Multiple Openings for Postdoctoral Fellows at the University of Idaho

We seek to hire three postdoctoral fellows—two modeling and one empirical—to join our research team at the University of Idaho. The two modeling postdocs will be housed within the Center for Modeling Complex Interactions (CMCI). CMCI is funded by the National Institutes of Health and serves as an epicenter for research at the university. The central concept behind CMCI is that by housing modelers in proximity to each other and having them interact regularly with empiricists, synergies will emerge that drive research. For all three postdocs, we seek individuals who are creative in applying their skills to new problems, who are good at communicating across disciplines, and who sees themselves thriving in our highly collaborative environment. Researchers from CMCI, in collaboration with faculty from Brown University and the University of Vermont were recently awarded a major NSF EPSCoR grant with the goal of using biophysical protein models to map genetic variation to phenotypes. The empirical postdoc position will work on this NSF grant, in close collaboration with modelers from CMCI and researchers at Brown and Vermont.

For the two CMCI modeling postdocs, we are interested in applicants with many potential skill sets, including but not limited to: applied mathematics and mathematical biology (e.g., dynamical systems, PDEs, stochastic processes), systems biology, ecological modeling, statistical modeling, epidemiology, computer programming and novel package development, bioinformatics, and molecular modeling. Postdocs are expected to integrate into one or more CMCI workings groups. These groups are diverse and evolving. Some current examples include: studying the pathogenic effects of viral co-infection in drosophila and mice; modeling spectral shifts in opsin proteins; modeling how human social dynamics, e.g. peer influences on vaccination rates, generates feedback with disease dynamics; using microbiome data to model population dynamics of microbial communities; and modeling reproducibility in science.

The empirical postdoc will initially carry out lab work to assess how mutations in the fusion glycoprotein of respiratory syncytial virus (RSV) affect protein stability and antibody affinity and neutralization. The goal of the project is to combine molecular and mathematical modeling with empirical research to develop a framework for predicting how mutations – alone, in combination, and in different environments – influence protein stability, affinity for substrates and partners, and mapping to higher-level phenotypes. The empirical work will include the generation and characterization of mutation libraries in an RSV infectious clone and biochemical analyses of mutant fusion glycoproteins and antibodies. Collaboration with molecular and mathematical modelers will determine how well models can predict antibody escape. In time, this project will be extended to additional systems being studied at Idaho. We seek applicants with molecular biology and protein biochemistry skills, including targeted mutagenesis, high throughput molecular techniques, and protein expression.

All three positions will be located at the University of Idaho in Moscow. The empirical postdoc will work in the labs of Tanya Miura (http://www.webpages.uidaho.edu/**miura**lab/) and Paul Rowley (https://www.rowleylab.com/) in Biological Sciences and the modeling postdocs will be located within CMCI. CMCI is in a gorgeous, 3000 ft^2 space on the top floor of the University of Idaho's new flagship research building, the Integrated Research and Innovation Center. The University of Idaho is only eight miles from Washington State University in Pullman, Washington, providing an academically and culturally rich community. Moscow is a friendly mid-sized town on the rolling hills of the Palouse, with great parks, bike paths, restaurants, farmer's market and fantastic opportunities for recreation in the adjacent mountains and rivers. For more information about CMCI, the NSF EPSCoR project, the University of Idaho, and Moscow, go to http://www.cmciuidaho.org/, https://ddg2phenome.org/, http://www.uidaho.edu/ and https://www.ci.moscow.id.us/.

To apply, submit to cmci@uidaho.edu : 1) a letter of application specifying which position (empirical or modeling) you are interested in and how you fit the job requirements; 2) a CV; 3) contact information for three individuals who can provide recommendations; and 4) PDFs of up to three publications. Please use POSTDOC APPLICATION as the subject line.