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Engineering & Scientific Consulting

Ethan Roubenoff, Ph.D.

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Professional Profile

Dr. Roubenoff is a cross-discipline data scientist with training in geospatial statistics and analysis, computational social science, infectious disease modeling and simulation, and statistical modeling, with applications in computation for population and health that emphasize spatial and social heterogeneities. He is an expert in geospatial analysis for human and physical geography and can assist with any tasks related to geospatial statistics and geospatial data science, including applications with population and census data, spatial regression modeling, infectious disease, remote sensing, hydrological and environmental analysis, visualization, and mapping. He supports all phases of the data pipeline, from data processing and management to modeling, analysis, technical writing, and data visualization. Dr. Roubenoff can also assist with general programming tasks and has expertise with R, Python, and C++ for data science, software development, and simulation.

Prior to joining Exponent, Dr. Roubenoff conducted graduate research in Demography at the University of California, Berkeley, where he studied public health demography, spatial demography, and formal demography. His dissertation research involved compartmental and agent-based infectious disease models of COVID-19 transmission using data collected with the Berkeley Interpersonal Contact Survey to evaluate optimal vaccine distribution strategies and the long-term effects of waning vaccine-derived and post-infectious immunity. He also studied the parasitic infection Chagas Disease in Brazil, projecting future incidence in the context of a growing and shifting population at risk.

During his PhD studies, Dr. Roubenoff completed projects on immigration and health and legal nonprofit service accessibility, survey science, and mortality. He has been affiliated with the Berkeley Interdisciplinary Migration Initiative (BIMI), the Berkeley Interpersonal Contact Survey (BICS), and the Human Mortality Database (HMD). He also completed internships in Demography and Survey Science at Meta and Geospatial Data Science at Pivot Bio.

Academic Credentials & Professional Honors

Ph.D., Demography, University of California, Berkeley, 2023

M.A., Demography, University of California, Berkeley, 2019

B.A., Sociology, Northwestern University, 2018

Trainee, National Institute on Aging, 2019-2021

Prior Experience

Graduate Student Researcher and Instructor (Multiple Appointments), University of California Berkeley Department of Demography, 2019-2023

Research Scientist Intern, Meta (Facebook) Demography and Survey Science, Summer 2022

Geospatial Data Science Intern, Pivot Bio, Summer 2021

Research Assistant (Multiple Appointments), Northwestern University Department of Sociology and Institute for Policy Research, 2016-2018

Professional Affiliations

Member, Population Association of America, 2019-2022

Member, Modeling Infectious Disease Agent Study (MIDAS), 2022-2023

Publications

Roubenoff, Ethan, Dennis Feehan, and Ayesha S. Mahmud. “Evaluating Primary and Booster Vaccination Prioritization Strategies for COVID-19 by Age and High-Contact Employment Status Using Data from Contact Surveys.” Epidemics 43 (June 1, 2023): 100686. https://doi.org/10.1016/j.epidem.2023.100686.

Roubenoff, E., Slootjes, J., & Bloemraad, I. (2023). Spatial and Sociodemographic Vulnerability: Quantifying Accessibility to Health Care and Legal Services for Immigrants in California, Arizona, and Nevada. Socius, 9. https://doi.org/10.1177/23780231231157683

Roubenoff, Ethan. “How Will COVID-19 Persist in the Future? Simulating Future Dynamics of COVID-19 Using an Agent-Based Network Model.” medRxiv, 2023. https://doi.org/10.1101/2023.08.29.23294791.

Roubenoff, Ethan. “Bayesian Spatiotemporal Projection of Chagas Disease Incidence in Brazil.” medRxiv, 2023. https://doi.org/10.1101/2023.08.29.23294788.

Snyder, K.A., Tate, A. and Roubenoff, E. (2018), "Younger Women with Breast Cancer and Treatment Decision-Making: Rethinking Patient Involvement and Empowerment", Gender, Women’s Health Care Concerns and Other Social Factors in Health and Health Care (Research in the Sociology of Health Care, Vol. 36), Emerald Publishing Limited, Bingley, pp. 37-58.

Presentations

Roubenoff, Ethan, Dennis Feehan, and Ayesha S. Mahmud. “Evaluating Primary and Booster Vaccination Prioritization Strategies for COVID-19 by Age and High-Contact Employment Status Using Data from Contact Surveys.” Oral presentation, Population Association of America, Atlanta, GA, 2022

Roubenoff, Ethan, Dennis Feehan, and Ayesha S. Mahmud. “Evaluating Primary and Booster Vaccination Prioritization Strategies for COVID-19 by Age and High-Contact Employment Status Using Data from Contact Surveys.” Poster presentation, Modeling Infectious Disease Agent Study, Bethesda, MD, 2022

Roubenoff, E., Slootjes, J., & Bloemraad, I. Spatial and Sociodemographic Vulnerability: Quantifying Accessibility to Health Care and Legal Services for Immigrants in California, Arizona, and Nevada.” Population Association of America, Online, 2021.

Project Experience

Created and published recommendations for COVID-19 vaccine distribution strategies using data from contact surveys and infectious disease models.

Developed a C++ program for simulating infectious disease outbreaks on social networks and used it to evaluate long-term COVID-19 outbreak cycles considering waning immunity.

Projected rates of Chagas Disease in Brazil 2020-2030 using a Bayesian spatio-temporal model incorporating environmental and population projections.

Aided in the design, implementation, and analysis of a large-scale online survey of 30,000+ respondents over several waves to capture contact patterns related to the COVID-19 pandemic.

Created a novel index to quantify service accessibility and applied this metric to immigrant-oriented health and legal nonprofit services in California, Arizona, and Nevada.

Created RShiny web applications for visualizing geospatial data for policymaker and general public use.

Performed mortality rate analysis for three countries.