Berkeley

Postdoctoral Opportunity at Berkeley in Surveillance Informatics

Simulation and optimization of global infectious disease surveillance systems

A postdoctoral fellow is sought in the research group of Justin Remais at the UC Berkeley School of Public Health, who is leading a newly-funded NIAID R01 that establishes a Berkeley-led, international research consortium to develop approaches for simulating and optimizing surveillance networks to detect existing and emerging infectious diseases under changing epidemiological and environmental conditions (NIH-NIAID R01AI125842). The research team will develop and apply spatio-temporal data integration techniques for assessing the performance of specific surveillance architectures, and a simulation platform for optimizing surveillance system performance under alternative configurations and constraints. The project will use China as a global laboratory, applying these tools to 'Big Data' from multiple surveillance data streams—on tuberculosis, malaria, schistosomiasis, leptospirosis, dengue, hookworm and infectious diarrhea—in collaboration with U.S. CDC and China CDC partners. The goal is to identify the timing, geographic scope, and surveillance architectures that optimize the estimation of key epidemiological processes, such as detection of the leading edge of an epidemic; estimation of the impact of an intervention; or capture of residual cases as disease elimination is approached. The postdoctoral fellow will have opportunities to contribute to other new and ongoing projects in the group focused on the transmission dynamics of infectious diseases in changing environments, including helminths subject to industrialization of agriculture in West Africa (R01TW010286), WNV and Valley Fever under drought in California (UCOP MRPI), and diarrheal diseases subject to climate variability in Ecuador and China (NSF 1646708).

On the R01, postdoctoral scholars will have opportunities to contribute to new methodologies capable of characterizing the interaction between surveillance architectures and epidemiologic dynamics; develop simulation platforms for integrating surveillance system data, and for running experiments to identify optimal system configurations under a range of scenarios; and lead the development of mathematical modeling techniques for investigating the response of disease transmission to shifting surveillance modalities. Scholars will work closely with collaborators on these projects who are leaders in their fields, including Joe Eisenberg at University of Michigan; Howard Chang, Ben Lopman and Lance Waller at Emory; Alan Hubbard at Berkeley; and Manoj Gambhir at Monash.

Applicants should have a PhD and a demonstrated record of scientific achievement in statistics, biostatistics, data science, infectious disease epidemiology, population biology, theoretical ecology, or similar quantitative biological field, and should be proficient at programming, modeling and/or data analysis (e.g., R, Python, Matlab, or similar). Experience with Hadoop, AWS, Spark, cloud computing, spatio-temporal modeling, and/or modeling dynamical systems would be additionally desirable. Candidates with backgrounds in mathematics or applied mathematics, computer science, engineering, the quantitative environmental sciences, or physics are also encouraged to apply. A track record of research excellence and strong quantitative skills are essential, as are excellent written and oral communication skills.

Interested applicants should submit a curriculum vitae, a 1-2 page letter that describes in detail the professional qualifications for the above-described activities, and contact information for three referees, to Justin Remais jvr@berkeley.edu.

justinremais.weebly.com

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Postdoctoral Opportunity at Berkeley

Infectious disease dynamics in changing environments in Ecuador, Senegal, China and California

A postdoctoral fellow is sought in the research group of Justin Remais at the UC Berkeley School of Public Health, who is leading multiple, related studies examining the consequences of environmental change for the dynamics of infectious diseases with U.S. and international collaborators (UCOP MRPI, 2017-2021; NIH-FIC R01TW010286, 2015-20; NSF 1646708 2016-19). The projects focus on the industrialization of agriculture in West Africa (NIH), drought in California (UCOP), and climate change in Ecuador and China (NSF). The group conducts analytical and computational research to characterize the response of a range of diseases (e.g., helminthic infections; WNV; leptospirosis; enteric diseases; valley fever) to these critical stimuli, and the postdoctoral scholar will work closely with collaborators on these projects who are leaders in their fields, including Sanna Sokolow and Giulio DeLeo at Stanford; Jason Rohr at USF; Joe Eisenberg at University of Michigan; Alan Hubbard at Berkeley; and Manoj Gambhir at Monash.

Postdoctoral scholars will have opportunities to lead the development of statistical and mathematical modeling techniques for investigating the response of disease transmission to a range of exogenous perturbations, and to apply these tools to data from field research in Senegal, China, Ecuador and California.

Ideal applicants would have a PhD and a demonstrated record of scientific achievement in infectious disease epidemiology, population biology, theoretical ecology, disease dynamics, statistics, or similar quantitative biological field, and should be proficient at programming, modeling and/or data analysis (e.g., R, Python, Matlab, or similar). Experience with Hadoop, AWS, Spark, cloud computing, spatio-temporal modeling, and/or modeling dynamical systems would be additionally desirable. Candidates with backgrounds in mathematics or applied mathematics, computer science, engineering, the quantitative environmental sciences, or physics are also encouraged to apply. A track record of research excellence and strong quantitative skills are essential, as are excellent written and oral communication skills.

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