

Jobbnorge ID: 202843
Deadline: 5/9/2021
Website: <http://www.uis.no/>
Scope: Fulltime
Duration: Fixed Term

Ph.D fellowship in sequential decision analysis for drilling and geosteering

Job description

The University of Stavanger invites applicants for a Ph.D fellowship in sequential decision analysis for drilling and geosteering at the Faculty of Science and Technology, Department of Energy Resources. The position is vacant from August 2021.

This is a trainee position that will give promising researchers an opportunity for academic development leading to a doctoral degree.

The appointment is for three years with research duties exclusively.

During drilling the experts can intentionally and continuously change the trajectory through the process termed geosteering. Thus geosteering is a sequential decision problem where one optimizes both direction and drilling parameters, such as the rate of penetration.

Geosteering workflows are increasingly based on updated quantifications of subsurface uncertainties during real-time operations. These workflows allow the decision maker(s) to process, structure and make sense of a large amount of information in real time. To advance value creation from geosteering, the industry should develop and adopt decision support systems (DSSs). A DSS provides expert tools which inform decisions under uncertainty and/or optimization-based recommendations. A DSS should help to dynamically and systematically interpret and predict the uncertain parameters required for operational decision making. Further development of basic methodologies and applying them in such systems is the goal of this PhD project.

The research and developments should address the research question:
How can we make better real-time sequential decisions in drilling and geosteering?

Possible research directions for the position are:

- Utilizing reduced-order models for real times production estimates
- Multi-criteria/multi-constrained decision and risk assessment
- Reinforcement learning for decision making

The position is funded by the Norwegian Research Council and is associated with the center for research-based innovation DigiWells: Digital Well Center for Value Creation, Competitiveness and Minimum Environmental Footprint. The center is establishing a collaborative environment which will consist of researchers at NORCE (Norwegian Research Centre), experts from industry, professors from UiS, NTNU and UiB and a total of 17 PhD students and postdocs. This advertisement is for one of 5 initial PhD positions: <https://digiwells.no/news/first-five-phd-positions>.

Depending on the research interests, the PhDs can also collaborate and visit the center's international partners: Stanford University, Technical University Clausthal, University of the Basque Country, and University of Texas at Austin. Furthermore, the employed PhD candidates will have both the opportunity and responsibility to demonstrate their research to the industrial partners of the center: Aker BP, ConocoPhillips, Equinor, Lundin, Total, and Wintershall Dea. Finally, the center is promoting innovation, which means that your research results might be taken into use in the near future, contributing to the digitalization and the green shift.

Qualification requirements

We are looking for applicants with a strong academic background who have completed a five-year master degree (3+2) within applied mathematics, statistics, optimization, decision and data, computer science, computational oil and gas engineering, preferably acquired recently; or possess corresponding qualifications that could provide a basis for successfully completing a doctorate.

To be eligible for admission to the doctoral programmes at the University of Stavanger both the grade for your master's thesis and the weighted average grade of your master's degree must individually be equivalent to or better than a B grade. If you finish your education (masters degree) in the spring of 2021 you are also welcome to apply.

Applicants with an education from an institution with a different grade scale than A-F should attach a confirmed conversion scale that shows how the grades can be compared with the Norwegian A-F scale. [You can use these conversion scales to calculate your points for admission.](#)

Emphasis is also placed on your:

- quantitative programming skills
- verifiable skills on working with algorithms and data (pre) processing
- ability to communicate research to industry
- experience from petroleum engineering drilling or geosteering is a plus
- knowledge of decision analytics, statistical methods, and optimization is a plus

- publication track record is a plus
- desire to work in a diverse multidisciplinary team
- motivation and potential for research within the field
- your professional and personal skills for completing the doctoral degree within the timeframe
- ability to work independently and in a team, be innovative and creative
- ability to work structured and handle a heavy workload
- having a good command of both oral and written English

Requirements for competence in English

A good proficiency in English is required for anyone attending the PhD program. International applicants must document this by taking one of the following tests with the following results:

- TOEFL - Test of English as a Foreign Language, Internet-Based Test (IBT). Minimum result: 90
- IELTS - International English Language Testing Service. Minimum result: 6.5
- Certificate in Advanced English (CAE) og Certificate of Proficiency in English (CPE) from the University of Cambridge
- PTE Academic - Pearson Test of English Academic. Minimum result: 62

The following applicants are exempt from the above requirements:

- Applicants with one year of completed university studies in Australia, Canada, Ireland, New Zealand, United Kingdom, USA
- Applicants with an International Baccalaureate (IB) diploma
- Applicants with a completed bachelor's and / or master's degrees taught in English in a EU/EEA country

We offer

- varied duties in a large, exciting and socially important organisation
- an ambitious work community which is developing rapidly. We strive to include employees at all levels in strategic decisions and promote an informal atmosphere with a flat organisational structure.
- salary in accordance with the State Salary Scale, l.pl 17.515, code 1017, NOK 482 200 gross per year with salary development according to seniority in the position. From the salary, 2% is deducted as a contribution to the Norwegian Public Service Pension Fund.
- automatic membership in the [Norwegian Public Service Pension Fund](#), which provides favourable insurance- and retirement benefits
- favourable membership terms at a gym and at the [SIS sports club](#) at campus
- employment with an Inclusive Workplace organisation which is committed to reducing sick leave, increasing the proportion of employees with reduced working capacity, and increasing the number of professionally active seniors
- ["Hjem-jobb-hjem"](#) discounted public transport to and from work
- as an employee in Norway, you will have access to an optimal health service, as well as good pensions, generous maternity/paternity leave, and a competitive salary. Nursery places are guaranteed and reasonably priced
- [relocation programme](#)
- [language courses](#): On this page you can see which language courses you may be entitled to (look up "language courses" under employment conditions)

Diversity

University of Stavanger values independence, inclusion and innovation. Diversity is respected and considered a resource in our work and learning environment. Universal design characterises physical and digital learning environments, and employees with disabilities are facilitated for.

You are encouraged to apply regardless of gender, disability or cultural background.

The university aims to recruit more women within the subject area. If several applicants are considered to have equal qualifications, female applicants will be given priority.

Contact information

More information on the position can be obtained from Professor Reidar Bratvold, tel: +47 51832260, e-mail: reidar.bratvold@uis.no

Information about the appointment procedure can be obtained from HR advisor Margot A.Treen, tel: +47 51831419, e-mail: rekruttering@uis.no.

Application

To apply for this position please follow the link "Apply for this job". Your application letter, relevant education and work experience as well as language skills must be registered here. In your application letter, you must state your research interests and motivation for the position.

The following documents must be uploaded as attachments to your application:

- motivation letter (application letter)
- CV with a full summary of your education and experience
- publications or other relevant research work
- references, certificates/diplomas and other documentation that you consider relevant

Applications are evaluated based on the information available in Jobbnorge at the application deadline. You should ensure that your application shows clearly how your skills and experience meet the criteria which are set out above.

The documentation must be available in either a Scandinavian language or in English. If the total size of the attachments exceeds 30 MB, they must be compressed before upload.

Please note that information on applicants may be published even if the applicant has requested not to be included in the official list of applicants - see [Section 25 of the Freedom of Information Act](#). If your request is not granted, you will be notified.

UiS only considers applications and attachments registered in Jobbnorge.

General information

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. Candidates who by assessment of the application and attachment are seen to conflict with the criteria in the latter law will be prohibited from recruitment to UiS.

Employment as PhD Fellow is regulated in "[Regulations concerning terms and conditions of employment for the posts of post-doctoral research fellow and research fellow, research assistant and resident](#)".

Your qualifications for the position, based on documentation registered in Jobbnorge, will be assessed by an internal expert committee. Based on the committee's statement, relevant applicants will be invited to an interview before any recommendations are made. References will also be obtained for relevant candidates. [More about the hiring process on our website.](#)

The appointee will be based at the University of Stavanger, with the exception of a stay abroad at a relevant centre of research.

It is a prerequisite that you have a residence which enables you to be present at/available to the academic community during ordinary working hours.

The position has been announced in both Norwegian and English. In the case of differences of meaning between the texts, the English text takes precedence.

UiS - challenge the well-known and explore the unknown

The University of Stavanger (UiS) has about 12,000 students and 1,900 employees. The university has high ambitions. We strive to have an innovative and international profile, and be a driving force in knowledge development and in the process of societal change. Our common direction is driven by consideration for sustainable change and equitable social development, through new ways of managing natural resources and facilitating better cities and local communities. Energy, health and welfare, learning for life are our focus areas.

In constant collaboration and dialogue with our surroundings, regionally, nationally and internationally, we enjoy an open and creative climate for education, research, innovation, dissemination and museum activities. Academic life at the University of Stavanger is organised into six faculties comprising various departments/schools and National Research Centres, as well as the Museum of Archaeology. We are a member of the European Consortium of Innovative Universities. The university is located in the most attractive region in the country with more than 300,000 inhabitants. The Stavanger region has a dynamic labour market and exciting cultural and leisure activities.

Together with our staff and students we will challenge the well-known and explore the unknown.

The Faculty of Science and Technology offers study programs at bachelor, master and doctoral level. The faculty has established close cooperation on research with NORCE (Norwegian Research Centre AS) and the regional industry. A number of master's and doctoral theses are made in collaboration with the industry. The faculty has established research collaborations with universities in the US and Europe, and has developed academic environments that are at the forefront internationally. These include Petroleum and Offshore Technology as well as Risk Management and Societal Safety, which constitute two of the university's strategic focus areas. The faculty has about 2,800 students and approximately 400 employees at the Department of Electrical Engineering and Computer Science, Department of Structural Engineering and Materials Science, Department of Mathematics and Physics, Department of Energy and Petroleum Engineering, Department of Energy Resources and the Department of Safety, Economics and Planning.

The Department of Energy Resources conducts research related to energy resources, technology for improved oil recovery (IOR), decision analysis and geosciences. Study programs offer courses related to the exploration and utilization of petroleum and natural resources. The department focuses on internationalization, with development of study programs in English and high mobility among academic staff and students. The department contributes significantly to the research activities and leadership of The National IOR Centre of Norway, established by the Ministry of Petroleum and Energy. There are currently 45 employees in the department including research fellows and postdocs.

Additional information

Place of service:

Ullandhaug 4036 Stavanger (Stavanger Municipality)