistical Meeting*, Toronto, Canada. Aug 2023

Contributed Talk

Semiparametric Bayesian inference for causal mediation in cluster randomized trials, *Joint Statistical Meeting*, Portland, OR. Aug 2024
A Bayesian nonparametric approach for causal mediation with a post-treatment confounder, *Eastern North American Region*, Baltimore, MD. Mar 2024
Semiparametric Bayesian inference for causal mediation in cluster randomized trials, *Eastern North American Region*, Nashville, TN. Mar 2023
Causal mediation in weight management trials using Bayesian nonparametrics, *Joint Statistical Meeting*, Washington, D.C. Aug 2022
A more flexible Bayesian nonparametric approach to causal mediation, *Eastern North American Region*, Houston, TX. Mar 2022
A more flexible Bayesian nonparametric approach to causal mediation, *US-KOREA Conference*, Los Angeles, CA. Dec 2021
A more flexible Bayesian nonparametric approach to causal mediation, *Joint Statistical Meeting*, Seattle, WA.[†] Aug 2021

A more flexible Bayesian nonparametric approach to causal mediation, *International Society for Bayesian Analysis*, University of Connecticut, Storrs, CT.† Jul 2021

R package afttest for checking semiparametric accelerated failure time models afttest, *Korean Statistical Society Fall Meeting*, Seoul, Korea. Nov 2017

Contributed Poster

Missing data introduced by applying hypothetical strategies: are they really missing?, *Southern Regional Council on Statistics*, Jekyll Island, GA. Oct 2022

Missing data introduced by applying hypothetical strategies: are they really missing?, *Statistics in Pharmaceuticals conference*, University of Connecticut, Storrs, CT.† Aug 2022

Causal mediation in weight management trials using Bayesian nonparametrics, *International Society for Bayesian Analysis*, Montreal, Canada. Jun 2022

A more flexible Bayesian nonparametric approach to causal mediation, *Southern Regional Council on Statistics*, Jekyll Island, GA. Oct 2021

R package afttest for checking semiparametric accelerated failure time models afttest with an Induced Smoothing Approach, *Joint Statistical Meeting*, Philadelphia, PA.† Aug 2020

Honors and Awards

Fellows

FDA-OCE-ASA Oncology Educational Fellows Jan 2024
Food and Drug Administration's Oncology Center of Excellence (FDA-OCE), the American Statistical Association (ASA), and the ASA's Biopharmaceutical Statistics Section (BIOP)

Travel Award

College of Liberal Arts and Sciences at the University of Florida Aug 2024
Joint Statistical Meeting, Portland, OR.

College of Liberal Arts and Sciences at the University of Florida Mar 2024
Eastern North American Region, Baltimore, MD.

College of Liberal Arts and Sciences at the University of Florida Aug 2023
Joint Statistical Meeting, Toronto, Canada.

College of Liberal Arts and Sciences at the University of Florida Mar 2023
Eastern North American Region, Nashville, TN.

Boyd Harshbarger Travel Award (granted by NSF) Oct 2022
Southern Regional Council on Statistics

College of Liberal Arts and Sciences at the University of Florida Sep 2022
ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop, Washington, D.C.

College of Liberal Arts and Sciences at the University of Florida Aug 2022
Joint Statistical Meeting, Washington, D.C.

International Society for Bayesian Analysis (granted by NSF) Jun 2022
International Society for Bayesian Analysis, Montreal, Canada.

College of Liberal Arts and Sciences at the University of Florida Mar 2022
Eastern North American Region, Houston, TX.

UKC Fellow Award (Korean-American Scientists and Engineers Association) Dec 2021
US-KOREA Conference, Los Angeles, CA

Boyd Harshbarger Travel Award (granted by NSF) Oct 2021
Southern Regional Council on Statistics

Scholarship

Internal Scholarship (Merit-based Scholarship), **Yonsei University** 2017S – 2017F

Superiority Scholarship (Merit-based Scholarship), **Kyung Hee University** 2013F – 2015S

Assistantship

Research Assistantship, **University of Florida**

May 2020 – Aug 2024

Teaching Assistantship, **University of Florida**

Aug 2018 – Apr 2020

Research Assistantship, **Yonsei University**

Sep 2016 – Feb 2018

Teaching Assistantship, **Yonsei University**

Sep 2016 – Feb 2018

Services

Journal Referee

Journal of the Korean Statistical Society

Military Service

Capital Mechanized Infantry Division, the Republic of Korea Army

Oct 2010 – July 2012

Served and honorably discharged from the Republic of Korea Army

Professional Memberships

Member, **Institute of Mathematical Statistics**

2023 – Present

Member, **International Society for Bayesian Analysis**

2021 – Present

Member, **Eastern North American Region**

2021 – Present

Member, **American Statistical Association**

2020 – Present

Member, **International Biometrics Society**

2017 – Present