

Postdoctoral Position: Coupled Fire–Atmosphere Modeling

Environmental Thermo-Fluid Dynamics (ETFD) Lab
Department of Mechanical & Aerospace Engineering
Florida State University

At the ETFD lab (<https://web1.eng.famu.fsu.edu/~nyaghoobian/index.html>), we are seeking a highly motivated candidate for a Postdoctoral position focused on high-fidelity model development of wildland fire–atmosphere interactions. The successful candidate will contribute to the development, implementation, and validation of a modeling framework that involves fire dynamics and atmospheric turbulence modeling. The project seeks to improve the representation of interactions between fire behavior and atmospheric dynamics.

Start Date: As early as October 1, 2026. A later start date can be accommodated for the ideal candidate.

Core Responsibilities

- **Multiphysics coupling:** Develop and implement the computational coupling between two large-eddy simulation-based fire dynamics and atmospheric boundary layer models.
- **Model evaluation:** Evaluate the coupled modeling framework using experimental, field, and literature datasets.
- **Multiphysics modeling:** Conduct computationally intensive high-fidelity simulations of fire behavior, atmospheric turbulence, plume rise, and smoke transport under different conditions on high-performance computing systems.

Required Qualifications

- A Ph.D. in mechanical engineering, civil or environmental engineering, atmospheric science, computational science, or a closely related field.
- A strong background in computational fluid dynamics (CFD), turbulent flows, atmospheric modeling, fire dynamics, or a related area.
- Strong programming skills.
- Experience using Linux-based computing environments, high-performance computing systems, and parallel computing.
- Experience with numerical modeling and scientific computing.
- Strong technical writing, communication, and collaborative research skills.

Preferred Qualifications

Preference will be given to candidates with one or more of the following:

- Experience with the Fire Dynamics Simulator (FDS) model (highly preferred), or comparable fire, atmospheric, or large-eddy simulation models.

- Experience developing or coupling multiphysics or multiscale computational models.
- Knowledge of surface–atmosphere exchange, fire-induced heat and mass fluxes, or land–atmosphere interactions.

To apply, please send a single PDF file containing a detailed CV and contact information for three references to Prof. Yaghoobian at nyaghoobian@fsu.edu with a subject line “**Postdoc 2026 – Fire-Atmosphere coupling**”. In the email, please include one paragraph explaining your background and interests.