NYU Langone Health

Position Description

Title: Mathematical Modeler
Reports to: Manager and above
FLSA Status: Exempt

Position Summary:

This Mathematical Modeler will bring extensive experience designing and executing computer simulations of biological and clinical systems. This position will develop and implement novel computer simulations and other mathematical models of disease and treatment, as well as support and extend existing models and simulations. The Mathematical Modeler will work on Dr. Anna Bershteyn's modeling team in the Department of Population Health of NYU Langone Health, performing research focused on comparative effectiveness and decision science to address a variety of topical areas, including HIV, tuberculosis, and COVID-19. Examples of this research application include studying the optimal use of of point-of-care rapid testing for HIV and COVID-19 in sub-Saharan Africa.

Principal Responsibilities

1. Develop computer simulations and other mathematical models of disease treatment and transmission, working with the Principal Investigator, other faculty and staff, and graduate students/post-docs. Types of models/simulations include but are not limited to agent-based network transmission models, population-based epidemic models, Markov and Monte Carlo simulations.
2. Modify, calibrate, validate, and apply computer simulations of HIV, COVID-19, tuberculosis and other disease areas in the context of different patient populations and clinical settings, including resource-poor areas.
3. Meet regularly with internal program team and external stakeholders, including local and international health authorities, normative agencies such as the World Health Organization, and collaborating researchers and consortia.
4. Communicate with the program team about modeling work in a clear, articulate manner.
5. Provide support with literature searches, IRB compliance, grant proposals and deliverables, and publications.
6. Position may include travel within the New York region and to Southern Africa.
7. The scope of the position may involve managerial responsibilities and/or scientific writing.

Desired Qualifications

Education and Training:
− Master's degree required, PhD preferred, in operations research, computer science, applied mathematics, or related field, or a degree in an adjacent field with a minimum of two years' equivalent work experience.
− Submission of transcript indicating excellence in related coursework, and/or code and writing samples demonstrating proficiency through work experience may be requested.

Experience and Skills:
− Demonstrated proficiency in Python, R, Matlab, etc. with at least beginner-level experience in C/C++. The interview process will include requirements to provide code sample.
− Experience implementing complex mathematical algorithms including code testing and debugging.

- Experience in full spectrum of software life cycle. Must be able to take on high-level project requirements, and work both independently and as a team member to create a specification, data requirements, implementation plan, and act as primary developer.
- Experience working independently on similar projects.
- Exceptional quantitative and analytical skills.
- Excellent verbal and written communication skills.

Characteristics:
- Must be able to take ownership of projects and work with great independence and sound judgment.
- Exhibit meticulous attention to detail.
- Willing to ask for help and assistance from team members (proactively scheduling meetings to discuss questions, etc.).
- Demonstrate an interest in HIV, TB and COVID-19 biology and other healthcare topics, clinical care, decision analytic methods, biostatistics, and epidemiology.
- Possess time management skills and the ability to multitask.

Contact
Interested applicants should send their resume and cover letter to Dyanna Charles (Dyanna.Charles@nyulangone.org).