Postdoctoral researcher or research associate position in bridging machine learning and mechanistic modelling

Position Summary

This job will be at the interface of machine learning (ML) and mechanistic (knowledge-based/process-based) modelling in the context of hydroclimatic and environmental sciences. ML has already shown superior performance in certain applications and has started changing our worldviews towards the future of operations and scientific discovery. However, the status quo in ML suffers from a divorce from the knowledge base and knowledge-based modelling that have been a fundamental underpinning of scientific advances to date. In addition, a lack of interpretability and explainability of many ML applications has limited their prospect. The person filling this position will address these challenges and develop/apply innovative approaches to bridge the two modelling paradigms. In this position, you will be part of an interdisciplinary team report directly to Dr. Saman Razavi.

Responsibilities

- Conduct cross-cutting research in the areas of machine learning (ML) and mechanistic (knowledge-based/process-based) modelling in hydroclimatic and environmental sciences.
- Lead and/or collaborate on writing research papers to be published in peer-reviewed journals.
- Regularly present research findings and progress to internal and external audiences, including interdisciplinary researchers as well as external collaborators in industry, academia or government.
- Collaborate with other researchers or professionals.

Qualifications

PhD or MSc degree in engineering, mathematics, computer science, environmental sciences or related disciplines.

Skills required

- Strong knowledge of computer programming; with demonstrated experience in Python and its big data and machine learning libraries;
- Strong analytical and quantitative skills;
- Ability to work independently;
- Ability to communicate with diverse audiences in interdisciplinary research settings;
- Knowledge of hydrology or another environmental science will be an asset but not essential at the time of employment;
- Prior experience with publications, authorship of papers or other research outputs will be an asset.

Compensation

A salary in the range $50,000-$60,000 CAD, to be determined based on the candidate's level of education and/or equivalent experience.

Hours of Work

This is a full-time limited-term position based on 37.5 hours per week baseline.

Location of this job

Physical presence in Saskatoon is NOT needed. The job can be done remotely form anywhere in Canada, and possibly overseas (contingent on fulfilment of certain USASK conditions).

How to apply

Send an email with your CV to Dr. Saman Razavi at saman.razavi@usask.ca. Your email should clearly explain how you see your skills fit this job. Make sure to title your email "ML-PBM job". Applications will be reviewed as they come in. The initial appointment will be for one year (with a three-month probation), with possibility of extension based on satisfactory performance and budget availability.

The University believes equity, diversity, and inclusion strengthen the community and enhance excellence, innovation and creativity. We are dedicated to recruiting individuals who will enrich our work and learning environments.