The Institute for Disease Modeling (IDM) team is composed of research scientists and software professionals who focus on creating powerful and innovative disease modeling and data analysis tools to help researchers and policy makers understand diseases, their causes, the way they spread, and the best types of interventions to use for the particular situation faced. IDM partners with selected universities, NGOs, government ministries, and other research and public health institutions focused on researching new ways to understand and combat diseases both locally and globally.

We seek a full-time Research Scientist to work as part of the IDM analysis and model usage center and to collaborate on the development, refinement, and utilization of sophisticated infectious disease models for epidemiological research and eradication-campaign planning. The IDM team architects advanced models of disease transmission, develops computational tools to inform global disease eradication policy, conducts innovative analysis of epidemiologically- and policy-relevant data (programmatic data, financial data, clinical trials data, and cluster surveys data), and identifies epidemiologically critical knowledge gaps. As part of our work, we routinely collaborate with groups at the World Health Organization, the Center for Disease Control, PATH, the Bill and Melinda Gates Foundation, ministries of health in the developing world, as well as universities and research institutes.

As part of this group, the researcher will design and build new models of vaccine-preventable diseases, extending IDM’s existing disease transmission models. The researcher will configure, calibrate, and utilize these disease models to investigate disease dynamics, clarify the understanding of current disease transmission conditions in specific geographic contexts, and compare the likely outcomes of different health intervention options, all towards the goal of informing effective public health campaigns. The research, models, and results will be presented to key stakeholders, displayed at conferences, and published in academic journals.

Joining our group provides unique opportunities to interact with global-health policymakers, to collaborate with world-class research laboratories and non-profit organizations, and to contribute to global and national disease-eradication strategies.
Responsibilities:

- Reviews scientific literature and determines which aspects of biology, demography, geography, and climate are relevant to the model.
- Builds new modules for existing disease models; builds and develops new disease models.
- Works closely with the modelers, programmers, and statisticians on the team to refine the models and use them to conduct sensitivity analyses, explore tradeoffs among possible interventions, and optimize eradication plans for time, cost, or other factors.
- Finds sources for the necessary input data to the models and helps to organize the necessary data for input to the models.
- Writes software code (in C/C++) to implement model features.
- Collects, analyzes, and presents data on model results and performance.
- Assists in the preparation of research articles and conference presentations communicating the project and its results to the scientific community.

Key Qualifications and Required Skills:

- Ph.D. in a quantitative field (e.g. Applied Mathematics, Statistics, Epidemiology, Quantitative Biology)
- Knowledge of issues of public health in developing world settings is a plus
- Familiarity with principles, techniques, and tools of computational epidemiology.
- Knowledge of numerical analysis, dynamical systems, stochastic processes, and biostatistics.
- Ability to read and write research articles in biology and applied mathematics.
- Work extended hours to meet a deadline, and a demonstrated ability to work productively as part of a small team.
- Proficiency in at least one data-analysis or scripting language (e.g. MATLAB, python, R)
- Experience working as part of a software development team is a plus
- Must be a clear and effective communicator
- Multiple published articles in peer-reviewed scientific journals. List of articles to be submitted with application.

If interested, please apply here.