Postdoctoral Research Associate in CFD Analysis and Reduced-Order Modeling
University of Michigan-Dearborn

Job Title Postdoctoral Research Associate in CFD Analysis and Reduced-Order Modeling

Department Industrial and Manufacturing Systems Engineering
https://sites.google.com/umich.edu/cheol

Institution University of Michigan-Dearborn
Dearborn, Michigan

Date Posted Jun. 2, 2025

Application Deadline Open until filled

Position Start Date Available Immediately

Job Categories Post-Doc

Academic Field(s) Mechanical Engineering
Chemical/Petroleum
Aerospace/Aeronautical/Astronautics

Job Website https://sites.google.com/view/smartthermalprocessingforthefo/home

Apply By Email cheol@umich.edu

Job Description

We are seeking a highly motivated and talented postdoctoral research associate to join our dynamic team in the field of computational fluid dynamics (CFD) analysis and reduced-order modeling (ROM) for a USDA-sponsored project on thermal food processing. The initial appointment is for one year with the possibility of extensions contingent on the availability of funds and research performance.

Responsibilities:

- Develop CFD models of food drying and conduct numerical simulations using commercial CFD

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software packages.
- Develop and implement novel reduced-order modeling techniques to replace CFD simulations.
- Collaborate with multidisciplinary team members, including food scientists and engineers, to validate the numerical models.
- Publish research findings in high-quality journals and present results at national and international conferences.
- Assist with developing grant proposals and applications.
- Assist with mentoring graduate and undergraduate students.

Requirements:

- PhD in mechanical engineering, aerospace engineering, chemical engineering, applied mathematics or a related field with a strong background in heat and mass transfer, fluid dynamics, and numerical methods.
- Solid background in computational methods and mathematics for complex system dynamics and strong analytical skills.
- Experience with commercial CFD software packages such as ANSYS Fluent and STAR-CCM+.
- Proficient in programming languages such as Python, MATLAB, or C++.
- Excellent written and verbal communication skills.
- Knowledge of reduced-order modeling techniques, such as Proper Orthogonal Decomposition (POD) and Machine Learning (ML), is desirable but not required.

We offer a competitive salary and benefits package, as well as a collaborative and intellectually stimulating research environment. The successful candidate will have the opportunity to work with a multidisciplinary team of faculty and students at two universities having diverse technical backgrounds in computational modeling, manufacturing control, and food science and agricultural engineering.

To apply, please submit a cover letter, curriculum vitae, and contact information for three professional references to Prof. Cheol Lee (cheol@umich.edu). Review of applications will begin immediately and continue until the position is filled.

ABOUT CECS at UM-D

The University of Michigan-Dearborn (UM-D) is located in an industrially rich area and in the center of a hub of the American automotive industry. The College of Engineering and Computer Science (CECS) at the UM-D work very closely with the industrial community through various collaboration and partnerships. The CECS is a vibrant and diverse community that includes more than undergraduates, 1200 graduate students, and over 80 tenured and tenure-track faculty across a wide-array of

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disciplines.

EEO/AA Policy

The University of Michigan-Dearborn is an EOE/AA employer.

Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

Contact Prof. Cheol Lee
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