Researcher, Geospatial Analysis (MBG)

The University of Washington (UW) is proud to be one of the nation's premier educational and research institutions. Our people are the most important asset in our pursuit of achieving excellence in education, research and community service. Our staff not only enjoys outstanding benefits and professional growth opportunities, but also an environment noted for diversity, community involvement, intellectual excitement, artistic pursuits, and natural beauty. The Institute for Health Metrics and Evaluation (IHME) is a dynamic organization at the University of Washington. Its mission is to monitor global health conditions and health systems, as well as to evaluate interventions, initiatives, and reforms. IHME is seeking to revolutionize the way we track diseases around the world by developing innovative geospatial analytic methods to produce increasingly granular estimates of diseases and determinants.

IHME has an outstanding opportunity for a Researcher, Geospatial Analysis, Model Based Geostatistics. The primary purpose of this position is to help devise and apply innovative methods in geospatial analysis to produce high-quality and policy-relevant estimates of health and health-related indicators at the most granular level possible. IHME is seeking to revolutionize the way we track diseases around the world by developing innovative geospatial analytic methods to produce increasingly granular estimates of diseases and determinants. The Researcher will be a critical member of an agile and dynamic research team developing new approaches and producing detailed estimates that will empower policymakers and donors to make optimal decisions about allocating funds and prioritizing interventions. The individual will be expected to interact successfully and to describe complex concepts and materials concisely to a wide range of stakeholders, potentially including high-level individuals in government or other organizations. Just a few of the conditions this work will touch on include pneumonia and its etiologies, diarrhea and its pathogens, malaria, HIV/AIDS, tuberculosis, Ebola, as well as neglected tropical diseases. Through the development and use of geospatial techniques to synthesize information at the local level, and in partnership with key collaborators around the world, IHME will present results in interactive high-resolution maps to illuminate levels, trends, and disparities in health outcomes.

The Researcher, Geospatial Analysis must develop a command of the methods developed and deployed and the rationale for them. In this case, the methods are about model-based geostatistics to: model the spatial variation in prevalence of key diseases; model geographical variation in under-five mortality; and model the relationship between syndrome prevalence, incidence, and resulting mortality. These models form a central component of the overall geospatial research. The individual is expected to agilely create and deploy code to carry out complex statistical methods. The individual will be a key contributor to discussions about methods development, strategic decision making about how best to deploy methods using the given computational infrastructure, and most important how to improve upon the results given the available data.

The individual will also be responsible for contributing to papers, presentations, and other materials to help disseminate results. This position is contingent on project funding availability.
Responsibilities include:

Analyses

- Carry out quantitative analyses and participate in collaborative research projects.
- Undertake innovative applied research in development and application of Bayesian model-based geostatistics to: model the spatial variation in prevalence of severe diarrhea, severe respiratory illness and severe fever under-fives; model geographic variation in under-five mortality; and model the relationship between syndrome prevalence, incidence, and resulting mortality.
- Develop and implement new computational and statistical methods. Create, test, and use relevant computer code (R, Java, C, C++, or Python). Maintain and distribute completed software.
- Develop new methods to define the etiology of diarrhea, severe respiratory illness and severe fevers, and predict what portion of these syndromes is attributable to the major diseases known to cause each syndrome.
- Review and assess data sources in order to determine their relevance and utility for ongoing analyses. Become expert in understanding key data sources and, in particular, variations in these across and within countries.
- Communicate with external collaborators in order to best understand the nature, key characteristics, and context of the data, engage in critiques of the analytic results, and disseminate findings.
- Develop and maintain relationships with designated collaborators. Respond to and, as appropriate, integrate feedback from collaborators into the analyses. Work directly with collaborators to understand data to which they have access, and to in turn help them understand the methods being applied. Help to manage and orchestrate joint strategies for analysis.
- Assess and coordinate with others on the integration of analytic methods into computational machinery and with evolving databases so that the results can be produced as part of an overall system supporting the geospatial analyses portfolio and be used in conjunction with results from other research streams at IHME.
- Be an effective communicator with other staff on the project of varying levels, disciplines, and authority to achieve team goals for the analyses and related outputs.
- Contribute and develop ideas for new research projects.

General

- Lead discussion in research meetings about results and analyses in order to vet, improve and finalize results.
- Document code and analytic approaches systematically so that analyses can be replicated by other team members.
- Support project leaders in the development new funding proposals. Become a fully contributing member to the IHME team overall, lending help and support where needed, participating in mutual intellectual critique and development with colleagues, leading trainings where relevant, and acting as a mentor to more junior staff contributing to the research process.

Publication and Dissemination

- Write and lead publication of research findings in national and international peer-reviewed journals and other publications.
- Present papers at national and international conferences to disseminate research findings.
• Represent the research group and the Institute at external meetings, seminars, and conferences.

As a UW employee, you will enjoy generous benefits and work/life programs. For detailed information on Benefits for this position, click here.

REQUIREMENTS:
• Masters in computer science, statistics, mathematics, or other relevant subject plus three years related experience or equivalent combination of education and experience.

Additional Requirements:
• Demonstrated interest in the research described
• Experience in and demonstrated success in scientific computing using at least one of the following programming languages: R, Python, Java, C, C++
• Experience in handling point, polygon and raster spatial data.
• Excellent analytical and quantitative skills
• Good publication record
• Ability to independently plan and execute research projects
• Excellent communication skills, including the ability to write for publication, present research proposals and results, and represent the research group at meetings.
• Ability to thrive in a fast-pace

Equivalent education/experience will substitute for all minimum qualifications except when there are legal requirements, such as a license/certification/registration.

DESIRED:
• PhD in computer science, statistics, mathematics, or other relevant subject plus three years related experience or equivalent combination of education and experience.
• An interest in any of the following: niche models, species distribution models, statistical inference, stochastic processes, infectious disease, and expertise in developing models in any of these.
• A theoretical and practical understanding of infectious disease epidemiology. Expertise in a second computer programming language or mathematical platform.

CONDITION OF EMPLOYMENT:
Appointment to this position is contingent upon obtaining satisfactory results from a criminal background check. Evening and weekend work may be required.

Application Process:
The application process for UW positions may include completion of a variety of online assessments to obtain additional information that will be used in the evaluation process. These assessments may include Workforce Authorization, Criminal Conviction History, Cover Letter and/or others. Any assessments that you need to complete will appear on your screen as soon as you select "Apply to this position". Once you begin an assessment, it must be completed at that time; if you do not complete the assessment you will be prompted to do so the next time you access your "My Jobs" page. If you select to take it later, it will appear on your "My
Jobs" page to take when you are ready. **Please note that your application will not be reviewed, and you will not be considered for this position until all required assessments have been completed.**

To apply, visit: https://uwhires.admin.washington.edu/eng/candidates/default.cfm?szCategory=jobprofile&szOrderID=137172&szCandidateID=0&szSearchWords=&szReturnToSearch=1

University of Washington is an affirmative action and equal opportunity employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, gender expression, national origin, age, protected veteran or disabled status, or genetic information.