UNIVERSITETET I OSLO

Jobbnorge ID: 221250
Deadline: 5/2/2022
Website: http://www.uio.no/
Scope: Fulltime
Duration: Engagement

Postdoctoral Research Fellowship in Machine Learning for Metal-Organic Frameworks

Job description

.A position as Postdoctoral Research Fellow in Machine Learning for Metal-Organic Frameworks is available at the Hylleraas Centre for Quantum Molecular Sciences in the Department of Chemistry.

No one can be appointed for more than one Postdoctoral Research Fellowship at the University of Oslo.

Starting date no later than October 1, 2022.

The appointment is a fulltime position for a period of 2,5 years (10% of which is devoted to required duties, usually in the form of teaching activities).

The fellowship is a part of the project HYSTRAM, a large European consortium funded by 6M€ by the EU Resilience Program. The ultimate goal of HYSTRAM is to build a demonstration plant for the production of ammonia from nitrogen and hydrogen using renewable energy sources. The postdoc hired in this position will work in the virtual screening and design of functionalized MOFs for hydrogen storage using machine learning methods. The research tasks will involve the automated computation of large datasets with first-principle methods, their transformation into graph-based representations, and the use of the latter in the optimization of predictive models based on deep, Bayesian, and ensemble learning.

The fellow will work at the Hylleraas Centre, which is the Research Centre of Excellence for Chemistry in Norway. In addition to an excellent scientific community and working environment, the Centre offers a career development plan for future professional development. More information on the Hylleraas Centre can be found on this website: https://www.mn.uio.no/hylleraas/english

The project will be supervised by Dr. David Balcells, PI of the Hylleraas Centre, and it will build on the previous work of the research group, including Chem. Sci., 2020, 11, 4584 and J. Chem. Inf. Mod., 2020, 60, 6135. The project will involve close collaborations with the UiO Catalysis Group and the ProfMOF Company.

Qualification requirements

The Faculty of Mathematics and Natural Sciences has a strategic ambition to be among Europe's leading communities for research, education and innovation. Candidates for these fellowships will be selected in accordance with this, and expected to be in the upper segment of their class with respect to academic credentials.

Required qualifications:

- PhD degree in Chemistry, Chemical Engineering, Physics, Biophysics, Bioinformatics, Materials Science, Informatics, Mathematics, or Statistics. Doctoral dissertation must be submitted for evaluation by the closing date, May 2, 2022. Only applicants with an approved doctoral thesis and public defence are eligible for appointment.
- Documented and good knowledge in one or more of the following topics: machine learning, theoretical and computational chemistry
- Fluent oral and written communication skills in English

English requirements for applicants from outside of EU/ EEA countries and exemptions from the requirements: https://www.mn.uio.no/english/research/phd/regulations/regulations.html#toc8

Desired qualifications:

- Documented and good knowledge in both machine learning and theoretical and computational chemistry
- For applicants with a PhD related to machine learning: Experience with graph representations and deep, Bayesian, or ensemble learning
- For applicants with a PhD related to theoretical and computational chemistry: Experience in the modelling of MOFs or other nanoporous materials
- Programming in Python, including data processing and analysis
- Experience with computational chemistry software for the modeling of molecules (e.g. Gaussian or similar) and/or periodic materials (e.g. VASP or similar)

The main purpose of a postdoctoral fellowship is to provide the candidates with enhanced skills to pursue a scientific top position within or beyond academia. To promote a strategic career path, all postdoctoral research fellows are required to submit a professional development plan no later than one month after commencement of the postdoctoral period.

Personal skills

- Personal suitability of the applicant will be assessed during the selection process, also considering the following points:
- Independent and creative thinking
- Exceptional analytical skills
- Able to make connections and seeing the big picture
- Team work within a diverse group
- Motivated and enthusiastic, with a positive attitude
- Willing to contribute to an engaging work environment

We offer

- Salary NOK 534 400 - 615 800 per annum depending on qualifications in position as Postdoctoral Research Fellowship (position code 1352)
- Oslo's friendly atmosphere, with plenty of cultural and outdoor activities, also for families
- Career development programs
- Possibility to join the Hylleraas Centre management team through the Hylleraas Young Researcher Parliament
- Attractive welfare benefits and a generous pension agreement
- Vibrant international academic environment

How to apply

The application must include

- Cover letter describing motivation and research interests
- CV summarizing education, positions, and academic work, including a complete list of publications
- Copies of the original Bachelor, Master and PhD degree diploma, and transcripts of records
- Documentation of English proficiency
- Names and contact details of one or two references (including name, e-mail, and relation to the candidate) who can provide recommendation letters during the selection process

The application with attachments must be delivered in our electronic recruiting system. Foreign applicants are advised to attach an explanation of their University's grading system. Please note that all documents should be in English (or a Scandinavian language).

In assessing the applications, special emphasis will be placed on the documented, academic qualifications, the project description (whenever this is required in the call for applicants), and the quality of the project as well as the candidates motivation and personal suitability. Interviews with the best qualified candidates will be arranged.

It is expected that the successful candidate will be able to complete the project in the course of the period of employment.

Formal regulations

Please see the guidelines and regulations for appointments to Postdoctoral fellowships at the University of Oslo.

No one can be appointed for more than one Postdoctoral Fellow period at the University of Oslo.

According to the Norwegian Freedom of Information Act (Offentleglova) information about the applicant may be included in the public applicant list, also in cases where the applicant has requested non-disclosure.

Inclusion and diversity are a strength. The University of Oslo has a personnel policy objective of achieving a balanced gender composition. Furthermore, we want employees with diverse professional expertise, life experience and perspectives.

If there are qualified applicants with disabilities, employment gaps or immigrant background, we will invite at least one applicant from each of these categories to an interview.

Contact information

For further information please contact:

PI Dr. David Balcells, email: david.balcells@kjemi.uio.no

For technical questions, regarding the recruitment system please contact:

HR Advisor, Olga Holmlund, e-mail: olga.holmlund@mn.uio.no

About the University of Oslo

The University of Oslo is Norway's oldest and highest rated institution of research and education with 28 000 students and 7000 employees. Its broad range of academic disciplines and internationally esteemed research communities make UiO an important contributor to society.

Hylleraas Centre for Quantum Molecular Sciences operates under the aegis of the Department of Chemistry at the Faculty of Mathematics and Natural Sciences. The Department of Chemistry is Norway's largest institution within research and education in chemistry. Our research

excels internationally and we educate students to a wide variety of jobs in industry, academia, research institutions, schools and public administration.

Our research ranges from the core topics of chemistry to applied science within in environmental, health, energy and materials. The Department has extensive contacts with industry, research and educational institutions at home and abroad. As partner in the Centre for Materials Science and Nanotechnology our researchers contributes to a significant interdisciplinary efforts in cooperation with the Department of Physics. The Department of Chemistry has its own school laboratory as a great resource for teachers, public outreach and the didactics of chemistry.

Additional information

Place of service:

Problemveien 7 0313 Oslo (Oslo Municipality)