MAXIMILIAN ROHDE

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EDUCATION

PhD in Biostatistics
Vanderbilt University
2020 - Present (in progress)

BA in Physics / BA in Geology
Carleton College
2013-2017

INTERESTS

- Clinical trials: Bayesian and adaptive designs
- Pharmaceutical development and regulatory science
- Statistical computing / R package development
- Applications to virology / immunology
- Statistics education

EMPLOYMENT

ORISE Fellow

Division of Antivirals — FDA / CDER / Office of New Drugs
07/2019 - 09/2020

- Conducted a pooled analysis of 37 phase II and III clinical trials to address safety concerns in the use of direct-acting antivirals for Hepatitis C infection. Published research as first author in *Clinical Gastroenterology and Hepatology*. Gave a poster presentation at the IDWeek 2019 conference and won best poster at FDA CDER ORISE poster day.
- Collaborated on an analysis of 9 clinical trials to determine novel clinical endpoints for immunological non-responders after HIV antiretroviral therapy. Harmonized and cleaned data across trials and collaborated with FDA Office of Biostatistics on statistical modeling using mixed-effects models. Worked on manuscript preparation (writing, analysis, and figure design) for a journal article in progress.
- Analyzed clinical trial data alongside the clinical review team to support the approval of PrEP products for HIV prevention. Created data summaries and visualizations that were featured in the final clinical review document and presented in advisory committee meetings.
- Implemented an analysis of next-generation sequencing data to differentiate between *Streptococcus pneumoniae* serotypes in infected patients.
- Created dashboards for interactive data display using R Shiny.

ORISE Fellow

Bioinformatics and Regulatory Review Science Team — FDA / CDER / Office of New Drugs
01/2018 - 07/2019

- Created a natural-language processing tool using Python to map medical terms within drug product labels to the SNOMED-CT medical ontology for internal FDA use. Developed a web-based interface in Flask for the tool and deployed it for use across the Office of New Drugs.
- Pooled and cleaned 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. Performed analyses on the high-performance computer cluster at FDA.
- Implemented a support-vector machine classifier to classify FDA meeting-minute documents into a hierarchy of topics to reduce the need for manual labeling.

COURSEWORK

Graduate:

- Contemporary Statistical Inference
- Modern Regression Analysis
- Clinical Trials and Experimental Design
- Statistical Computing
- Principles of Modern Biostatistics
- Probability Theory

Undergraduate:

- Linear Algebra
- Differential Equations
- Multivariable Calculus
- Data Structures
- Data Visualization

PROGRAMMING

- R: ggplot2, dplyr, tidyr, purrr, tidymodels, shiny, rmarkdown
- Python: numpy, pandas, matplotlib, scikit-learn, altair, keras, spaCy, dask
- Stan
- Unix / shell scripting
- HTML / CSS / Javascript
- git / GitHub
- Mathematica
- JupyterLab

SOFTWARE

- LaTeX
- Adobe Illustrator / InDesign
- Microsoft Office
- Keynote

EMPLOYMENT (CONTINUED)

Senior Academic Tutor

Prep1on1

09/2017 - Present

- Tutored high school and undergraduate students 10-15 hours a week in subjects such as statistics, calculus, physics, chemistry, biology, and ACT/SAT test preparation.
- Led training workshops for other tutors on effective science teaching.
- Coauthored a company-wide mathematics and science curriculum for ACT standardized test preparation.

Science Policy Intern

MIT Washington Office

09/2017 - 12/2017

- Attended and reported on a variety of events related to science policy in Washington DC (e.g., congressional hearings, think-tank seminars, scientific society meetings) for publication in a weekly newsletter for the MIT administration.
- Researched and wrote reports with senior staff on science policy topics relevant to MIT, including a long-form report on autonomous vehicle policy.

Research Intern

USGS Albuquerque Seismological Laboratory

07/2016 - 09/2016

- Analyzed long-period seismic noise using spectral analysis as part of the 2016 Incorporated Research Institutions for Seismology (IRIS) internship.
- Conducted experiments by installing arrays of broadband seismometers in the Albuquerque Seismological Laboratory testing vault to characterize the seismic background noise.
- Developed automated data analysis workflows using Python and created data visualizations to understand the characteristics of long-period noise across seismic arrays.
- Published research as first author in *Seismological Research Letters* and gave a poster presentation at the 2016 American Geophysical Union annual meeting.

Teaching Assistant

Carleton College Department of Physics and Astronomy

02/2014 - 06/2017

- Tutored students in introductory and upper level physics courses (e.g., Quantum Mechanics, Special Relativity, and Electricity & Magnetism).
- Assisted students during laboratory sections with experimental techniques, mathematical derivations, and data analysis.
- Graded problem sets, laboratory reports, and quizzes.
- Started an initiative for students to provide anonymous feedback to teaching assistants to better understand the needs of students and improve teaching methods.

PUBLICATIONS

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*.

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*, 88(3), 822-830.

PUBLICATIONS (CONTINUED)

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*, 34(7), 074002.

ACADEMIC PROJECTS

Analyzing the Effect of Magnetically Induced Noise on Gravitational Wave Detection with the LIGO Detector Characterization Group

Carleton College Department of Physics and Astronomy

06/2015 - 06/2016

- Conducted research with Dr. Nelson Christensen as a member of the Laser-Interferometer Gravitational-Wave Observatory (LIGO) Detector Characterization team.
- Analyzed magnetically induced noise in the LIGO detector channels by writing automated signal processing tools in Python to determine the effect of magnetic transients on gravitational-wave detection.
- Published part of my research as an coauthor on a journal article in *Classical and Quantum Gravity* detailing the effects of Schumann resonances on gravitational-wave detection.

Astronomical Tuning of the Bartonian-Priabonian Boundary near Gubbio, Italy Using Terrestrial Laser Scanning

Osservatorio Geologico di Coldigioco

9/2015 - 11/2015

- Conducted research to date the carbonate stratigraphy of the Bartonian-Priabonian boundary using terrestrial laser scanning and cyclostratigraphic techniques.
- Collected the laser scanning data and wrote MatLab scripts to detect orbital cycles using Fourier transform methods.
- Presented my research at the 2015 Osservatorio Geologico di Coldigioco research symposium.

New Computational Approachs to Calculating the Gravitational Field Due to a Cylinder

Carleton College Department of Physics and Astronomy

6/2014 - 9/2014

- Worked with Dr. Bill Titus as a summer 2014 research fellow towards modeling the 3D gravitational field of a finite cylinder to aid in identification of subsurface gravity anomalies for geophysical research.
- Created simulations in C and Mathematica to verify analytical results.
- Delivered a poster presentation at the 2014 Carleton & St. Olaf summer research symposium.