Researcher, Model Based Geostatistics (Vaccine Coverage)

The Institute for Health Metrics and Evaluation (IHME) is a growing 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. It uses cutting-edge techniques to tackle some of the most difficult and most critical questions in global health and find answers that will become the foundation for better policies and, ultimately, better health. 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 whose work will focus on model based geostatistics (MBG) to join our Geospatial Analysis team. The 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.

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 describe complex concepts and materials concisely to a wide range of stakeholders, including high-level individuals in government or other organizations.

The researcher will primarily work on geospatial models of vaccine coverage. 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 must develop a command of the methods developed and deployed and the rationale for them. In this case, these methods involve the use of model-based geostatistics to model geospatial variation in vaccine coverage and the relationships between vaccine coverage and key health outcomes. These models form a central component of the overall geospatial research program at IHME. 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 importantly 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:**

**Analyses**
- Carry out quantitative analyses and participate in collaborative research projects.
- Undertake innovative applied research and application of model based geostatistics, addressing issues such as sample bias and spatial dependence.
- 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 map vaccine coverage for several vaccines of substantial global health importance, including diphtheria-tetanus-pertussis, Hib, hepatitis B, measles, rotavirus, pneumococcal, and polio vaccines.
- 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.

**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.
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.
- 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.

Minimum Qualifications

- Masters in computer science, statistics, mathematics, or other relevant subject, plus three years related experience or equivalent combination of education and experience.
- Demonstrated interest in the research described.
- Experience in and demonstrated success in scientific computing using at least one of the following programming languages: R (strongly preferred), Python, Java, C, C++.
- 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-paced, team-oriented research environment with a focus on producing innovative, policy-relevant results.

Desired Qualifications

- PhD in Computer Science, Statistics, mathematics or related field desired.
- Practical experience in one or more of the following: vaccine preventable diseases, statistical inference, stochastic processes, or infectious disease modeling.
- Experience with survey data and administrative data (e.g. HMIS, DHIS2) from health facilities, particularly administrative vaccine coverage data and data from supplemental immunization campaigns.
- Expertise in a second computer programming language or mathematical platform.

Condition of Employment: Evening and weekend work may be required.

Further Information: See IHME’s website: www.healthdata.org

To Apply: Please apply through the UW Hires Website: and enter Req 152678.