

## **Postdoctoral Fellowship: Machine learning based ocean state estimation for aquaculture and mCDR applications**

The Environmental Fluid Dynamics Lab in the Department of Mechanical and Aerospace Engineering at UCSD invites applications for a postdoctoral fellowship funded by the Gordon and Betty Moore Foundation focused on the topic of machine learning-based ocean state estimation to begin in Spring/Summer 2026. The successful applicant will develop and implement data-driven tools, underpinned by scientific machine learning and reduced-order modeling, for ocean state estimation with quantified uncertainties. The central aim is to increase the efficiency and accuracy of near-field prediction of physical and biological conditions for marine operations including marine carbon dioxide removal (mCDR) and aquaculture. The ideal candidate will have experience in two or three of the focal areas: data driven modeling, scientific machine learning or coastal ocean physics; and will have an interest in applying these towards ocean applications. The position will also include collaborative work with investigators at partner institutions.

Additional information about postdoctoral positions at UCSD and benefits can be found on the UCSD Office of Postdoctoral and Research Scholar website.

### **DUTIES AND RESPONSIBILITIES**

- Develop and apply reduced-order modeling approaches using spatiotemporal decompositions of large high-resolution simulation datasets.
- Develop and train machine learning architectures using reduced-order predictions together with heterogeneous observational data.
- Integrate data driven methods into a framework for uncertainty-aware ocean state estimation.
- Apply and validate the framework using datasets at experimental sites.
- Publish research in peer-reviewed journals and present results at national and international conferences;
- Mentor graduate and undergraduate students in the Environmental Fluid Dynamics Lab.

### **MINIMUM QUALIFICATIONS**

- Doctoral degree in engineering, oceanography or a related field, with relevant background in data-driven modeling, machine learning and/or fluid mechanics;
- Experience in numerical fluid dynamics or ocean model application, validation and analysis;
- Ability to collaborate effectively in a team environment;
- Excellent written and oral communication skills;
- Publication record in peer-reviewed journals related to the minimum qualifications;
- Ability to pursue research independently.

The postdoc will work directly with Dr. Geno Pawlak Tejada (<https://sites.google.com/ucsd.edu/efdlab>), Boris Kramer (<https://kramer.ucsd.edu>) and Oliver Schmidt (<https://flowphysics.ucsd.edu>) at the Department of Mechanical and Aerospace Engineering and will also collaborate with co-investigators at Stanford University. Additionally, there will be opportunities to mentor graduate and undergraduate students. The initial appointment will be for two years with possible extension, subject to performance and availability of funding. The total duration of an individual's postdoctoral service may not exceed five years, including postdoctoral service at other institutions. Salary will commensurate with qualifications and experience and with the UCSD Postdoc Salary Scale. (<https://postdoc.ucsd.edu/postdocs/index.html>)

To apply: email Geno Pawlak Tejada ([pawlak@ucsd.edu](mailto:pawlak@ucsd.edu)) with a cover letter, CV, and contact information for 3 references. Screening of applicants will begin immediately and will continue until the position is filled, however for full consideration, please email your application file before Mar 1, 2026.

UCSD's equal employment opportunity policies and procedures require fair hiring practices and positive action in building and accommodating a diverse and representative workforce. (See <https://blink.ucsd.edu/HR/policies/eoo/equal.html> for more info)