MAXIMILIAN ROHDE

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EDUCATION

PhD in Biostatistics (Expected Graduation: 11/2024)
Vanderbilt University (2020 - Present)
Advisor: Dr. Frank Harrell

BA in Physics and BA in Geology
Carleton College (2013-2017)

EMPLOYMENT

Research / Teaching Assistant
Vanderbilt Department of Biostatistics

09/2020 - Present

- Served as a statistician for the ACTIV-6 clinical trial: a randomized placebo-controlled trial evaluating repurposed therapies in patients with COVID-19. Conducted the interim analyses and created reproducible reports for the Data and Safety Monitoring Board (DSMB).
- Developed methodology and R packages for the Bayesian analysis of ordinal longitudinal data using transition modeling.
- Led discussion sections as a teaching assistant for multiple graduate courses. Received the 2022 Distinguished Teaching Assistant award for "excellence in teaching and a dedication to peer education".

FDA-OCE-ASA Oncology Educational Fellowship
FDA / ASA

01/2024 - 07/2024

- Gained in-depth knowledge on oncology drug development and regulatory policy though this fellowship between the FDA Oncology Center of Excellence and the American Statistical Association.
- Attended lectures and discussions lead by FDA statisticians and clinical reviewers on topics including clinical endpoints / estimands, multiplicity correction / subgroup analyses, Real-World Evidence, safety and efficacy data monitoring, and adaptive / Bayesian designs.

Biostatistics PhD Intern
Pfizer

05/2023 - 08/2023

- Applied Bayesian hierarchical modeling methods to analyze adverse event rates in platform trials for gene therapies. Created an R package and wrote Stan code to fit EXNEX Bayesian hierarchical models. Published results in first-author paper in Clinical Pharmacology & Therapeutics.
- Assisted with statistical analysis plans for ongoing phase I and II clinical trials.

ORISE Fellow
Division of Antivirals (FDA / CDER)

07/2019 - 09/2020

- Analyzed 37 phase II and III clinical trials to address safety concerns regarding the use of direct-acting antivirals for Hepatitis C. Published research as first author and was awarded the ORISE FDA/CDER best poster award.
- Determined novel clinical endpoints for immunological non-responders after HIV antiretroviral therapy using longitudinal modeling of 9 clinical trials in collaboration with the FDA Office of Biostatistics.
- Analyzed phase III clinical trial data to support the approval of new PrEP medications for HIV prevention. Created data summaries and visualizations for FDA advisory committee and produced dashboards for interactive data display using R Shiny.

RESEARCH INTERESTS

- Clinical trials: Bayesian and adaptive designs
- Pharmaceutical development and regulatory science
- Statistical computing and R package development
- Statistics education
- Oncology, virology, and gene therapy

PROGRAMMING EXPERIENCE

- R (advanced): `ggplot2`, `dplyr`, `purrr`, `tidymodels`, `Shiny`
- Python (intermediate): `numpy`, `pandas`, `matplotlib`, `scikit-learn`, `PyTorch`
- REDCap
- `git` / GitHub
- Quarto / R Markdown
- Stan / `brms` / `rstanarm`
- Unix
- LaTeX
- JavaScript / HTML / CSS

HIGHLIGHTED COURSEWORK

- Survival Analysis
- Bayesian Methods
- Clinical Trials and Experimental Design
- Advanced Statistical Computing
- Advanced Probability Theory and Real Analysis
- Advanced Regression Analysis I (Linear Models and Generalized Linear Models)
- Advanced Regression Analysis II (Longitudinal Models)
- Advanced Statistical Learning and Inference
- Statistical Collaboration
- Regression Modeling Strategies

ORISE Fellow
Bioinformatics / Regulatory Review Science (FDA / CDER)

01/2018 - 07/2019

- Created a Python-based natural-language processing tool to map drug product labels to the SNOMED-CT medical ontology. Developed a web-based user interface in Flask and deployed it for use within the FDA Office of New Drugs.
- Pooled and standardized adverse event data from over 5,000 clinical trials to identify key areas where sponsors are not in compliance with CDISC data standards and provided recommendations to improve quality of sponsor-submitted data.

Senior Academic Tutor
Prep1on1

09/2017 - Present

- Tutor high school and undergraduate students in statistics, calculus, physics, chemistry, biology, and ACT/SAT test preparation.
- Lead training workshops for other tutors on effective science teaching.
- Coauthored a company-wide mathematics and science curriculum for the ACT standardized test.

Research Intern
USGS Albuquerque Seismological Laboratory (IRIS Internship program)

07/2016 - 09/2016

- Installed arrays of broadband seismometers at the Albuquerque Seismological Laboratory to conduct experiments characterizing long-period seismic noise.
- Developed automated data analysis workflows using Python and created novel data visualizations.
- Published research as first author in *Seismological Research Letters* and presented at the 2016 American Geophysical Union annual meeting.

HIGHLIGHTED RESEARCH

Bayesian transition models for ordinal longitudinal outcomes
Statistics in Medicine

Rohde, M. D., French, B., Stewart, T. G., & Harrell Jr, F. E. (2024). Bayesian transition models for ordinal longitudinal outcomes. *Statistics in Medicine*

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Practical and statistical considerations for the long term follow-up of gene therapy trial participants
Clinical Pharmacology & Therapeutics

Rohde, M., Huh, S., D'Souza, V., Arkin, S., Roberts, E., & McIntosh, A. Practical and statistical considerations for the long term follow-up of gene therapy trial participants. *Clinical Pharmacology & Therapeutics*.

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No Association Between DAA Treatment for HCV Infection and Herpes Zoster Infection in Analysis of Data From 37 Clinical Trials
Clinical Gastroenterology and Hepatology

Rohde, M. D., Tracy, L., Komatsu, T. E., El-Kamary, S. S., & Carter, W. (2020). No Association Between DAA Treatment for HCV Infection and Herpes Zoster Infection in Analysis of Data From 37 Clinical Trials. *Clinical Gastroenterology and Hepatology*.

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Characterizing local variability in long-period horizontal tilt noise
Seismological Research Letters

Rohde, M. D., Ringler, A. T., Hutt, C. R., Wilson, D. C., Holland, A. A., Sandoval, L. D., Storm, T. (2017). Characterizing local variability in long-period horizontal tilt noise. *Seismological Research Letters*.

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Globally coherent short duration magnetic field transients and their effect on ground based gravitational-wave detectors
Classical and Quantum Gravity

Kowalska-Leszczynska, I., Bizouard, M. A., Bulik, T., Christensen, N., Coughlin, M., Gołkowski, M., ... **Rohde, M.** (2017). Globally coherent short duration magnetic field transients and their effect on ground based gravitational-wave detectors. *Classical and Quantum Gravity*.