

Jobbnorge-ID: 110793

Søknadsfrist: Closed

Nettside:

Omfang:

Varighet:

2 PhD positions at Department of Electric Power Engineering and Department of Telematics within "Power system protection in a smartgrid perspective".

The Faculty of Information Technology, Mathematics and Electrical Engineering, <http://www.ntnu.edu/ime> at the Norwegian University of Science and Technology (NTNU) has two vacancies for a 100% position as a Research fellow at Department of Electric Power Engineering <http://www.ntnu.edu/elkraft> and Department of Telematics <http://www.ntnu.no/telematikk/start>

The positions are for a term of up to 4 years including 25% dutywork. This is a researcher training position aimed at providing promising researcher recruits the opportunity of academic development in the form of a doctoral degree.

Information about the department of Electrical Power Engineering

Currently there are 11 professors and 2 associate professors at the department. In addition there are 6 adjunct associate professors, 4 postdoctoral researchers, approx. 40 active PhD students, and 15 technical/administrative staff. Research activities are organized into three groups; Energy conversion, Electric power technology and Power systems.

The department has a wide range of teaching responsibilities, ranging from fundamental education in electric power engineering for other engineering students, Master's programs in Energy and Environment, International MSc programs within Electric Power Engineering and Wind Energy, as well as PhD education and continuing education.

Information about the Department of Telematics

Telematics is the area of communication networks and networked services, encompassing technological, societal and economical aspects.

The Department of Telematics currently has 16 professors or associate professors, 11 adjunct professors or associate professors, 2 post-doctoral researchers and about 30 PhD students.

The Department of Telematics performs research and research-based education at a very high international level. The department is to be the leading research group in the telematics/networking field in Norway, and also have a leading position in Europe in chosen disciplines within its research areas.

Work description

Within the KPN project "Power system protection in a smartgrid perspective - ProSmart" at NTNU there is two vacant PhD positions.

The ProSmart project addresses power system protection challenges in the future power system. The core of the project will be to utilize communication technology to improve autonomous protection of distributed sources and wide-area monitoring to reduce the risk of blackouts. The project will address the areas of distributed sources, wide-area protection, communication, system robustness, security and performance, and demonstration labs.

There will be a total of four PhD students working partly together in this project both in power systems and in telecommunication. The ability to work in team and good communication skills will therefore be emphasized in the employment process. Of similar importance is education and research within the fields of power system protection, power systems and communication technology.

Position 1 Protection of power systems with distributed sources

Embedded or distributed generation (DG) will change the power flow in the system. This has strong impact on protection of distribution system, but also on the transmission level. The project will consist of simulation of transients in power system to study the dynamic impact of distributed sources and how this would influence relay performance. The project will identify what data to communicate from distributed sources units and loads for optimum protection and fault location. The PhD will address the topics from the following list:

- Distributed sensors
- Communication of synchrophasor data from distributed sources
- Algorithms for fault-location
- Island detection and operation
- Adaptive relaying

Qualifications

Applicants must hold a M.Sc. degree (or equivalent) within electrical engineering and must have a good background within power systems and have knowledge about power system protection.

Position 2 Smartgrid communication for protection purposes

Communication in advanced power system protection systems requires flexible and robust communication architectures, protocols and services. The entities in the protection system must be partly autonomous, partly coordinated in real time, but also communicate information to a central control centre. Different existing and upcoming (such as Software Defined Networking (SDN)) architectures, protocols and services must be studied and evaluated with respect to features such as their ability to dynamically (re)configure and adapt to the protection algorithms, and to detect anomalies anomaly and apply the corresponding countermeasures in real-time.

In order to address these topics it is necessary to understand the interaction between control algorithms and communication protocols. The candidate must be able to develop a solid understanding of power systems how they interact with the communication subsystem.

Qualifications

Applicants must hold a M.Sc. degree (or equivalent) within electrical engineering, or data and tele communication. The preferred background of the candidate is either a solid knowledge in:

- power system protection combined with a good knowledge of communication technology,
- industrial control system combined with a good knowledge of communication technology, or
- communication technology combined with good knowledge of industrial control systems.

Applicants who do not master a Scandinavian language must provide evidence of good English language skills, written and spoken. The following tests can be used as such documentation: TOEFL, IELTS and Cambridge Certificate in Advanced English (CAE) or Cambridge Certificate of Proficiency in English (CPE).

Minimum scores are:

TOEFL: 600 (paper-based test), 92 (Internet-based test)

IELTS: 6.5, with no section lower than 5.5 (only Academic IELTS test accepted)

CAE/CPE: grade B or A.

Appointments are made in accordance with the regulations in force regarding terms of employment for PhD candidates issued by the Ministry of Education and Research, with relevant parts of the additional guidelines for appointment as a PhD candidate at NTNU. Applicants must undertake to participate in an organized PhD programme of study during their period of employment. The person who is appointed must comply with the conditions that apply at any time to employees in the public sector. In addition, a contract will be signed regarding the period of employment.

Applicants must be qualified for admission as PhD students at NTNU. See <http://www.ntnu.edu/ime/research/phd> for information about PhD studies at NTNU. Applicants are required to submit a one-page research proposal within the proposed research area.

High motivation and good analytical and communication skills will be emphasized in the employment process.

We can offer

- an informal and friendly workplace with dedicated colleagues
- academic challenges
- attractive schemes for home loans, insurance and pensions in the Norwegian Public service Pension Fund

Further information can be obtained from:

Professor Hans- Kristian Høidalen hans.hoidalen@elkraft.ntnu.no (Position 1) or

Professor Øivind Kure okure@unik-.no (Position 2)

Salary conditions

The position is in code 1017 Research fellow, salary grade 50-62 in the Norwegian State salary scale, gross NOK 429 400 - 528 500 per year, depending on qualifications. A deduction of 2% is made as a statutory contribution to the Norwegian Public Service Pension Fund.

General

The appointment is subject to the conditions in effect at any time for employees in the public sector.

As far as possible, the State workforce should reflect the diversity of the population. Goals of our personnel policy therefore include a balanced distribution in terms of age and gender as well as recruitment of people of immigrant background. NTNU wants to increase the proportion of women in its scientific posts. Women are encouraged to apply.

Under Section 25 of the Freedom of Information Act, information about the applicant may be made public even if the applicant has requested not to have his or her name entered on the list of applicants.

The application with a CV and certified copies of diplomas and certificates must be sent electronically via this page (jobb Norge.no) with information about education, scientific experience including a list of relevant publications (including a brief description of your contribution if this is not obvious) and other relevant work experience (all in one combined PDF file).

Please mark your application with the correct IME-number.

IME 009-2015 for position 1 and IME 010-2015 for position 2

Deadline for applications: 17.03.2015

Tilleggsinformasjon

Arbeidssted: