Jobbnorge ID: 309678
Deadline: 15.11.2026
Website: http://www.uis.no/
Scope: Fulltime
Duration: Fixed Term

PhD Fellowship in Energy Systems and Artificial Intelligence

About the Position

The University of Stavanger invites applicants for a position as PhD Fellow in Energy Systems and Artificial Intelligence at the Faculty of Science and Technology, Department of Energy and Petroleum Engineering.

The PhD fellowship leads to a doctoral degree and gives you the opportunity to develop research expertise in an active and stimulating academic environment. Through the doctoral education, you will acquire knowledge, skills and experience that qualify you for a further career in research, higher education, and other knowledge-intensive sectors.

The successful candidate will be admitted to the PhD programme in Science and Technology. The programme includes coursework, an independent research project culminating in a doctoral thesis, participation in national and international research communities, dissemination of research, a trial lecture, and a public defence of the thesis. For more information about the PhD education at UiS, please visit our website.

The position is for three years of pure research training.

As a PhD Fellow at UiS, you will receive supervision and support for your academic and professional development through mentoring, skills development, and career planning.

Research Topic

We are seeking highly motivated and talented candidates for a PhD position at the intersection of Energy Systems and Applied Artificial Intelligence (AI). As the urgency of addressing climate change continues to grow, innovative solutions that reduce emissions, improve energy efficiency, and support sustainable energy systems are more important than ever.

This PhD project focuses on the development of fast, accurate, and robust models for the real-time optimization and control of energy systems, with shallow geothermal energy as a central research area. The project will investigate how AI-driven modeling, system integration, and advanced operational strategies can enhance the performance, efficiency, and flexibility of modern energy systems.

Research Environment and Infrastructure
The successful candidate will have the opportunity to work with cutting-edge energy technologies at the University's Energy Central, a unique living laboratory for research, development, and demonstration of sustainable energy solutions.

Energy Central includes:

- 120 geothermal boreholes, including 10 dedicated research wells equipped with different borehole heat exchanger designs
- Two large-scale commercial heat pumps, each with a heating capacity of 1.3 MW
- A research-scale heat pump utilizing supercritical CO_2 as the working fluid, serving as a testbed for data generation, system analysis, and methodology development
- Three gas-fired boilers and two electric boilers
- Thermal energy storage in the form of a hot-water accumulator
- Dry coolers and associated energy infrastructure

This advanced facility is equipped with state-of-the-art monitoring and measurement systems, providing high-quality data for the development and validation of digital twins and AI-based models for techno-economic optimization of integrated energy systems.
A key objective of the project is to incorporate forecasting methods and external data sources, including weather conditions, electricity prices, fuel costs, and emission pricing, to support intelligent and economically optimal system operation.

Why Join This PhD Project?

This PhD position provides a unique opportunity to conduct high-impact research in a highly applied environment, utilizing state-of-the-art energy infrastructure and extensive real-world operational data. The project combines advanced AI methodologies with practical energy-system challenges, offering excellent opportunities for academic development, industrial collaboration, and contribution to the green energy transition.

If you are passionate about sustainable energy systems and eager to apply artificial intelligence to solve real-world energy challenges, we encourage you to apply.

Project Proposal

As part of the application, you are required to submit a preliminary project proposal for a PhD project within the research area described above.

The project proposal should outline the research problem, its relevance, and the proposed theoretical and methodological approach. The proposal will be included in the assessment of the candidates' qualifications.

If appointed, the project proposal and project timeline will be further developed in collaboration with the supervisors during the first three months of employment and will form the basis for the final PhD project plan. A template for the project proposal can be found here.

Qualifications

You must have a strong academic background and hold a five-year master's degree in a relevant field, or equivalent qualification, that provide a basis for undertaking doctoral studies, preferably obtained recently.

Relevant fields include:

- Mechanical Engineering
- Energy Engineering
- Thermal Engineering
- Process Engineering
- Computer Science, particularly with a focus on energy applications
- Other closely related disciplines

Your master's thesis grade and weighted average grade for the master's degree must both correspond to a grade of B or better.

If you have completed your education at an institution that uses a grading scale other than A-F, please provide documentation explaining how your grades correspond to the Norwegian grading scale. You may use these conversion tables to calculate your admission score.

Other required qualifications:

- Strong knowledge of energy systems and energy technologies
- Solid understanding of artificial intelligence (AI), machine learning (ML), and data-driven modeling techniques
- Documented experience in mathematical modeling, programming, and software development
- Strong analytical and problem-solving skills
- Excellent written and oral communication skills in English

Experience in one or more of the following areas will be considered an advantage:

- AI-based optimization and control of energy systems
- Digital twins for energy applications
- Forecasting methods and predictive analytics
- Energy market analysis and decision-support systems
- Techno-economic assessment of energy technologies
- Experience with real-world energy projects, demonstration facilities, or industrial case studies

We will also place emphasis on whether you:

- demonstrate high academic integrity and a strong commitment to quality in your work
- are curious and motivated to carry out the research project and contribute to academic communities and collaboration across disciplines
- demonstrate potential for research within the field and have the personal qualities required to complete the doctoral programme within the employment period
- are able to work effectively both independently and in collaboration with other researchers
- have good collaboration skills and contribute to a constructive working environment

English Language Requirements

Proficiency in English, both written and spoken, is required for admission to the PhD programme.

International applicants who do not qualify for one of the exemptions listed below must document their English language proficiency by submitting a valid test result from one of the following tests:

- TOEFL iBT (Test of English as a Foreign Language): minimum score of 90/4.5
- IELTS Academic (International English Language Testing System): minimum score of 6.5
- Cambridge English: Certificate in Advanced English (CAE) or Certificate of Proficiency in English (CPE)
- PTE Academic (Pearson Test of English Academic): minimum score of 62

You are exempt from this requirement if you:

- have completed at least one year of university studies in Australia, Canada, Ireland, New Zealand, the United Kingdom or the United States
- have completed a master's degree taught in English in an EU/EEA country or in India
- qualify for an exemption according to the Norwegian Directorate for Higher Education and Skills (HK-dir) GSU list
- do not fall within any of the exemption categories listed above, but have resided in Norway for the past five years.

As a PhD Fellow at UiS, you will receive

- a PhD education at a university with a strong societal mission and ambitious academic goals
- an ambitious and inclusive research environment. We strive to include employees at all levels in strategic decisions and promote an informal atmosphere with a flat organisational structure.
- free Norwegian language courses if you do not have proficiency in Norwegian, Swedish, or Danish at level A2 at the time of employment.
- access to Lifekeys, a digital service that supports mental health and well-being

- salary in accordance with the State Salary Scale, code 1017, NOK 580 000 gross per year, with salary progression during the employment period. A statutory 2% contribution is deducted for membership in the Norwegian Public Service Pension Fund.
- membership in the Norwegian Public Service Pension Fund (Statens pensjonskasse), which provides favourable pension and insurance schemes
- favourable membership terms at SiS Sports Centre and the university sports club
- employment with an Inclusive Workplace organisation committed to reducing sick leave and promoting and inclusive working life
- access to the Hjem-jobb-hjem programme, offering discounted public transportation to and from work
- relocation support
- access to comprehensive health services, generous parental leave arrangements and a well-developed welfare system.

Diversity and Inclusion

Diversity is a strength at the University of Stavanger. Different experiences, perspectives and backgrounds contribute to better solutions and a positive working and learning environment. We welcome applicants with diverse qualifications, life experiences and perspectives, and encourage all qualified candidates to apply, regardless of gender, age, disability, cultural background, or whether they have experienced periods outside the workforce. UiS is committed to supporting employees in different stages of life and to providing reasonable accommodation for employees with individual needs.

In accordance with applicable regulations, at least one qualified applicant with a disability, a gap in their CV, or an immigrant background will be invited for an interview. If this applies to you, you may indicate this in the application portal. Read more about the scheme here.

The University seeks to improve gender balance in PhD positions within this field and therefore particularly encourages women to apply. In cases where applicants are considered equally qualified, women may be given preference in accordance with applicable regulations.

How to Apply

Apply for this job by clicking "Apply for this job" button on this page.

In Jobbnorge, you must register at least your application, relevant education and work experience, as well as language skills. In your application letter, please describe your research interests, your motivation for applying for the position, and how your background is relevant to the research project.

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

- project proposal, see template available on our website.
- CV with a complete overview of your education, experience, and any scientific or scholarly work
- diploma and transcript of records documenting completion of a master's degree. If you have not yet completed your master's degree, you must submit an up-to-date transcript of records
- Diploma Supplement or equivalent documentation, and a confirmed grade conversion scale if required
- documentation of English language proficiency, if required
- publications or other relevant research work
- references and other documentation considered relevant to the application

The documentation must be provided in a Scandinavian language or in English

Applications will be assessed based on the information available in Jobbnorge when the application deadline expires. Please ensure that your application clearly demonstrates how your qualifications and experience meet the requirements described in the announcement, and that all required documentation has been uploaded. If the total size of the attachments exceeds 100 MB, the files must be compressed before upload.

UiS only considers applications and attachments submitted through Jobbnorge.

Information about applicants may be made public even if an applicant has requested not to be included on the public list of applicants, cf. Section 25 of the Freedom of Information Act. If such a request is not granted, you will be notified.

Terms of Employment and Recruitment Process

UiS is subject to the Norwegian Security Act. Employees are expected to demonstrate security-conscious behaviour and comply with applicable security and export control procedures. In the appointment process, attributes such as reliability, sound judgement and loyalty will be emphasised.

Employment as PhD Fellow is regulated in Regulations to the Universities and Colleges Act, chapter IV. Admission to the doctoral programme is governed by the Regulations for the degree of Philosophia Doctor (PhD) at the University of Stavanger.

Your qualifications for the position, based on the documentation registrered in Jobbnorge by the application deadline, will be assessed by an internal committee. Based on the committee's assessment, selected candidates will be invited to an interview. References will also be obtained for relevant candidates. Read more about the recruitment process on our website.

The PhD work will primarily be carried out at the University of Stavanger. It is a condition of employment that the successful candidate resides in a location that enables regular presence at and active participation in the academic environment during normal working hours.

The position is advertised in both Norwegian and English. In the event of any discrepancy between the texts, the English version shall prevail.

UiS - challenge the well-known and explore the unknown

The University of Stavanger (UiS) has about 12,000 students and 2,200 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 green and 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 degree programmes at the bachelor's, master's, and doctoral levels. The faculty has strong ties to both research institutions and industry. Nearly 40% of its budget is externally funded. Our students have close contact with the business sector, and many master's and doctoral theses are written in collaboration with industry. The faculty has established research collaborations with universities around the world and includes several academic environments that are internationally leading. The faculty has approximately 3,000 students and around 500 employees, distributed across the faculty administration and six departments: the Department of Electrical Engineering and Computer Science; the Department of Mechanical, Structural and Materials Engineering; the Department of Mathematics and Physics; the Department of Chemistry, Bioscience and Environmental Engineering; the Department of Energy and Petroleum Engineering; and the Department of Safety, Economics and Planning.

Department of Energy and Petroleum Engineering offers education and conducts research in geoscience, drilling and well engineering, and sustainable energy technology. The department offers programmes at the bachelor's, master's, and doctoral levels. It has close collaboration with relevant industry, particularly within the energy sector. The department places a strong emphasis on internationalisation, with high mobility among both academic staff and students.

Additional information

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