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Multiple Postdoctoral Fellow Positions Available Immediately

Discovery of Reduced Models of Transition Dynamics in Turbulence by Reinforcement Learning

The research groups of Fabrizio Bisetti (U Texas at Austin), Mirko Gamba (U Michigan Ann Arbor), Prof. Petros Koumoutsakos (Harvard U), and Charles Meneveau & Greg Eyink (Johns Hopkins U) have multiple postdoctoral fellow positions available as part of a project sponsored by DARPA's Automated Prediction Aided by Quantized Simulators (APAQuS) program. The project's objective is to demonstrate a novel approach that discovers stochastic sub-grid scale models for large-eddy simulation of meta-stable state transitions in a classical-fluid turbulent flow, using a newly proposed scientific multi-agent reinforcement learning framework. The project combines machine learning, large-eddy simulation, and table-top experiments.

The postdoctoral fellow positions are available starting immediately. The appointments are yearly and renewable based on performance and availability of funding. The salary depends on the sponsoring institution and the applicant's qualifications and experience. Applicants who are legally permitted to work in the United States at the time of their application will have a strengthened application.

Positions are available in the following areas:

- Dynamic programming and reinforcement learning for fluid mechanics
- Modeling and simulation of isothermal turbulence with large-eddy simulation
- Closures and models for large-eddy simulation
- Numerical methods for Computational Fluid Dynamics
- Experiments in isothermal turbulence and laser-based diagnostics
- Theory and application of statistical mechanics of systems far from equilibrium

In addition to carrying out research towards the project's objectives, the postdoctoral fellow will be assisting with graduate student supervision and reporting activities.

The project is fast paced and highly collaborative, offering exceptional professional growth opportunities and featuring the option for stays at partnering institutions to carry out joint research.

Interested candidates should contact PIs at their institutional email addresses for more information. Applications should include CV, two sample publications or manuscripts, and a brief cover letter with career and research highlights. Include the keyword *[DARPA APAQuS]* in the subject line.