

Postdoc position in Data-Driven Turbulence Modeling

The Department of Mechanical and Production Engineering (MPE) at Aarhus University invites applications for a postdoc position offering applicants an exciting opportunity to join the “Fluid Mechanics and Turbulence” group and conduct research on data-driven techniques for turbulence modeling in LES and RANS. The initial contract will be for one year, with the possibility of an additional one-year extension.

The project is fully funded by the Independent Research Fund Denmark (DFF). The main objective of this project is to develop physics-constrained, data-driven turbulence models for numerical simulations of turbulent flows. Data from DNS, wall-resolved LES, and experiments will be used to train and validate models applicable to wall-modeled LES and RANS. From an application perspective, the developed models will be deployed in realistic scenarios, including turbulent flows over complex terrain, within built environments, and in wind farms. The project integrates fundamental applied mathematics with practical CFD applications.

You will be a member of the “Fluid Mechanics and Turbulence” research group at the Department of Mechanical and Production Engineering (MPE). The research group specializes in the modeling and simulation of turbulent flows and transport phenomena, with a particular emphasis on applications in energy systems. For more information about the group’s work, see: [Fluid Mechanics and Turbulence](#)

Expected start date and duration of employment

This is a one-year postdoctoral position, with the possibility of an additional one-year extension. The position is available from 01.04.2026 or as soon as possible thereafter.

Job description

Research in this project involves a synergistic combination of numerical modeling and theoretical development of physics-based and physics-constrained machine-learning (ML) models in simulations of turbulent flows. You are expected to contribute to research and development in data-driven methodologies for turbulence modeling in LES (i.e., wall and SGS modeling) and RANS. This includes proposals of new methodologies, implementation and validation of the methods using the simulation and experimental data, reporting of the results, and dissemination in international conferences and journals.

Your profile

The ideal applicant should possess a PhD in Mechanical Engineering or a closely related field. It is anticipated that applicants will bring substantial knowledge and research experience in areas such as computational fluid dynamics, turbulence modeling, data-driven methodologies, machine learning, and parallel computing. The candidate should also be able to collaborate in an interdisciplinary team. Proficient skills in English communication, including speaking and writing, are essential.

Who we are

Fluid Mechanics and Turbulence group, led by Associate Professor Mahdi Abkar, focuses on developing and testing improved numerical models to predict the complex interaction between turbulent flows and the environment, with an emphasis on energy systems. Our mission is to advance the scientific understanding of turbulence while supporting industrial partners in accelerating the green transition and the digitalization of society in the area of fluids engineering.

What we offer

As a postdoctoral researcher, you will be a valuable member of the research group and the MPE department at Aarhus University. The department offers:

- An interdisciplinary environment with many national, international, and industrial collaborators.
- The opportunity to co-supervise PhD and MSc students working in related topics.
- A workplace characterised by professionalism, equality and a healthy work-life balance.
- Good salary based on the candidate experience.

Application Deadline:
31 January 2026

Institute/Faculty:
Department of
Mechanical and
Production Engineering

Faculty:
Faculty of Technical
Sciences

Academic contact person:
Mahdi Abkar
Sektionsleder for
Fluider og Energi,
lektor
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+4593521694

Vacant positions:
1

Number of months:
12

Hours per week:
37

Expected date of accession:
01/04/2026

Place of work and area of employment

Place of employment is Aarhus University, and place of work is Department of Mechanical and Production Engineering, Faculty of Technical Sciences, Katrinebjergvej 89, 8200 Aarhus N.

Contact information

For further information please contact:

Associate Professor Mahdi Abkar: abkar@mpe.au.dk

Deadline

Applications must be received no later than 31.01.2026.

Application procedure

Shortlisting is used. This means that after the deadline for applications – and with the assistance from the assessment committee chairman, and the appointment committee if necessary, – the head of department selects the candidates to be evaluated. All applicants will be notified whether or not their applications have been sent to an expert assessment committee for evaluation. The selected applicants will be informed about the composition of the committee, and each applicant is given the opportunity to comment on the part of the assessment that concerns him/her self. Once the recruitment process is completed a final letter of rejection is sent to the deselected applicants.

Letter of reference

If you want a referee to upload a letter of reference on your behalf, please state the referee's contact information when you submit your application. We strongly recommend that you make an agreement with the person in question before you enter the referee's contact information, and that you ensure that the referee has enough time to write the letter of reference before the application deadline.

Unfortunately, it is not possible to ensure that letters of reference received after the application deadline will be taken into consideration.

If you wish to add a referee **after** you have submitted your application, you must send this person's details (name, job title, place of work, and email address) as well as the name of the position you have applied for to: HR.Nattech@au.dk

Formalities and salary range

Technical Sciences refers to the [Ministerial Order on the Appointment of Academic Staff at Danish Universities under the Danish Ministry of Science, Technology and Innovation](#).

The application must be in English and include a curriculum vitae, degree certificate, a complete list of publications, a statement of future research plans and information about research activities, teaching portfolio and verified information on previous teaching experience (if any). Guidelines for applicants can be found [here](#).

Appointment shall be in accordance with the collective labour agreement between the Danish Ministry of Taxation and the Danish Confederation of Professional Associations. Further information on qualification requirements and job content may be found in the [Memorandum on Job Structure for Academic Staff at Danish Universities](#).

Salary depends on seniority as agreed between the Danish Ministry of Taxation and the Confederation of Professional Associations.

Aarhus University's ambition is to be an attractive and inspiring workplace for all and to foster a culture in which each individual has opportunities to thrive, achieve and develop. We view equality and diversity as assets, and we welcome all applicants.

Research activities will be evaluated in relation to actual research time. Thus, we encourage applicants to specify periods of leave without research activities, in order to be able to subtract these periods from the span of the scientific career during the evaluation of scientific productivity.

Aarhus University offers a broad variety of services for international researchers and accompanying families, including relocation service and career counselling to expat partners. Read more [here](#). Please find more information about entering and working in Denmark [here](#).

Aarhus University also offers a Junior Researcher Development Programme targeted

at career development for postdocs at AU. You can read more about it [here](#).

The application must be submitted via Aarhus University's recruitment system, which can be accessed under the job advertisement on Aarhus University's website.

Aarhus University

Aarhus University is an academically diverse and research-intensive university with a strong commitment to high-quality research and education and the development of society nationally and globally. The university offers an inspiring research and teaching environment to its 38,000 students (FTEs) and 8,300 employees, and has an annual revenues of EUR 935 million. Learn more at www.international.au.dk/