UNIVERSITETET I BERGEN

University of Bergen

Geophysical Institute

Jobbnorge ID: 256220
Deadline: 2/23/2024
Website: https://www.uib.no/om/84775/ledige-stillinger-ved-uib
Scope: Fulltime
Duration: Fixed Term

Postdoctoral position in use of machine learning for climate predictions

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Video: https://www.youtube.com/watch?v=oyaThmIq6Kg

Postdoctoral Research Fellow position

There is a vacancy for a 3-year Postdoctoral position in the field of climate prediction modelling using machine learning at the Geophysical Institute, and affiliated with the Bjerknes Centre for Climate Research and The Bjerknes Climate Prediction Unit, University of Bergen.

The position is associated to the Norwegian Research funded project Climate Futures and the EU Horizon Europe project Impetus for Change (I4C), which aims to improve the quality, accessibility and usability of near-term climate information at local to regional scales to strengthen and support end-user adaptation. The position will be part of the research group in climate dynamics at the Geophysical Institute and The Bjerknes Climate Prediction Unit (BCPU).

About the project/work tasks

Despite large improvements in climate modelling during the last decades, predictions of climate from monthly to decadal time scales remain challenging. I4C and Climate Futures aims to improve the quality, accessibility and usability of near-term climate information and services at local to regional scales to strengthen and support end-user adaptation and planning.

This position will focus on the use of machine learning to develop computationally fast and efficient emulators of high-resolution state-of-the art regional climate models. The goal of the emulators is to learn the relationship between large-scale predictions made by global or regional coarse resolution dynamical climate prediction systems and local surface variable of interest for end-users (such as near surface temperature, precipitation, wind speeds) by training the emulators to mimic the results of computationally very expensive high resolution regional climate models. The end result being computationally lightweight emulators capable of running large ensembles that can translate real-time coarse resolution operational climate predictions (seasonal to decadal) into usable regional and local information.

Work tasks

- Collaborating with other project members performing research on seasonal to decadal (S2D) predictions, as well as with other relevant work packages.
- Test the transferability of an existing state-of-the-art machine learning emulator to Norwegian conditions.
- Do research into methods for increasing the quality and generalizability of emulators as well as methods for better understanding why machine learning models predict as they do (Explainable Machine Learning).
- Disseminate research findings to the research community and the broader public through activities organized by the projects.

The work will be done in close collaboration with scientific partners in I4C, in particularly Meteo France and NORCE (Norwegian research centre), as well as national industry partners in the Climate Futures project. The University of Bergen is part of the Norwegian Artificial Intelligence Research Consortium and the candidate will work in a highly international working environment as part of the Bjerknes Centre for Climate Research (BCCR) co-located with the Geophysical Institute, University of Bergen. BCCR is the largest climate research centre in the Nordic countries and among the leading centres in Europe with around 200 scientists from 37 countries.

Qualifications and personal qualities

- The applicant must hold a PhD or an equivalent degree in atmospheric science, statistics, machine learning, applied mathematics or other related disciplines. or must have submitted his/her doctoral thesis for assessment prior to the application deadline. It is a condition of employment that the PhD has been awarded.
- Documented knowledge within both climate physics/atmospheric physics and machine learning is required.
- Experience in scientific programming using Python, R, Matlab, Julia, C/C++ or similar is required.

- A proven track record of peer-reviewed publications in well-known international journals and presentations at international conferences is required.
- Understanding of and experience with climate models and climatological data analysis will be an advantage.
- Applicants must have very good English skills, written and oral.
- Applicants must be able to work independently and in a structured manner, and have the ability to cooperate with others.
- Personal and relational qualities will be emphasized. Collaborative skills, ambitions and potential will also count when evaluating the candidates.

Special requirements for the position

The University of Bergen is subjected to the regulation for export control system. The regulation will be applied in the processing of the applications.

About the position of postdoctoral research fellow

The postdoctoral position is a fixed term position with the primary objective of qualifying the appointee for work in top academic positions. If the appointee lacks teaching experience, or other relevant qualifications, the employment period may be increased to 3 years and 3 months. Teaching and other duties will in such cases be added to the position. The position may be extended by up to one year (maximum 4 years in total) if the appointee is granted externally financed research stays abroad. Individuals may not be hired for more than one fixed-term period as a postdoctoral research fellow at the same institution. In accordance with the Research Council's rules, neither can anyone be hired more than once as an NFR-financed postdoctoral research fellow.

For postdoctoral research fellow positions associated with externally financed projects, the completion of the project proposal for the qualifying work, as well as a progress plan, will be developed in cooperation with the supervisor and head of department.

It is a requirement that the project is completed in the course of the period of employment.

We can offer

- a good and professionally stimulating working environment
- position as postdoctoral fellow (code 1352 in the basic collective agreement) and a gross annual salary of NOK 615 700 (equivalent to pay grade 63) upon appointment. Further increases in salary are made according to length of service in the position. A higher salary may be considered for a particularly well-qualified applicant.
- enrolment in the Norwegian Public Service Pension Fund.
- good welfare benefits

Your application must include

- a brief account of the applicant's research interests and motivation for applying for the position.
- the names and contact information for two referees. One of these should be the main advisor from the PhD programme.
- CV
- transcripts and diplomas. If you have not yet completed your PhD degree, please submit a statement from your institution confirming that the thesis has been submitted.
- relevant certificates/references
- list of any works of a scientific nature (publication list)
- publications (as applicable)

The application and appendices with certified translations into English or a Scandinavian language must be uploaded at Jobbnorge.

General information

For further details about the position, please contact:

Professor Asgeir Sorteberg (Asgeir.Sorteberg@uib.no) or professor Noel Keenlyside (Noel.Keenlyside@uib.no)

For HR related matters, please contact: Maria Svåsand (Maria.Svasand@uib.no)

The state labour force shall reflect the diversity of Norwegian society to the greatest extent possible. Age and gender balance among employees is therefore a goal. People with immigrant backgrounds and people with disabilities are encouraged to apply for the position. Upon the expiry of the closing date for applications, an evaluation committee will be appointed.

As an applicant, you have a right of access to the committee's description of your formal and professional qualifications. If you wish to take advantage of this right of access, please contact the executive officer in charge after receiving information about the appointment of the evaluation committee.

Further information about our employment process can be found here.

About The University of Bergen (UiB)

The University of Bergen is a renowned educational and research institution, organised into seven faculties and approximately 54 institutes and academic centres. Campus is located in the centre of Bergen with university areas at Nygårdshøyden, Haukeland, Marineholmen, Møllendalsveien and Årstad.

There are seven departments and several centres at Faculty of Mathematics and Natural Sciences. Read more about the faculty and departments.

Additional information

Place of service:

Allegaten 70 5007 Bergen (Bergen Municipality)