Postdoctoral Reconstruction of pressure fields in flows
REF.: 25PDR319
University Of São Paulo

Job Title Postdoctoral Reconstruction of pressure fields in flows REF.: 25PDR319

Department Department of Mechanical Engineering (PME)
https://sites.usp.br/rcgi/

Institution University Of São Paulo
São Paulo, São Paulo, Brazil

Date Posted May 20, 2025

Application Deadline Jun. 3, 2025

Position Start Date June 2025

Job Categories Post-Doc

Academic Field(s) Mechanical Engineering

Engineering - Other

Job Website https://sites.usp.br/rcgi/opportunities/

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Job Description

Research theme area:
Fluid Mechanics, advanced image analysis, noise removal, pressure field reconstruction, and particle image velocimetry.

Abstract:
The candidate will collaborate with researchers from the FAPESP-Shell Research Centre for Greenhouse Gas Innovation of POLI-USP at the University of São Paulo. Summary of the program and projects can be found at the RCGI website (https://sites.usp.br/rcgi/).
The selected candidate will employ machine learning and other techniques based on the NavierStokes equations to perform flow analysis with a focus on noise removal and pressure field reconstruction. The candidate is expected to work with experimental and numerical data, especially from electrolyzer and fuel cell flows.

Description:
The applicant will contribute in line with the main objectives of the project:

1. Work with flows obtained by computational fluid dynamics simulation, synthetic images or experimentally.
2. Use and/or develop computational algorithms (filters and/or neural networks) to remove noise from flow images.
3. Develop computational algorithms capable of reconstructing pressure fields using velocities obtained either through computational fluid dynamics data, synthetic images or particle image velocimetry images.
4. Test the developed algorithms in electrochemical reactor flows, such as electrolyzers and fuel cells.
5. Understand experimental and numerical methods related to fluid mechanics.
6. Collaborate closely with a multidisciplinary team of researchers to integrate their studies in different areas.
7. Be able to perform experiments with optical techniques such as particle image velocimetry.

Requirements to fill the position:
We are seeking a highly motivated candidate with a PhD in Engineering or a related field, with solid experience in advanced image analysis applied to fluid mechanics. A strong publication record, experience in multidisciplinary research environments, experience in intellectual property production

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(patents, software registrations, and journal articles) are highly desirable. Proficiency in English is required.

INFORMATION ABOUT FELLOWSHIP:
This Postdoc fellowship is funded by FAPESP. The fellowship will cover a standard maintenance stipend per month whose amount is available at https://fapesp.br/valores/bolsasnopais.

MORE INFORMATION:
https://sites.usp.br/rcgi/opportunities/
Position: **Post-Doctoral Fellowship REF.: 25PDR319**

Access here AND APPLICATION AT REF**Post-Doctoral REF.: 25PDR319**

Contact Information

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

Contact RCGI
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