Research Associate/Scientist – AI-Enhanced Warn-on-Forecast System

Position Description

The Cooperative Institute for Severe and High-Impact Weather Research and Operations (CIWRO) at The University of Oklahoma (OU) is currently seeking a Research Associate or Research Scientist to contribute to NOAA's Warn-on-Forecast program in collaboration with CIWRO and National Severe Storms Laboratory (NSSL) scientists. The position focuses on advancing Warn-on-Forecast System version 2 (WoFSv2), a next-generation system that integrates physics-based modeling, advanced data assimilation (DA), and Artificial Intelligence (AI/ML). Built upon the regional MPAS-A dynamical core and the Joint Effort for Data Assimilation Integration (JEDI) framework, WoFSv2 explores emerging AI/ML technologies to optimize DA, model physics, and probabilistic hazard guidance. The position is part of the Data Assimilation and Modeling (DAM) team at CIWRO, located in the National Weather Center (NWC) in Norman, Oklahoma.

Overview

CIWRO, NSSL, and the School of Meteorology at OU, housed within the NWC, share a distinguished history of collaboration in storm-scale modeling, DA, and research-to-operations (R2O) transitions. The CIWRO DAM team works in close coordination with NSSL scientists to advance NOAA's WoFSv2, a rapidly-updating ensemble prediction system providing life-saving probabilistic guidance for high-impact weather. This position is central to the development of WoFSv2, focusing on the integration of cutting-edge AI/ML methodologies to enhance storm-scale ensemble DA and prediction. In this role, you will collaborate with partners to evaluate novel methods, support real-time testbed demonstrations, and facilitate the transition of research advances into operational Warn-on-Forecast capabilities.

The duties of this position are:

- Design, implement, and test AI/ML approaches for storm-scale ensemble DA and prediction within a hybrid physics–AI WoFSv2 framework.
- Apply emerging AI/ML methods to improve ensemble design, ensemble generation, uncertainty representation, and workflow efficiency.
- Develop and evaluate AI/ML methods for model physics, post-processing, bias correction, and probabilistic hazard guidance.
- Contribute to peer-reviewed manuscripts and present results at conferences, workshops, and project meetings.
- Collaborate with scientists to transition research advances into testbed-ready guidance and experiments.
- (Research Scientist only) Build and sustain an independent research portfolio aligned with the priorities of the Warn-on-Forecast program, including lead-author peer-reviewed publications and competitive research proposals.
- (Research Scientist only) Provide scientific leadership in conducting and coordinating research efforts to advance the Warn-on-Forecast System.

Qualifications

- Ph.D. (Research Scientist) or M.S. (Research Associate) in Atmospheric Science, Meteorology, Computer Science, Data Science, or a related field.
- Experience programming in Python or similar scientific computing languages.
- Ability to work effectively in a collaborative, multidisciplinary research environment, with strong written and verbal communication skills.

Applicants should identify expertise within one or more of the following areas (an applicant need not demonstrate experience in all areas to be considered):

- Experience with AI/ML frameworks (e.g., PyTorch, TensorFlow, JAX).
- Experience with AI/ML methods for geophysical applications, numerical weather prediction or data-driven modeling.
- Experience with DA concepts, especially ensemble DA methods, and/or forecast verification.

Benefits and Work–Life Balance

Joining our team comes with numerous benefits, including:

- Competitive salary based on experience and comprehensive university benefits (http://hr.ou.edu/).
- Generous paid leave, encompassing 14 paid holidays and 22 hours of accrued paid time off per month.
- Reduced membership at the University of Oklahoma's state-of-the-art fitness and aquatic center (https://www.ou.edu/far).

More details about working at the University of Oklahoma, benefits packages, as well as living in Norman, Oklahoma are provided on our website: https://jobs.ou.edu/Discover-OU.

We are dedicated to promoting a healthy work–life balance by championing a flexible work culture, offering adaptable work hours and a hybrid work arrangement. This framework enables team members to navigate personal commitments while effectively contributing to their professional responsibilities.

How to Apply

Applications should be emailed to ciwro-careers@ou.edu, Attn: WoFS AI-ML, and include a cover letter, the names and contact information for three references, and your resume/CV. The cover letter must highlight your interest in the position and describe how you meet the position qualifications. Applications will be accepted until the position is filled. The starting date is negotiable.

The University of Oklahoma is an Equal Opportunity/Affirmative Action employer.