

Contact Information

US Food and Drug Administration
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Work Experience

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

Education

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| Ph.D., Statistics, University of Florida <i>Dissertation: Bayesian approaches to causal inference and missing data</i> <i>Advisor: Dr. Michael J. Daniels</i> | Aug 2024 |
| ◊ Research Assistant, Department of Statistics | May 2020 – Aug 2024 |
| ◊ Teaching Assistant, Department of Statistics | Aug 2018 – May 2020 |
| M.A., Statistics, Yonsei University <i>Thesis: R package afttest for checking semiparametric accelerated failure time models</i> <i>Advisor: Dr. Sangwook Kang</i> | Feb 2018 |
| ◊ 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*, accepted. [preprint](#)
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

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| A more flexible Bayesian nonparametric approach to causal mediation, <i>International Society for Bayesian Analysis</i> , University of Connecticut, Storrs, CT. [†] | Jul 2021 |
| R package afttest for checking semiparametric accelerated failure time models afttest, <i>Korean Statistical Society Fall Meeting</i> , Seoul, Korea. | Nov 2017 |

Contributed Poster

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| Missing data introduced by applying hypothetical strategies: are they really missing?, <i>Southern Regional Council on Statistics</i> , Jekyll Island, GA. | Oct 2022 |
| Missing data introduced by applying hypothetical strategies: are they really missing?, <i>Statistics in Pharmaceuticals conference</i> , University of Connecticut, Storrs, CT. [†] | Aug 2022 |
| Causal mediation in weight management trials using Bayesian nonparametrics, <i>International Society for Bayesian Analysis</i> , Montreal, Canada. | Jun 2022 |
| A more flexible Bayesian nonparametric approach to causal mediation, <i>Southern Regional Council on Statistics</i> , Jekyll Island, GA. | Oct 2021 |
| R package afttest for checking semiparametric accelerated failure time models afttest with an Induced Smoothing Approach, <i>Joint Statistical Meeting</i> , Philadelphia, PA. [†] | Aug 2020 |

Honors and Awards

Fellows

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

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| College of Liberal Arts and Sciences at the University of Florida <i>Joint Statistical Meeting, Portland, OR.</i> | Aug 2024 |
| College of Liberal Arts and Sciences at the University of Florida <i>Eastern North American Region, Baltimore, MD.</i> | Mar 2024 |
| College of Liberal Arts and Sciences at the University of Florida <i>Joint Statistical Meeting, Toronto, Canada.</i> | Aug 2023 |
| College of Liberal Arts and Sciences at the University of Florida <i>Eastern North American Region, Nashville, TN.</i> | Mar 2023 |
| Boyd Harshbarger Travel Award (granted by NSF) <i>Southern Regional Council on Statistics</i> | Oct 2022 |
| College of Liberal Arts and Sciences at the University of Florida <i>ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop, Washington, D.C.</i> | Sep 2022 |
| College of Liberal Arts and Sciences at the University of Florida <i>Joint Statistical Meeting, Washington, D.C.</i> | Aug 2022 |
| International Society for Bayesian Analysis (granted by NSF) <i>International Society for Bayesian Analysis, Montreal, Canada.</i> | Jun 2022 |
| College of Liberal Arts and Sciences at the University of Florida <i>Eastern North American Region, Houston, TX.</i> | Mar 2022 |
| UKC Fellow Award (Korean-American Scientists and Engineers Association) <i>US-KOREA Conference, Los Angeles, CA</i> | Dec 2021 |
| Boyd Harshbarger Travel Award (granted by NSF) <i>Southern Regional Council on Statistics</i> | Oct 2021 |

Scholarship

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| 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