Luke Durell

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EDUCATION

- **Baylor University**, Waco, TX, USA
  Ph.D., Statistical Science **2022**
    Dissertation: Applications of Functional Data Analysis to Environmental Problems
    Advisor: Dr. Amanda S. Hering, Ph.D.
    Awards/Service: Presidential Fellowship (top 1-2% of applicants), TeaCHE scholar, Grad. Student Rep.
  M.S., Statistical Science; GPA: 3.93 **2019**
    Courses: *Data Sci./Mach. Learning, Spatial Analysis, MVAR Analysis, Comp. Stat. I/II,*
    Large Sample Theory, Bayesian Stat. I/II, Linear Models, Time Series, Categorical Analysis,
    Statistical Methods I/II, Theory of Stat. I/II/III, High Dim. Analysis

- **Wittenberg University**, Springfield, OH, USA
  B.A., Mathematics; B.A., Financial Economics; GPA: 3.70 **2018**
    Awards: *cum laude*, University Honors Student, Phi Beta Kappa

EXPERIENCE

- **Mo(Wa)^{2}TER Graduate Teaching and Research Assistant** **2019 - 2022**
  Modernizing Water and Wastewater Treatment through Data Science Education and Research
  Baylor University, Waco, TX and Remote
    – Supported an Introduction to Data Science course as a Teaching Assistant by designing materials and tests, grading assignments, and providing office hours for a total of 87 students over three years
    – Collaborated with an interdisciplinary team of statisticians, computer scientists, data scientists, environmental engineers, and water quality treatment experts to curate and prepare summer research projects for a Data Science Summer Research Fellows mini-REU
    – Designed and hosted a yearly R "bootcamp" for undergraduate researchers
    – Personally managed ten projects between city, industry, and university stakeholders and student research teams comprised of a total of 36 students over three summers
    – Coached and trained students to identify research goals and challenges, review statistical literature, develop project-specific models, interpret results, and communicate findings to stakeholders in presentations, publications, and weekly reports
    – Initiated organization of a Harvard Dataverse repository to maintain project datasets

- **Instructor, Elementary Statistics** **2019**
  Baylor University, Waco, TX
    – Independently instructed 19 undergraduate students in Elementary Statistics
    – Developed tests, examples, and materials to supplement established curriculum

- **Graduate Teaching Assistant** **2018 - 2019**
  Baylor University, Waco, TX
    – Proctored, graded, and organized hundreds of exams, and otherwise assisted multiple professors
    – Personally tutored over one hundred undergraduate students in statistical concepts

- **Bioinformatics Analyst** **2017 - 2018**
  Henry M. Jackson Foundation, Wright Patterson Air Force Base, Dayton, OH
    – Performed exploratory analysis to investigate over 650,000 viral nucleotide structures from over 5,000 viruses
    – Identified significant genomic sequences of biological relevance
    – Provided statistical support and advice to multiple research efforts in the 711th Human Performance Wing

- **Exploratory Meds/Advanced Analytics Intern** **2016**
  Eli Lilly & Company, Indianapolis, IN
    – Prepared applications for use in large clinical trials; debugged prototypes by delivery deadlines
    – Used Microsoft Excel VBA to organize hundreds of nonstandard clinical trial data sets for migration weeks before deadline

Peer-Reviewed Publications

*indicates in preparation, †indicates under peer review, ††indicates under revision

5. †**Durell, L.**, Lovin, L., Steele, W. B., Brooks, B., and Hering, A. S. "Balanced two-way functional ANOVA for toxicological photomotor response studies."

4. ††**Durell, L.**, Scott, J. T., Nychka, D., and Hering, A. S. "Hybrid forecasting for functional time series."

3. **Durell, L.**, Scott, J. T., Nychka, D., and Hering, A. S. "Functional forecasting of dissolved oxygen in high-frequency vertical lake profiles," Accepted by *Environmetrics*, 2022.

2. ***Durell, L.** and Hering, A. S. (2021) "`mowateR`: Data sets from the Modernizing Water and Wastewater Treatment through Data Science Education and Research team," R package version 1.0.0.

1. Hering, A. S., **Durell, L.**, and Morgan, G. "Illustrating randomness in statistics courses with spatial experiments," *The American Statistician*, 75(3):342-353, 2021. https://doi.org/10.1080/00031305.2020.1871070

Presentations

5. Southwest Data Science Conference: *Hybrid machine learning forecasting for functional time series*, Waco, TX (Mar 2022)

4. Baylor Graduate Research Showcase: *Functional forecasting of DO in high frequency vertical lake profiles*, Waco, TX (Nov 2021)

3. ISI World Statistics Conference 2021: *Functional forecasting of dissolved oxygen lake profiles*, Remote (Jul 2021)

2. Baylor Graduate Student Twitter Conference: *Functional forecasting of dissolved oxygen lake profiles*, Remote (Feb 2021)

1. TIES 2020 Virtual Conference: *Functional forecasting of dissolved oxygen lake profiles*, Remote (Nov 2020)

Technical Skills

*indicates proficiency, † SAS Certified Specialist: Base Programming Using SAS 9.4

- **Languages**: *R, *†SAS, Python, Stan, JMP, JAGS
- **Tools**: *RStudio, Git, *LaTeX/ BibTeX, *Microsoft Office, *Apple iWork Apps