PhD Research Fellow in Stochastic Analysis, Risk and Machine Learning

Job description

Position as PhD Research Fellow in stochastic analysis, risk and machine learning available at Department of Mathematics, Faculty of Mathematics and Natural Sciences, University of Oslo.

The fellowship will be for a period of 3 years and devoted to carrying out a project entitled SCROLLER (A Stochastic ContROL approach to machine Learning with applications to Environmental Risk models). Starting date after 01.08.2020, but no later than 01.12.2020.

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

The position is a part of the SCROLLER (A Stochastic ContROL approach to machine Learning with applications to Environmental Risk models) project. The project is funded by the Norwegian Research Council via a Young Research Talent grant. The project consists of a postdoc, a PhD as well as the project manager. All participants of the SCROLLER project will work in close collaboration, as well as independently.

The PhD candidate will work on stochastic modeling of degradation processes in connection to maintenance and reliability analysis. The candidate will also work on further development of environmental contours as a tool for environmental risk analysis. In particular, the research work will focus on using the theoretical foundations of stochastic analysis and stochastic optimal control to explore new methods for degradation modeling and modeling of environmental risk via environmental contours. Classical approaches from stochastic analysis will be combined with machine learning methods and applied to solve risk management and optimal maintenance problems. The mathematical structures of interest include stochastic differential equations with jumps, backward stochastic differential equations, environmental contours, self-exciting processes, reinforcement learning and neural networks. Applications include design optimization and risk management problems, in particular environmental risk management.

To communicate the research, the successful candidate is expected to attend international conferences and go on research visits. Furthermore, the PhD will contribute to the SCROLLER webpage with popular scientific presentations of the research work.

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.

Qualification requirements:

- Master’s degree or equivalent in Mathematics
- Foreign completed degree (M.Sc.-level) corresponding to a minimum of four years in the Norwegian educational system
- Documented strong background in stochastics and/or mathematical risk and reliability analysis at Master’s level.
- Experience with machine learning will count as an advantage.

It is desirable that the Master’s thesis shows knowledge of stochastic calculus and/or stochastic processes. Furthermore, a profound interest in combining mathematical tools interdisciplinary and with applications is expected. We expect the candidate to have excellent writing and presentation skills.

Candidiates without a Master’s degree must have completed this degree before starting the fellowship.

Grade requirements:

The norm is as follows:

- the average grade point for courses included in the Bachelor’s degree must be C or better in the Norwegian educational system
- the average grade point for courses included in the Master’s degree must be B or better in the Norwegian educational system
- the Master’s thesis must have the grade B or better in the Norwegian educational system
- Fluent oral and written communication skills in English
- English requirements for applicants from outside of EU/ EEA countries

The purpose of the fellowship is research training leading to the successful completion of a PhD degree.

The fellowship requires admission to the PhD programme at the Faculty of Mathematics and Natural Sciences. The application to the PhD programme must be submitted to the department no later than two months after taking up the position. For more information see:

http://www.uio.no/english/research/phd/
http://www.mn.uio.no/english/research/phd/
We offer

- Salary NOK 479 600 - 523 200 per annum depending on qualifications and seniority as PhD Research Fellow (position code 1017)
- Attractive welfare benefits and a generous pension agreement
- Vibrant international academic environment
- Career development programmes
- Oslo’s family-friendly surroundings with rich opportunities for culture and outdoor activities

How to apply

The application must include

- Cover letter including statement of motivation and research interests
- CV (summarizing education, positions and academic work - scientific publications)
- Copies of the original Bachelor and Master’s degree diploma, transcripts of records and letters of recommendation
- Master thesis, or draft of master thesis if not completed yet.
- Documentation of English proficiency
- List of publications and academic work that the applicant wishes to be considered by the evaluation committee
- Names and contact details of 2-3 references (name, relation to candidate, e-mail and telephone number)

The application with attachments must be delivered in our electronic recruiting system, please follow the link "apply for this job". 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).

Applicants may be called in for an interview.

Formal regulations

Please see the guidelines and regulations for appointments to Research Fellowships 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.

The University of Oslo has an agreement for all employees, aiming to secure rights to research results etc.

The University of Oslo aims to achieve a balanced gender composition in the workforce and to recruit people with ethnic minority backgrounds.

Contact information

For further information please contact: Kristina Rognlien Dahl (project manager), phone: +47 22854183, e-mail kristrd@math.uio.no.

For technical questions regarding the recruitment system please contact: HR adviser Nina Holtan, phone: +47 22854424, e-mail: nina.holtan@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.

Department of Mathematics is part of the Faculty of Mathematics and Natural Sciences. The Department is engaged in research covering a wide spectrum of subjects within mathematics, mechanics and statistics.

Jobbnorge-ID: 186532, Søknadsfrist: 18. mai 2020