UNIVERSITETET I OSLO

Jobbnorge ID: 235356
Deadline: 12/15/2022
Website: http://www.uio.no/
Scope: Fulltime
Duration: Engagement

PhD Research Fellow in Intelligent and Autonomous Edge Computing

Job description

Position as PhD Research Fellow in Intelligent and Autonomous Edge Computing available at the Networks and Distributed systems (ND) group, Department of Informatics, University of Oslo.

The position is within a project, funded by the Research Council of Norway, called **AirQMan: Towards Cognitive and Autonomous Smart City Services: The Case of Low-Latency Air Quality Management**. For further information about the project, please follow this link.

The fellowship is for a period of three (3) years. Candidates may be offered one additional year by the Department of Informatics; the four (4) year position then entails a compulsory workload of 25% that may consist of teaching, supervision duties, and research assistance. This will be decided at the time of appointment. The fellowship is devoted to carrying out research in the context of the AirQMan project. The research is conducted in collaboration with three national partners, one research institute and two state agencies:

- Norwegian Institute for Air Research
- Municipality of Oslo: Agency for Urban Environment
- Municipality of Halden: Innovation and Smart City Section

No one can be appointed for more than one PhD Research Fellowship period at the University of Oslo. Starting date preferably no later than April 1, 2023.

More about the position

Air quality (AQ) monitoring and management (AQMS) methods have been improved significantly both in Norwegian and European cities, but further progress is needed due to some quality-driven requirements in environmental data processing, such as low-latency prediction of AQ. This can only be achieved by intelligent data processing at multiple levels of granularity. The AirQMan project promises autonomous computational methods and techniques to meet such requirements. It extends data processing and computational intelligence from the Cloud to multiple levels of network nodes towards the Edge of the network. In particular, the project has the following main objectives: 1) developing a novel data processing design model that will autonomously determine the optimal data fusion processing flow, the right data sources, and the right trained deep learning (DL) model for maximizing the accuracy of AQ prediction; 2) predicting and maintaining the optimal distributed deployment over Edge-Cloud platforms for an efficient computation of the DL model while satisfying accuracy and latency requirements.

We are seeking a PhD candidate who is interested in designing, developing, and evaluating techniques and frameworks related to the above objectives. In particular, the selected candidate is expected to conduct research on designing distributed deep learning models across the Edge-Cloud continuum considering quality of service requirements (e.g., latency), as well as on autonomous deployment and migration of data processing tasks over Edge-Cloud in a highly self-aware manner.

Qualification requirements

The Faculty of Mathematics and Natural Sciences has a strategic ambition to be among Europe's leading communities for research, education and innovation. Candidates for these fellowships will be selected in accordance with this, and expected to be in the upper segment of their class with respect to academic credentials.

- Applicants must hold a Master's degree or equivalent in Computer Science
- Foreign completed degree (M.Sc.-level) corresponding to a minimum of four years in the Norwegian educational system
- The candidate should have interest and background in distributed computing, machine learning, and cloud computing
- The candidate should have good analytical skills and programming knowledge in Python, Java, or C++.
- The candidate should preferably have written a master thesis on programming or distributed computing aspects of Cloud/Edge/IoT.
- It is desirable that the candidate has good knowledge on Edge computing
- The evaluation considers many aspects of excellence, such as being ambitious, intellectually curious, hard-working, and dedicated

Grade requirements:

The norm is as follows:

- the average grade point for courses included in the Bachelor's degree must be C or better in the Norwegian educational system
- the average grade point for courses included in the Master's degree must be B or better in the Norwegian educational system
- the Master's thesis must have the grade B or better in the Norwegian educational system

- Fluent oral and written communication skills in English.
- English requirements for applicants from outside of EU/ EEA countries

The purpose of the fellowship is research training leading to the successful completion of a PhD degree.

The fellowship requires admission to the PhD programme at the Faculty of Mathematics and Natural Sciences. The application to the PhD programme must be submitted to the department no later than two months after taking up the position. For more information see:

http://www.uio.no/english/research/phd/

http://www.mn.uio.no/english/research/phd/

We offer

- Salary NOK 501 200 - 544 400 per year depending on qualifications and seniority as PhD Research Fellow (position code 1017)
- Attractive welfare benefits and a generous pension agreement
- Vibrant international academic environment
- Career development programmes
- Oslo's family-friendly surroundings with their rich opportunities for culture and outdoor activities

How to apply

The application must include:

- Cover letter - statement of motivation and research interests
- CV (summarizing education, positions and academic work - scientific publications)
- Copies of the original Bachelor and Master's degree diploma, transcripts of records and letters of recommendation
- Documentation of English proficiency
- List of publications and academic work that the applicant wishes to be considered by the evaluation committee
- Names and contact details of 2-3 references (name, relation to candidate, e-mail and telephone number)

The application with attachments must be delivered in our electronic recruiting system, please follow the link "apply for this job". Foreign applicants are advised to attach an explanation of their University's grading system. Please note that all documents should be in English (or a Scandinavian language).

When evaluating the application, emphasis will be given to the cover letter and the applicant's academic and personal prerequisites to carry out the project. Shortlisted candidates will be called for interview.

Formal regulations

Please see the guidelines and regulations for appointments to Research Fellowships at the University of Oslo.

According to the Norwegian Freedom of Information Act (Offentleglova) information about the applicant may be included in the public applicant list, also in cases where the applicant has requested non-disclosure.

The University of Oslo has an agreement for all employees, aiming to secure rights to research results etc.

The University of Oslo aims to achieve a balanced gender composition in the workforce and to recruit people with ethnic minority backgrounds.

Contact information

For further information please contact:

Associate Professor Amir Taherkordi, e-mail: amirhost@ifi.uio.no, Professor Yan Zhang, e-mail: yanzhang@ifi.uio.no, or Professor Frank Eliassen, e-mail: frank@ifi.uio.no

For questions regarding the recruitment system, please contact HR Adviser Therese Ringvold, e-mail: therese.ringvold@mn.uio.no

About the University of Oslo

The University of Oslo is Norway's oldest and highest rated institution of research and education with 28 000 students and 7000 employees. Its broad range of academic disciplines and internationally esteemed research communities make UiO an important contributor to society.

The Department of Informatics (IFI) is one of nine departments belonging to the Faculty of Mathematics and Natural Sciences. IFI is Norway's largest university department for general education and research in Computer Science and related topics.

The Department has more than 1800 students on bachelor level, 600 master students, and over 240 PhDs and postdocs. The overall staff of the Department is close to 370 employees, about 280 of these in full time positions. The full time tenured academic staff is 75, mostly Full/Associate Professors..

Additional information

Place of service:

Gaustadalleén 23B 0371 Oslo (Oslo Municipality)