Jobbnorge ID: 167982
Deadline: 4/26/2019
Website: http://www.ntnu.no
Scope: Fulltime
Duration: Temporary

The Department of Geoscience and Petroleum has a vacancy for a

PhD Fellowship in Data-Driven Reservoir Modeling - IV-138/19

This is NTNU
At NTNU, creating knowledge for a better world is the vision that unites our 7 000 employees and 40 000 students.

We are looking for dedicated employees to join us.

Video: https://www.youtube.com/watch?v=cIgKd1SwGLI

About the position
We have a vacancy for a PhD Fellowship at Department of Geoscience and Petroleum (IGP), NTNU.

The objective of the proposed project is improving the understanding of data-driven modeling and applying smart proxy modeling in reservoir simulation. The approach combines numerical simulation and data-driven techniques. Models are updated in real-time, creating realistic opportunities for real-time reservoir management in smart fields with uncertainty analysis. The PhD project is linked to the BRU21 program: https://www.ntnu.edu/bru21.

The position reports to Head of Department.

Job description
- Data-driven models are built and run much faster than numerical models. The candidate will work on data-driven analysis, modelling and optimization using Artificial Intelligence & Machine Learning techniques.

- Development of Smart Proxy Models for Reservoir Simulation (Combined Data-Driven and Reduced-Physics-Driven Models) is also considered. Database is created using the numerical reservoir simulation data and the Smart Proxy Model (SPM) runs in real-time. SPM is developed utilizing the pattern recognition capabilities of artificial intelligence and machine learning and is trained to adaptively learn fluid flow from a reservoir simulation model.

- Collaboration with national and international universities and companies is expected. Close interaction with master students (and possibly a postdoc) working on the same topic is foreseen. The group will develop new data-driven methods and optimization methodologies.

Qualification requirements
The PhD-position's main objective is to qualify for work in research positions. The qualification requirement is completion of a master's degree or second degree (equivalent to 120 credits) with a strong academic background in Applied Mathematics/Statistics, Data Science, Petroleum Engineering, Geophysics, or similar, with a strong focus on numerical optimization and/or data-driven modelling methods or equivalent education with a grade of B or better in terms of NTNU's grading scale. Applicants with no letter grades from previous studies must have an equally good academic foundation. Applicants who are unable to meet these criteria may be considered only if they can document that they are particularly suitable candidates for education leading to a PhD degree.

MSc students who expect to complete their master's degree studies by summer 2019 are also encouraged to apply. Employment will then be postponed until the master's degree is finished.

The engagement is to be made in accordance with the regulations in force concerning State Employees and Civil Servants, and the acts relating to Control of the Export of Strategic Goods, Services and Technology and national guidelines for appointment as PhD, post doctor and research assistant. Candidates who by assessment of the application and attachment are seen to conflict with the criterias in the latter law will be prohibited from recruitment to NTNU.

Other qualifications

We are looking for highly motivated candidates with expertise in:

- Programming (for example: C++, MATLAB, Python, etc.)
- Optimization and/or uncertainty quantification
- AI/machine learning

Background or experience from petroleum production, modelling and simulation of subsurface flow is beneficial.

Relevant research experience and academic track record with publications is desired.

Good written and oral English language skills are required. Applicants from non-European countries where English is not the official language must present an official language test report. For example, the following tests may be used as such documentation: TOEFL, IELTS.

Personal characteristics
Candidate should:

- Be motivated and able to engage in interdisciplinary collaboration.
- Have good communication and networking skills and, be proactive and forthcoming, and able to work independently if needed.
- Be creative, with a strong ability to work problem oriented and take keen interest in learning and working in teams.

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal suitability, as well as motivation, in terms of the qualification requirements specified in the advertisement.

We offer
- exciting and stimulating tasks in a strong international academic environment
- an open and inclusive work environment with dedicated colleagues
- favourable terms in the Norwegian Public Service Pension Fund
- employee benefits

Salary and conditions
PhD candidates are remunerated in code 1017, and are normally remunerated at gross from NOK 449 400 before tax per year. From the salary, 2 % is deducted as a contribution to the Norwegian Public Service Pension Fund.

The period of employment is 3 years. Appointment to a PhD position requires admission to the PhD programme in Engineering (https://www.ntnu.edu/iv/doctoral-programme).

As a PhD candidate, you undertake to participate in an organized PhD programme during the employment period. A condition of appointment is that you are in fact qualified for admission to the PhD programme within three months.

Appointment takes place on the terms that apply to State employees at any time, and after the appointment you must assume that there may be changes in the area of work.

General information
Working at NTNU:
A good work environment is characterized by diversity. We encourage qualified candidates to apply, regardless of their gender, functional capacity or cultural background. Under the Freedom of Information Act (offentleglova), information about the applicant may be made public even if the applicant has requested not to have their name entered on the list of applicants.

Questions about the position can be directed to Associate Professor Ashkan Jahanbani Ghahfarokhi, e-mail: ashkan.jahanbani@ntnu.no.

About the application:
Publications and other academic works that the applicant would like to be considered in the evaluation must accompany the application. Joint works will be considered. If it is difficult to identify the individual applicant's contribution to joint works, the applicant must include a brief description of his or her contribution.

Please submit your application electronically via jobbnorge.no with your CV, diplomas and certificates. Applicants who have their educational background from China, must provide verification through CHSI. Applicants invited for interview must include certified copies of transcripts and reference letters. Please refer to the application number IV-138/19 when applying.

Application deadline: 26.04.2019.

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The Norwegian University of Science and Technology (NTNU) creates knowledge for a better world and solutions that can change everyday life.

Department of Geoscience and Petroleum

We conduct teaching and research related to management of Earth's geological resources. Norway's rich resources of wind, water, oil, gas and minerals have been and are essential to the country's prosperity, and will continue to be in the future. The Department plays a key role in the development of technology and the education of graduates who enable value creation based on our natural resources. The Department of Geoscience and Petroleum is one of eight departments in the Faculty of Engineering.

Additional information

Place of service:

Department of Geoscience and Petroleum 7491 Trondheim (Trondheim Municipality)