



THE HENRY SAMUELI SCHOOL OF ENGINEERING
DEPARTMENT OF CIVIL & ENVIRONMENTAL ENGINEERING

IRVINE, CALIFORNIA 92697-2175
949/824-5333
949/824-2117 Fax

Department of Civil and Environmental Engineering

Position: Postdoctoral Scholar and Ph.D. Research Assistantships with Professors MJ Qomi and Russ Detwiler

Salary: Commensurate with Experience and According to UCI Salary Scale.

Start Date: July 2025

Application Deadline: Open until filled

The Department of Civil and Environmental Engineering at the University of California, Irvine (UCI), invites applications to fill positions for 2 postdoctoral associates to join the recently funded project AI Science at Scale: Geophysicist.AI. Geophysicist.AI is a University of California Office of the President-funded initiative led by Professor Qomi to advance AI technologies for solving multiphysics challenges in the subsurface, with an emphasis on enhanced geothermal systems. (<https://link.ucop.edu/2025/05/23/uc-awards-18-million-to-scale-up-the-ambition-and-impact-of-ai-in-science/>). The project includes investigators across five UC campuses and two national laboratories with expertise in a range of geophysical processes and artificial intelligence and machine learning methods.

The goal of Geophysicist.AI is to develop a scalable artificial intelligence ecosystem that integrates large language and physics-informed models with massive amounts of real-world data to transform geophysicists' ability to solve the most difficult subsurface challenges. Two grand challenges targeted by the project are: 1) developing and testing approaches for predicting induced seismicity and using observations of seismicity to infer in-situ stress conditions; and 2) to developing approaches to predict and adapt to changes in fluid circulation and heat extraction caused by geomechanical/geochemical/thermal alteration of the geologic formation during EGS. The research will leverage extensive datasets from EGS sites across the Western US, including DOE-funded projects and private/public partnerships. Additionally, synthetic data generated using DOE multi-physics simulators will complement observational data and provide insights into relationships into subsurface dynamics. This research can potentially advance our understanding of geothermal energy extraction and induced seismicity and contribute to the development of sustainable energy solutions and improved risk assessment in subsurface projects.

The successful candidates will participate in this exciting multi-disciplinary project and collaborate with scientists from participating national laboratories (LLNL and LANL) and UC campuses to bridge the gaps between understanding fundamental processes and successful field implementation of EGS. The work at UCI requires computational modeling expertise, including code development experience related to one or more of the following:

- 1) Flow and reactive transport in fractured porous media
- 2) Geomechanics and fracture propagation in geologic media

As for programming, we prefer familiarity with MATLAB, Python, and C++. Prior experience with high-performance computing (HPC) clusters and Unix operating systems is advantageous.

We welcome applicants from various backgrounds, including civil and environmental engineering, earth sciences and geophysics, geochemistry, geomechanics, applied physics, computational and experimental materials science, and chemistry. For postdoctoral applicants, we expect a proven track record of peer-reviewed publications in relevant scientific journals. Because this project involves collaborators from multiple institutions, enthusiasm for scientific collaboration is necessary, and strong written and oral communication and presentation skills are critical.

The postdoctoral scholars will work in Professors MJ Qomi's and Russ Detwiler's research groups to conduct their interdisciplinary research projects toward a better understanding of enhanced geothermal systems. The initial appointment will be for 24 months, renewable, subject to performance and continuation of project funding. Salary will be

commensurate with qualifications and experience and includes health insurance and benefits. Minimum postdoc qualifications include a Ph.D. in one of the aforementioned areas or a closely related field from an accredited university.

The University of California, Irvine is located in the heart of beautiful Orange County, nestled between Los Angeles and San Diego counties and only five miles from Southern California's sunny shores. A cornerstone of Irvine, one of the safest cities in the U.S. and home to Southern California's burgeoning tech coast, UCI is the perfect place to study, work, live, and play. Irvine combined the best of a college town community with the vibrant opportunities of a bustling city. Our proximity to shopping, amusement parks, premier arts and cultural centers, and industry leaders makes UCI a destination unlike any other.

Postdoctoral applicants should submit a cover letter, curriculum vitae, publications, and contact information for three references. Apply by submitting your application to our online RECRUIT system at: <https://recruit.ap.uci.edu/JPF09712>

Ph.D. applicants should submit their full application form through the official UCI website to the Civil and Environmental Engineering program. <https://apply.grad.uci.edu/apply/>

For questions, please contact Professors MJ Qomi (mjaq@uci.edu) or Russ Detwiler (detwiler@uci.edu).

Screening of applicants will begin immediately and continue until the positions are filled.

The University of California, Irvine is an Equal Opportunity/Affirmative Action Employer advancing inclusive excellence. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability, age, protected veteran status, or other protected categories covered by the UC nondiscrimination policy.