Postdoctoral Research Scholar
Water Resources Engineer

IIHR–Hydroscience & Engineering (https://www.iihr.uiowa.edu/) and the Iowa Flood Center (https://iowafloodcenter.org/) at the University of Iowa (https://uiowa.edu/) seeks several highly motivated postdoctoral research scholars to join their program. The initial appointment is full-time for 2 years, with the possibility of renewal subject to satisfactory performance and availability of continued funding. These are immediate openings with April/May 2022 start dates. Applications will be considered until all successful candidates have been identified.

Research will focus on development, deployment and performance evaluation of broadly understood water resources predictive models including, but not limited to, hydrologic and hydraulic models of water quantity and quality. The candidate must demonstrate knowledge of numerical algorithms, data analysis, and model assessment. He/she should also demonstrate prior exposure to methods of quantifying and reducing uncertainty and data assimilation. Abilities to program in one or more computer languages, familiarity with geographic information systems, understanding of concepts involved in relational databases and web applications are essential.

Key areas of responsibility include:

- Development, pre-operational implementation and testing of various models and model components at regional and national scales.
- Integration of data assimilation algorithms into the predictive systems of water quantity and quality.
- Developing tools for web-based visualization of model components and their evaluation.

The successful candidate will have the opportunity to work closely with faculty, staff, and students of IIHR-Hydroscience and Engineering (www.iihr.uiowa.edu), a national and global leader in environmental and fluids-related research, education, and service. The University of Iowa is one of the nation's top public research universities and is known around the world for its balanced commitment to the arts, sciences, and humanities. The University of Iowa is located in Iowa City, a community built around higher education, with vibrant cultural opportunities and a long history of international connections, leadership, and accomplishment. Iowa City offers the safe, friendly quality of life for which the Midwest is known. Information regarding some of the resources that the University of Iowa and the local area provide can be found at (https://worklife.uiowa.edu).

Required Education:

Ph.D. in a relevant science or engineering field (e.g., Civil & Environmental Engineering, Mechanical Engineering, Computer Sciences, Atmospheric Sciences) prior to starting this position is required.

Required Qualifications:

Prior experience and significant level of expertise in any of the following: numerical modeling, environmental data analysis, space- and land-based remote sensing.

Prior experience with emphasis on web-based cyber infrastructure for modeling, and communicating results from numerical models.

Prior experience and significant level of expertise using scripting tools (Python, Java script, and PHP) to facilitate communication between database servers, high performance computing servers, and web servers. Demonstrated knowledge of geographic information systems for spatial analysis of geo-referenced information including the creation and use of documentation of advanced software in public repositories such as GitHub.

Prior experience managing complex data flows that include information from real-time sensors, and third-party instrumentation. Familiarity with QA/QC standards and protocols for environmental data.

Demonstrated effective oral and written communication skills.

Desirable Qualifications:

Previous experience developing/using non-linear distributed hydrological and hydraulic models.

Prior use and knowledge of radar-derived rainfall estimation and forecasting products.

Previous experience with the use and analysis of remote sensing products derived from satellite platforms including GOES, Landsat, SMAP, GPM, AQUA, TRMM, and TERRA, among others.

Prior familiarity with uncertainty quantification and reduction concepts, including data assimilation approaches.

Previous experience in high-pressure agency-type environments running and maintaining real-time operational systems for public release of information.

Previous experience with the use and analysis of location specific information, including hydrologic instrumentation such as rainfall gauges, stream level sensors, soil moisture probes, radiometers, and shallow groundwater depth wells.

Previous experience presenting results at scientific conferences and established publication record.

Previous experience lecturing and preparing short training courses on model use and development.

Pay is commensurate with experience.

Applicants are required to submit a cover letter and resume/cv with a list of at least three references at https://jobs.uiowa.edu/postdoc/view/3733.