UNIVERSITY OF MINNESOTA

Twin Cities Campus   ***Department of Mechanical Engineering***   *1100 Mechanical Engineering*
College of Science and Engineering   *111 Church Street SE*
Minneapolis, MN 55455-0111

Office: (612) 625-0140
Fax: (612) 626-1854
http://www.me.umn.edu

Multiple Postdoc Openings on the CFD and Machine Learning of UAV Engine Combustion at the University of Minnesota

The University of Minnesota seeks outstanding candidates for multiple postdoctoral associates to carry out research in CFD and Machine Learning of Engine Combustion to develop hybrid propulsion systems for Unmanned Aircraft Systems (UAS). Positions are generally **up to two years** but can be further renewed, depending on funding. The target start date is **July 1, 2022**, but applications will be reviewed until the positions are filled.

Description of Tasks and Duties: Develop fast algorithms for multi-fidelity LES/RANS, reduced-order models (ROM) and real-time data assimilation techniques, through both physics-based modeling and machine learning (ML). The postdocs will also have opportunities to participate in other exciting research conducted by both labs.

Basic qualifications:
- A Ph.D. in Mechanical Engineering, Aerospace Engineering, or other closely-related discipline.
- Strong publication record as a first author in peer-reviewed journal papers.
- Ability and high self-motivation to work productively and ethically, both independently and as part of a diverse team.
- Excellent verbal and written communication skills in English.

Required Qualifications:
- Demonstrated experience in the modeling and simulation of turbulent combustion.
- Demonstrated coding experience with chemical kinetics using Cantera, ChemKin, or FlameMaster.
- Demonstrated experience with object-oriented programming using C++, Fortran 90, and MPI.

Preferred Qualifications:
- Prior experience of coding in the UDF of CONVERGE CFD and/or OpenFOAM and/or KIVA for engine combustion CFD.
- Experience using OpenMP and/or CUDA and/or OpenACC.
- Experience in open-source machine learning libraries such as PyTorch and TensorFlow

Application Materials:
- A detailed academic CV (including a list of publications).
- A brief statement that highlights the research interests and skills.
- One to three publications that you are most proud of.
- Contact details of two/three references.

How to Apply
Interested prospective candidates should email the above application materials to Prof. Suo Yang (suo-yang@umn.edu).

The University of Minnesota shall provide equal access to and opportunity in its programs, facilities, and employment without regard to race, color, creed, religion, national origin, gender, age, marital status, familial status, disability, public assistance status, membership or activity in a local commission created for the purpose of dealing with discrimination, veteran status, sexual orientation, gender identity, or gender expression.

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