

# BRIAN N. WHITE

✉ bnw@unc.edu

🌐 briannathanwhite

📞 (210) 705 - 4150

## Research Areas & Interests

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Spatial extremes, data assimilation, change-of-support problems, Bayesian hierarchical modeling, statistical consulting and machine intelligence.

## Technical Skills

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**Programming Languages:** R, Python, SAS, MATLAB, LaTeX, Markdown

**Operating Systems:** Linux (PopOS, Ubuntu), MacOS, Windows10

**High Performance Computing:** Bash scripting, PuTTY, SLURM job scripting

**Machine Learning Frameworks:** Tidymodels, scikit-learn, keras

**Statistical modeling:** Bayesian hierarchical modeling, spatial statistics, extreme value theory, causal inference, statistical machine learning

**Data Wrangling/Manipulation** Tidyverse, pandas

**Data Visualization:** Ggplot2, gganimate, matplotlib/seaborn

**IDEs/Version Control:** Rstudio, Jupyter Notebook, Git

## Professional Experience

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**Biostatistician II**, Wake Forest School of Medicine, June 2022 - Present

*Currently, my work in the Wake Forest School of Medicine falls into three categories:*

**1. Statistical Consulting**

I provide study design advice, grant development services and statistical analysis for medical professionals across the Wake Forest School of Medicine and Atrium Health medical system.

**2. Spatial Epidemiology**

I work with Dave Kline & Staci Hepler to develop and implement high-dimensional Bayesian hierarchical models of the opioid epidemic in co-operation with public health officials and medical experts.

**3. OpenLong**

I work with Jaime Speiser & Byron Yaeger to develop OpenLong, an open-source R package that harmonizes commonly used longitudinal data sets on aging. OpenLong facilitates machine learning benchmark studies, prediction modeling, and meta-analyses, enabling researchers to perform more efficient and accurate analyses.

**Graduate Researcher**, UNC Chapel Hill, August 2021 - Present

*I conduct methodological research at the intersection of spatial statistics, extreme value theory and data assimilation. My work is composed of three parts:*

**1. Combining Observational and Model Data for Spatial Extremes**

Developed a multivariate spatial extreme value model which integrates observational and model data, enhancing the accuracy of return level estimates.

**2. Forecasting Spatial Extremes Using Climatic Covariates**

Utilized climatic covariates to forecast models for spatial extremes under a range of climate change scenarios.

**3. Vecchia Approximation for Spatial Extremes**

Applied Vecchia approximations to spatial extreme value models, significantly reducing computational costs while maintaining model accuracy.

## Education

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Ph.D. Student in Statistics and Operations Research, UNC Chapel Hill	August 2020 - Present
Advisor: Richard L. Smith.	
M.A. in Mathematical Statistics, Wake Forest University	May 2020
B.S. in Environmental Studies, minor in Mathematics, UNC Asheville	May 2018

## Publications

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1. Estadt AT, **White BN**, Ricks JM, Lancaster KE, Hepler S, Miller WC, Kline D. *The impact of fentanyl on state- and county-level psychostimulant and cocaine overdose death rates by race in Ohio from 2010 to 2020: a time series and spatiotemporal analysis*. Harm Reduct J. 2024 Jan 17;21(1):13. doi: 10.1186/s12954-024-00936-9. PMID: 38233924; PMCID: PMC10792830.
2. Khanna AK, Banga A, Rigdon J, **White BN**, Cuvillier C, Ferraz J, Olsen F, Hackett L, Bansal V, Kaw R. *Role of continuous pulse oximetry and capnography monitoring in the prevention of postoperative respiratory failure, postoperative opioid-induced respiratory depression and adverse outcomes on hospital wards: A systematic review and meta-analysis*. J Clin Anesth. 2024 Jun;94:111374. doi: 10.1016/j.jclinane.2024.111374. Epub 2024 Jan 6. PMID: 38184918.
3. Vesely BD, Kipp JA, Lance TA, **White BN**, Medda AW, Scott AT. *BMI influence on total ankle arthroplasty outcomes: A systematic review*. Foot & Ankle Surgery: Techniques, Reports & Cases. 2024 Mar 24; Volume 4, Issue 2. doi: <https://doi.org/10.1016/j.fastrc.2024.100377>.
4. Fabian SB, Adkins EW, **White BN**, Kirse DJ, Kiell EP. *Temporal trends in BAHA softband wear time among pediatric patients*. International Journal of Pediatric Otorhinolaryngology. Volume 182. 2024. 112000. ISSN 0165-5876. <https://doi.org/10.1016/j.ijporl.2024.112000>.

### Accepted Abstracts

1. Lassiter R, **White BN**, Skelton JA, Ip E, Vitolins M, Brown CL. *Parental concerns about tap water associated with childrens increased consumption of sugar-sweetened beverages*. Pediatric Academic Societies Meeting. Toronto, CA. May 2024. Platform Presentation.
2. Cyrille N, Garcia R, **White BN**, Danford DS, Harmon L, Bernardo S, Rose H, Patel S, DeVore AD, Nandkeolyar S, Mishkin J. *Sex-Specific Trends in the Use of Temporary Mechanical Circulatory Support in Patients Listed for Orthotopic Heart Transplant Before and After The UNOS Allocation System Change*; International Society of Heart & Lung Transplantation. 44th Annual Meeting & Scientific Sessions. Prague, Czech Republic. April 2024. Platform Presentation.

## Certifications

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**CITI Program:** Biomedical Investigators and Human Research: Jun 2022 - June 2025 (Credential ID: 49280602)

## Relevant Coursework

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### UNC Chapel Hill

Applied Statistics I/II (Linear Models/Generalized Linear Models), Statistical Theory I/II (Finite Sample/Asymptotics), Probability I/II (Measure Theoretic), Advanced Machine Learning, Optimization I, Stochastic Modeling I, Object Oriented Data Analysis, Extreme Value Theory, Bayesian Statistics & GLMs, Brian Network Data Analysis, Non-parametric statistics