Jobbnorge ID: 252384
Deadline: 12/4/2023
Website: http://www.ntnu.no
Scope: Fulltime
Duration: Temporary

The Department of Electronic Systems has a vacancy for a

Postdoctoral Fellow in Trustworthy Signal Processing and Machine Learning for Next-Gen IoT

This is NTNU

NTNU is a broad-based university with a technical-scientific profile and a focus in professional education. The university is located in three cities with headquarters in Trondheim.

At NTNU, 9,000 employees and 43,000 students work to create knowledge for a better world.

You can find more information about working at NTNU and the application process here.

Video: https://youtu.be/Xt-yHCN5QS0

About the job

The Department of Electronic Systems (IES) has a vacancy for a Postdoctoral Researcher in statistical machine learning and distributed signal processing with applications in IoT.

The postdoctoral fellowship position is a temporary position where the main goal is to qualify for work in senior academic positions. The successful candidate will be offered a three-year appointment.

The position reports to the Head of the Department of Electronic Systems.

The workplace will be Trondheim.

Duties of the position

The internet of things (IoT) has transformed our interaction with the world, with an increasing number of devices, geographically spread over large areas, connecting to the internet daily. These devices generate and collect vast amounts of data that can provide valuable insights and enhance our lives when processed and analyzed. However, the traditional centralized model of data processing is not always feasible in the IoT context due to various challenges. In fact, the sheer volume of data spread across a myriad of devices, the need for real-time processing, resource constraints, and privacy concerns necessitate new distributed data processing and inference approaches. While emerging distributed processing approaches address some of the challenges of IoT data processing, they also introduce new ones. In particular, they are vulnerable to privacy leakage and adversaries trying to disrupt the learning process. Additionally, data heterogeneity can slow down learning, particularly when personalized preference constraints need to be accounted for. These issues are especially critical in applications where trustworthiness is paramount.

This position aims to tackle these challenges head-on. The research will focus on developing innovative techniques for reliable distributed learning in multiagent systems or over graphs, ensuring robustness against disturbances while exploring ways to safeguard data privacy and maintain overall system performance. Ideal candidates for this position are ambitious researchers with expertise in signal processing, wireless communications, optimization, and machine learning.

As a postdoctoral research fellow, you will be affiliated with IoT@NTNU and the Norwegian Open AI lab. In this role, you will work closely with Prof. Stefan Werner (IEEE Fellow) and the staff associated with IES, who value a collaborative and supportive leadership approach, fostering an environment where creativity and innovation thrive. You will engage in cutting-edge research projects focusing on artificial intelligence, trustworthy decentralized inference, and innovative machine-learning techniques. As an independent and self-motivated researcher, you can collaborate with top-tier experts at NTNU and build fruitful partnerships with international collaborators from esteemed institutions.

We are looking for candidates interested in these interdisciplinary tasks. Those with the best qualifications will be invited for an interview.

Required selection criteria

We are looking for a highly motivated and skilled researcher with a solid background in signal processing, statistical machine learning, optimization, wireless communications, or applied mathematics. Your expertise should be demonstrated through high-quality research publications, including at least one IEEE Transactions paper. Strong mathematical and programming skills, as well as proficiency in English, are essential. Your collaborative and proactive nature, coupled with excellent communication skills, will be key to successfully contributing to the team. In summary, the ideal candidate has:

- You must have completed a Norwegian doctoral degree or a corresponding foreign doctoral degree recognized as equivalent to a Norwegian PhD in Electrical Engineering, Computer Science, Applied Mathematics, or another relevant discipline. If you can document that the PhD thesis has been submitted, your application can be assessed even if you have yet to defend your dissertation. Documentation of the obtained doctoral degree must be presented before you can take up the position.
- You must have a professionally relevant background in Electrical Engineering, Computer Science, Applied Mathematics, or another relevant discipline.
- A strong research background with expertise in one or more of the following areas: signal processing, statistical machine learning, optimization, wireless communications, or applied mathematics.
- Proven track record of academic excellence demonstrated through high-quality research publications, including at least one IEEE Transactions paper.

The appointment is to be made in accordance with Regulations on terms of employment for positions such as postdoctoral fellow, Ph.D Candidate, research assistant and specialist candidate.

Preferred selection criteria

- A strong interest in learning and performing the tasks of a more senior academic position, i.e., supervising and developing publications with Ph.D. students.
- Excellent coding skills (MATLAB, Python).
- Excellent verbal and written communication in English.

Personal characteristics

The successful candidates should be:

- Creative and innovative
- Independent, persistent, and self-motivated in addressing technical problems
- Flexible and reliable, with the ability to work efficiently independently and as part of a team.
- Committed with respect to deadlines

Emphasis will be placed on personal and interpersonal qualities.

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

As a Postdoctoral Fellow (code 1352) you are normally paid from gross NOK 594 500 per annum before tax, depending on qualifications and seniority. From the salary, 2% is deducted as a contribution to the Norwegian Public Service Pension Fund.

The period of employment is three (3) years.

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 NTNU.

After the appointment you must assume that there may be changes in the area of work.

It is a prerequisite you can be present at and accessible to the institution on a daily basis.

About the application

The application and supporting documentation to be used as the basis for the assessment must be in English.

Publications and other scientific work must follow the application. Please note that your application will be considered based solely on the information submitted by the application deadline. You must therefore ensure that your application clearly demonstrates how your skills and experience fulfill the criteria specified above.

If for any reason, you have taken a career break or have had an atypical career and wish to disclose this in your application, the selection committee will take this into account, recognizing that the quantity of your research may be reduced as a result.

The application must include:

- Application letter describing your motivation, relevant experience, skills, and qualifications.
- CV and certificates.
- Transcripts and diplomas for bachelor's-, master's- and PhD degrees. If you have not yet completed your Ph.D., you must provide confirmation on your estimated date for the doctoral dissertation, or that your PhD thesis has been submitted.

- A copy of the doctoral thesis. If you are close to submitting or have recently submitted your thesis, you can attach a draft of the thesis. Documentation of a completed doctoral degree must be presented before taking up the position.
- Academic works - published or unpublished - that you would like to be considered in the assessment (up to ten items).
- Brief research plan for the position (top 2 pages).
- Name and contact information of three referees.

If all, or parts, of your education has been taken abroad, we also ask you to attach documentation of the scope and quality of your entire education. Description of the documentation required can be found here. If you already have a statement from NOKUT, please attach this as well.

Joint works will be considered. If it is difficult to identify your contribution to joint works, you must attach a brief description of your participation.

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal and interpersonal qualities. Motivation, ambitions, and potential will also count in the assessment of the candidates.

NTNU is committed to following evaluation criteria for research quality according to The San Francisco Declaration on Research Assessment - DORA.

General information

Working at NTNU

NTNU believes that inclusion and diversity is a strength. We want our faculty and staff to reflect Norway's culturally diverse population and we continuously seek to hire the best minds. This enables NTNU to increase productivity and innovation, improve decision making processes, raise employee satisfaction, compete academically with global top-ranking institutions and carry out our social responsibilities within education and research. NTNU emphasizes accessibility and encourages qualified candidates to apply regardless of gender identity, ability status, periods of unemployment or ethnic and cultural background.

NTNU is working actively to increase the number of women employed in scientific positions and has a number of resources to promote equality.

The city of Trondheim is a modern European city with a rich cultural scene. Trondheim is the innovation capital of Norway with a population of 200,000. The Norwegian welfare state, including healthcare, schools, kindergartens and overall equality, is probably the best of its kind in the world. Professional subsidized day-care for children is easily available. Furthermore, Trondheim offers great opportunities for education (including international schools) and possibilities to enjoy nature, culture and family life and has low crime rates and clean air quality.

As an employee at NTNU, you must at all times adhere to the changes that the development in the subject entails and the organizational changes that are adopted.

A public list of applicants with name, age, job title and municipality of residence is prepared after the application deadline. If you want to reserve yourself from entry on the public applicant list, this must be justified. Assessment will be made in accordance with current legislation. You will be notified if the reservation is not accepted.

If you have any questions about the position, please contact Professor Stefan Werner by emailing stefan.werner@ntnu.no. If you have any questions about the recruitment process, please contact HR e-mail: hr@ies.ntnu.no.

If you think this looks interesting and in line with your qualifications, please submit your application electronically via jobbnorge.no with your CV, diplomas and certificates attached. Applications submitted elsewhere will not be considered. Upon request, you must be able to obtain certified copies of your documentation.

Application deadline: 04.12.23

NTNU

NTNU - knowledge for a better world

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

Department of Electronic Systems

The digitalization of Norway is impossible without electronic systems. We are Norway's leading academic environment in this field, and contribute with our expertise in areas ranging from nanoelectronics, phototonics, signal processing, radio technology and acoustics to satellite technology and autonomous systems. Knowledge of electronic systems is also vital for addressing important challenges in transport, energy, the environment, and health. The Department of Electronic Systems is one of seven departments in the Faculty of Information Technology and Electrical Engineering .

Additional information

Contact person:

Stefan Werner ,
Phone: | E-mail: stefan.werner@ntnu.no

Place of service:

Høgskoleringen 1 7491 Trondheim (Trondheim Municipality)