

Paige Miller, PhD

Data Scientist & Infectious Disease Modeler
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Education

- Ph.D Disease Ecology** University of Georgia (Athens, Georgia) 2015 - 2020
B.A. Mathematics Gustavus Adolphus College (Saint Peter, Minnesota) 2011 - 2015

Experience

Data Scientist Epistemix (Pittsburgh, PA): Led research and development projects to generate synthetic US population for agent based modeling platform; data engineering and database management using SQL/Postgresql; spatial data analysis and visualization; developed agent-based model of COVID19; wrote and presented technical analyses to stakeholders; research and development of statistical learning projects aiming to enrich synthetic data with social determinants of health; helped company identify new markets for platform.

2022-Current

Prevention Efficacy Fellowship Division of Global Migration and Quarantine, Centers for Disease Control and Prevention (Atlanta, Georgia): Travel infection risk analysis; network analysis of travel behavioral changes; stochastic modeling of outbreaks on cruise ships; predicting outbreak sizes from introduced infections; served on the modeling team of the COVID Response.

2021-2022

Graduate Student Odum School of Ecology, University of Georgia (Athens, Georgia): Network modeling; model development and parameter estimation for respiratory transmitted infections. Dissertation titled, "Social structure, contact networks and the spread of respiratory transmitted infectious diseases". Received advanced training in a variety of statistical methods, including machine learning, time series analysis, and bayesian data analysis.

2015-2020

Public Health Research Intern Division of HIV/AIDS Prevention, Centers for Disease Control and Prevention (Atlanta, Georgia): Intervention analysis for text messaging based strategies aiming to encourage condom usage and HIV testing.

2015

Academic Publications

Sanchez C, Evans MV, **Miller PB**, Tredenick A, and Drake JM. Case notification is as reliable an indicator of transmission as symptom onset during the outbreak of COVID-19 in Georgia, USA. *Submitted to Epidemics*.

Miller PB, Whalen CC, and Drake JM. Effects of assortative mixing and sex-traits on male-bias in tuberculosis: A modelling study. *In review at Royal Society Open Science*.

Taube, J, **Miller PB**, and Drake JM. An open-access database of infectious disease transmission trees to explore superspreader epidemiology. 2022. *PLoS Biology*.

Miller PB, Zalwango S, Galiwango R, Kakaire R, Sekandi J, Steinbaum L, Drake JM, Whalen CC, and N Kiwanuka. Tuberculosis spread in social networks: A cross-sectional study of TB in Kampala, Uganda. 2021. *BMC Infectious Disease*.

Taube, J, **Miller PB**, and Drake JM. An open-access database of infectious disease transmission trees to explore superspreader epidemiology. 2020. *Medrxiv, In prep for PLoS Biology*.

Drake JM, Brett TS, Chen S, Epureanu B, Ferrari M, Marty E, **Miller PB**, O'Dea EB, O'Regan SM, Park AW, and P Rohani. The statistics of epidemic transitions. 2018. *PLoS Computational Biology*.

Brett TS, O'Dea EB, Marty E, **Miller PB**, Park AW, Drake JM, and P Rohani. Anticipating epidemic transitions with imperfect data. 2018. *PLoS Computational Biology*.

Miller PB, O'Dea EB, Rohani P, and JM Drake. Forecasting infectious disease emergence subject to seasonal forcing. 2017. *BMC Theoretical Biology and Medical Modeling*.

Mansergh G, **Miller PB**, JH Herbst, MJ Mimiaga, and J Holman. Effects of Brief Messaging about Undiagnosed Infections Detected through HIV Testing among Black and Latino Men who have Sex with Men in the United States. 2015. *Sexually Transmitted Diseases*.

Non-Academic Publications

Miller PB, The Surprising Power of Synthetic Data. (<https://blog.epistemix.com/blog/the-surprising-power-of-synthetic-data>) *Epistemix*.

Skills

Data Science R, Python, SQL/postgresql, git; data cleaning, scraping, analysis, visualization, dashboard development, interactive graphics; parallel and remote computing; reproducible and collaborative workflows; software package documentation; spatial data analysis

Modeling Deterministic, stochastic, network, agent-based models of disease spread, time series analysis, parameter estimation, supervised machine learning methods including boosted regression

Communication Technical writing, academic writing, presentations for non-technical audiences, summaries for public health policy reports; relatable personality and ability to explain technical concepts to others; enjoy mentoring and collaborative work

Service

Outreach: LIVE Forward Athens HIV Testing Volunteer

Mentoring: Kennedy Houck (current MPH student), Juliana Taube (current post-bac researcher)

Departmental Leadership: Treasurer Odum School of Ecology

Journal Refereeing: PLoS One, PLoS Neglected Tropical Diseases, Epidemiology, American Journal of Epidemiology, PNAS

Honors

Disease Ecology Dissertation Completion Grant, \$32,000: Odum School of Ecology, 2019

NSF Graduate Research Fellowship, \$138,000, 2016