

Seeking 1-2 PhD Students to Join an NSF-Funded Transdisciplinary Project Advancing Hydrology × Artificial Intelligence × Wildfire Science

About the Research

Land, fire, and water managers face a major challenge: understanding how low intensity wildland fires, including prescribed fires and managed wildfires, influence the hydrologic balance of watersheds. These low-severity fires reduce postfire erosion and debris flows and help sustain water supplies — but scientific consensus on their watershed-scale impacts is lacking. This PhD research will leverage advanced AI methods to quantify changes in water quantity, timing, and quality following managed fires across diverse western US landscapes. By integrating extensive climate, streamflow, sediment, and watershed attributes into state-of-the-art deep learning models, students will disentangle complex drivers of hydrologic response, capture watershed memory over days to decades, and support fire management strategies.

Desired Candidate Qualifications

- Strong computational and programming skills (e.g., Python, ML frameworks, data processing)
- Solid grounding in hydrologic principles
- High level of work ethic, independence, and motivation
- Strong communication and professional collaboration skills
- Interest in interdisciplinary research and real-world applications

Experience with geospatial datasets, deep learning, cloud computing, and/or google earth engine is a plus.

The Opportunity

- Join a large team of AI scientists, hydrologists, ecologists, social scientists and economists in a [\\$4M project funded by the US National Science Foundation](#)
- Fully-funded PhD positions in the “Computing PhD” program (data science or AI tracks) at Boise State: <https://www.boisestate.edu/computing/academics/doctoral-program/>
- Opportunity to teach AI courses in addition to conducting state-of-the-art research
- Publish in high-impact journals + engagement with fire and water management agencies
- Develop transferable skills for careers in academia, national labs, or applied science organizations

Apply Today

If you are eager to push boundaries in climate-fire-water science and develop advanced technical expertise with real-world influence — we want to hear from you! Please email your cover letter (describing your qualifications and motivations for joining the team), and curriculum vitae (including educational background and a list of publications and/or products) to Dr. Moji Sadegh at: mojitasadegh@boisestate.edu

Desired start date: January or August 2026

Moji Sadegh, PhD

Associate Professor, Department of Civil Engineering, Boise State University

Senior Fellow, United Nations University Institute for Water, Environment and Health