Jacob Englert M.S.

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EDUCATION

Emory University *2020 – Present*
Ph.D. in Biostatistics
Dissertation: Bayesian Tree-Based Methods for Environmental Health Research
Anticipated Graduation: 05/2025

Emory University *2020 – 2023*
M.S. in Biostatistics
GPA: 3.91 / 4.00

Northern Kentucky University *2015 – 2019*
B.S. in Mathematics and Statistics
GPA: 4.00 / 4.00, *Summa Cum Laude*

RESEARCH EXPERIENCE

Emory University Atlanta, GA
Ph.D. Candidate (Dissertation) *Aug 2022 – Present*
Advisor: Dr. Howard Chang
Description: Extends the Bayesian additive regression trees (BART) framework to:
- Heterogeneous heat wave effect estimation for Alzheimer's disease patients within the case-crossover design,
- Smooth exposure-risk surface estimation for air pollution mixtures and asthma, and
- A spatially-varying quantile G-computation approach for estimating effects of air pollution mixtures on infant birth weight.

Methods: BART, Markov chain Monte Carlo (MCMC), conditional logistic regression, negative binomial regression, conditional autoregressive models, quantile G-computation

Research Assistant *Dec 2021 – Present*
Title: Sharing Patients' Illness Representations to Increase Trust (SPIRIT)
Advisors: Dr. Amita Manatunga and Dr. Mi-Kyung Song
Description: Analyzed data from a multi-site cluster randomized trial to assess the efficacy of an intervention to improve decision making confidence, post-bereavement outcomes, and treatment intensity for patients with end-stage renal disease and their surrogates.
Methods: Generalized linear mixed models, generalized estimating equations

Research Assistant *May 2021 – Dec 2021*
Advisor: Dr. Lance Waller
Description: Investigated the ability of sequentially layered spatial smoothing and spatial cluster detection techniques to identify hot spots for opioid overdoses in Georgia.
Methods: Inverse-distance smoothing, Besag-York-Mollié model, integrated nested Laplace approximation (INLA); clustering tests of Turnbull, Besag & Newell, and Kulldorff

Northern Kentucky University Highland Heights, KY
Undergraduate Research Assistant *Jan 2018 – May 2019*
Advisor: Dr. Andrew Long
Description: Collaborated with Togolese meteorologists to estimate long-term trends and seasonality in temperature time series data measured across 10 Togolese cities.
Methods: Singular spectrum analysis, linear mixed models

Undergraduate Research Assistant *Jan 2017 – May 2017*
Advisors: Dr. Dhanuja Kasturiratna, Dr. Lisa Holden, and Dr. Stuart Goldstein
Description: Collaborated with Cincinnati Children's Hospital to develop a model to predict the development of chronic kidney disease in children with acute kidney injury.
Methods: Logistic regression

PROFESSIONAL EXPERIENCE	**Lubrizol**	Atlanta, GA (Remote)
	Data Scientist Intern	*May 2024 – Aug 2024*

- Trained super learning ensembles to predict the hydrolytic stability of hydraulic fluids
- Contributed to the development of a novel transfer learning approach for simultaneous modeling of multiple test outcomes in high-dimensional settings using variational Bayes methods
- Created an RShiny app to estimate and plot dose-response curves of in-vitro citotoxicity for health and beauty products

Medpace	Cincinnati, OH
Biostatistics Intern → Data Analyst	*Jan 2018 – Jul 2020*

- Designed interactive Spotfire dashboards used to monitor patient safety and compliance
- Conducted power simulations in R to study impacts of over-stratification in clinical trial designs
- Developed program templates for generating static and animated SAS graphics
- Programmed tables and figures to summarize safety and efficacy endpoints

Burkardt Consulting Center	Highland Heights, KY
Statistical Consultant	*Aug 2018 – May 2019*

- Advised academic and industrial clients on the formulation of research hypotheses, data collection, and statistical methodology

Federal Bureau of Investigation	Cincinnati, OH
Intern	*Jun 2017 – Dec 2017*

- Assisted cybercrimes squad with investigations by identifying statistical anomalies in case data

PUBLICATIONS

1. Song, M.-K. *et al.* Effectiveness of an Advance Care Planning Intervention in Adults Receiving Dialysis and Their Families: A Cluster Randomized Clinical Trial. en. *JAMA Network Open* **7,** e2351511 (Jan. 2024).

SUBMITTED MANUSCRIPTS

1. Englert, J., Ebelt, S. & Chang, H. *Estimating Heterogeneous Exposure Effects in the Case-Crossover Design using BART* arXiv:2311.12016 [stat]. June 2024.

INVITED PRESENTATIONS

Estimating Heterogeneous Heatwave Effects among People with Alzheimer's Disease using BART — *Oct 2023*
ENVISION Research Group
Atlanta, GA

CONTRIBUTED TALKS & POSTERS

Modeling joint health effects of temperature and air pollution mixtures using Bayesian regression tree ensembles — *Aug 2024*
36th Annual Conference of the International Society for Environmental Epidemiology
Santiago, Chile

CL-BART: Bayesian Semiparametric Estimation of Heterogeneous Effects in Matched Case-Control Studies with an Application to Alzhemier's Disease and Heat — *Mar 2024*
ENAR 2024 Spring Meeting
Baltimore, MD

The Effectiveness of SPIRIT in Preparing Patients on Dialysis and Their Surrogates for End-of-Life Decision Making: A Pragmatic Trial — *Nov 2022*
Kidney Week | American Society of Nephrology
Orlando, FL

Mapping the Opioid Epidemic in the Midwestern United States — *Mar 2019*
KYMAA Annual Meeting
Danville, KY

Climate Change in Togo, West Africa: 3° C Hotter (or so) by the End of the Century — *Mar 2019*
KYMAA Annual Meeting
Danville, KY

Analyzing Outcomes of Non-Deterministic Events in Fluctuating Temporal Data *Feb 2019*
  Posters At-The-Capitol
  Frankfurt, KY

Modeling Climate Change in Togo, Africa *Jan 2019*
  Joint Mathematics Meetings
  Baltimore, MD

TEACHING
EXPERIENCE

Teaching Assistant, Department of Biostatistics and Bioinformatics, Emory University

QTM 100 - Introduction to Statistical Inference *Spring 2024*

EPI 590R - R Bootcamp for Epidemiology *Fall 2023*

BIOS 509 - Applied Linear Models *Spring 2022, Spring 2023*
  Guest Lecture: Poisson and Negative Binomial Regression

BIOS 525 - Longitudinal and Multi-Level Data Analysis *Fall 2022*
  Guest Lecture: Bayesian Hierarchical Models
  Guest Lecture: Simulation Studies in R

INFO 532 - Advanced Geographical Information Systems *Fall 2021*

INFO 530 - Introduction to Geographical Information Systems *Spring 2021, Fall 2021*

Teaching Assistant, Department of Mathematics and Statistics, Northern Kentucky University

STA 205 - Introduction to Statistical Methods *Spring 2016 – Fall 2018*

SKILLS

Programming R, SAS, C++ (Rcpp), Python, SQL, Mathematica, LaTeX
Tools Git, High Performance Computing (HPC), Spotfire, Tableau, JMP, ArcMap, MS Office
Certifications SAS Certified Base Programmer for SAS 9

AWARDS &
HONORS

Michael Lynn Award in Collaborative Biostatistics, Emory University *2024*

First Year Qualifying Exam Top Performer, Emory University *2021*

Laney Graduate School Fellowship, Emory University *2020*

Outstanding Senior in Statistics, Northern Kentucky University *2019*

Outstanding Senior in Mathematics, Northern Kentucky University *2019*

Honorable Mention, COMAP Mathematical Contest in Modeling *2019*

Outstanding Poster Presentation, Joint Mathematics Meetings *2019*

Honorable Mention, Public Health Data Challenge, American Statistical Association *2018*

International Study Scholarship, Northern Kentucky University *2018*

Outstanding Student Writing Award, Northern Kentucky University *2016*

President's List (x8), Northern Kentucky University *2015 – 2019*

Distinguished Scholarship, Northern Kentucky University *2015*

SERVICE

HERCULES Exposome Research Center, Data Science Fellow *2024*

John O'Bryan Mathematics Competition, Scorekeeper *2017 – 2018*

Student Government Association at Northern Kentucky University, Justice *2016 – 2017*

MEMBERSHIP   American Statistical Association

Eastern North American Region International Biometric Society

International Society of Environmental Epidemiology