UiT Norges arktiske universitet
Institutt for informatikk

Jobbnorge-ID: 153774
Søknadsfrist: Avsluttet
Nettside:
Omfang:
Varighet:

PhD Candidate in Computer Science

University of Tromsø - The Arctic University of Norway (UiT) has a PhD position in Computer Science vacant for a candidate committed to take the degree of Philosophy Doctor (PhD).

The position is organized under the Department of Computer Science and is one of four PhD positions as parts of the multidisciplinary project “Transforming CO2 to capital by interdisciplinary CCU optimization stragegies (iCCU)” hosted by UiT The Arctic University of Norway. The other three positions are in the areas of economy, chemistry and philosophy. The objective of these projects are to develop diatom-based conversion, chemical conversion monitoring and control of CCU processes, monitoring of sea environment, sustainable business models and climate justice models. The computer science position is primarily focused on a cyber-physical system monitoring and controlling the CCU processes and the environment.

The appointment is for a period of four years for a candidate with knowledge, skills and will to successfully complete the PhD study within and limited to the time frame.

The PhD position is for a fixed term, with the objective of completion of research education to the level of a doctoral degree. Admission to a PhD programme is a prerequisite for employment, and the programme period starts on commencement of the position. The PhD Candidate shall participate in the Faculty’s organized research training, and the PhD study shall be completed during the period of employment. Information about the application process for admission to the PhD programme, application form and regulations for the degree of Philosophiae Doctor (PhD) are available at the Faculty’s website for Research training.

Further information about the position is available by contacting: Professor John Markus Bjørndalen, john.markus.bjorndalen@uit.no, phone +47 7764 5252.
For administrative questions, please contact the Department’s administration;
phone +47 7764 4036, email: administrasjon.ifi@nt.uit.no.

The position’s affiliation
UiT The Arctic University of Norway is the largest research and educational institution in northern Norway with about 15,800 students and 3,400 employees. UiT is a founding member of the University of the Arctic, an international network of study and research institutions of the circumpolar region. Two hundred international agreements secure an active academic exchange of students and staff with partner institutions worldwide.

The Department of Computer Science provides a strong international research environment with 13 tenured faculty members, 4 adjunct professors, 4 post doctors and researchers, 7 technical/ administrative staff members and about 20 PhD students. The goal of the Department is to advance the research and teaching of computer science as a discipline, to demonstrate leadership within our areas of interest, and to contribute to society through our education, research and dissemination. More information available at https://uit.no/informatikk.

The High Performance Distributed and Parallel Systems group (hpds.cs.uit.no) does systems research on distributed and parallel systems. Topics of interest to the group includes cyber physical systems, including large scale sensor systems in extreme environments, scalable concurrency, composition of parallel programs, visualization and analytics of big data, systems support for multi-computer human-computer interfaces, collaborative systems and cross-platform resource sharing. The HPDS group applies several methods and techniques including machine learning, interactive big data analytics, visual big data analytics, and advanced statistical and mathematical models. The group develops extensive prototypes, and does performance measuring experiments on them with the purpose of documenting their characteristics and understanding their scalability and applicability. The group has several cross-disciplinary projects nationally and internationally including on meteorology, bioinformatics, medicine, observations of arctic ecosystems, and carbon capture and utilization. The group runs a laboratory with prototype development of systems including display walls, cyber physical systems and high performance distributed systems. In addition, it shares the SmartLab laboratory with two other groups at the Department.

The research project «iCCU»
The project is part of the National CCU (Carbon Capture and Utilization) center, where the research focus is on how CO2 can be transformed into a resource and sold as a product. The practical case of the iCCU project is the Finnfjord ferro-alloy plant, where CO2 from the plant will be funneled into several large tanks with sea water and algae to be converted to biomass. A central goal of this project is to improve the environmental sustainability of CO2 producing industrial processes. The interdisciplinary approach is central to achieve this.

An experimental installation of the CO2 conversion process is already operating at the plant and will be scaled up during the iCCU project. This installation is available for the PhD students of the iCCU project, where they will also work with students from the Norwegian College of Fishery Science.

For more information about iCCU, please see http://site.uit.no/iccu/.

The research project

The PhD project will be focused on monitoring and control of the CO2 conversion process and the environment around the tanks. Challenges for this project involve a hostile environment with sea water, strong magnetic fields and a cold climate that will influence deployed equipment. The system will need to provide run-time observation and adaption, controlling the environment for the algae to improve the efficency of the CO2 conversion process and maintain safety. The goal is to contribute to the research and development of a robust cyber-physical distributed system that can adapt to failures in the system, partial disconnection, and to the requirements of the living organisms in the process. The primary methodology is systems research in computer science, producing a prototype, and quantitatively characterizing it both through performance measurements and through experimental deployment in the CO2 conversion plant. Analytics and machine learning may also be applied in the system.

The student will have the opportunity to collaborate with PhD students in the HPDS group that work on related issues in the COAT Tools and DAO (Distributed Arctice Observatory) projects, where the overall goal is to create a cyber physical distributed observation system for the ecosystems in the Arcitc tundra.

The main advisor for the PhD project will be John Markus Bjørndalen, Department of Computer Science, with co-advisors Otto Anshus and one of the other scientists from the iCCU project.

Qualification requirements
The successful applicant must fulfil the requirements for admission to the Faculty's PhD programme; cf. Regulation for the degree of Philosophiae Doctor (PhD) at the University of Tromsø. The applicant should in addition be able to document proficiency in English equivalent to Norwegian Higher Education Entrance Qualification, available at the same website.

This position requires a Master's degree or equivalent in Computer Science. A quantitative systems research based Master's dissertation and/or publications are necessary to be considered for the scholarship. The master's dissertation must be included in the application. Candidates in the final phase of their Master study may apply. A preliminary version of the dissertation can be included if the final version is not ready before the application deadline. Information about the delivery deadline for the dissertation should be given. A completed degree must be documented before an acceptable date for commencement.

Emphasis shall also be attached to personal suitability.

Working conditions
The normal period of appointment is four years. The PhD study is standardized to three years. The fourth year consists of teaching or other duties for the university, organized according to a distribution formula of 25 % per year in agreement with the Head of Department, cf. the directive for duties for research fellows (in Norwegian only).

A shorter period of appointment may be decided when the research fellow has already completed parts of his/her research training programme or when the appointment is based on a previous qualifying position (PhD Candidate, research assistant, or the equivalent) in such a way that the total time used for research training amounts to three years.

Remuneration for the position of PhD Candidate is in accordance with the State salary scale code 1017. A compulsory contribution of 2 % to the Norwegian Public Service Pension Fund will be deducted.

Assessment
The applicants will be assessed by an expert committee. During this assessment process, emphasis will be attached to the applicant's potential for research as shown by:

- Master's thesis or equivalent
- Publications
- Any other academic works
- Knowledge and interest of the specific project and it`s topic

In addition, consideration may be given to work experience or other activities of significance for the implementation of the PhD studies, and to any teaching qualifications. This includes teaching education, teaching experience, experience from popularization and experience/education from other types of dissemination.

The applicants assessed as the best qualified can be called to an interview. The interview shall among other things aim to clarify the applicant's personal suitability for the position.

Application
The **application** must be submitted electronically via the application form available on http://www.jobbnorge.no and shall include:

- Letter of application
- CV (containing a complete overview of education, supervised professional training and professional work)
- List of works and description of these, containing the following information:
  - author(s), the work's title
  - for publications: publisher, printer, year of publication, number of pages, and a link, such as a DOI, to the publication if available
- List of references with contact information.
- Copies of:
  - diploma and transcript from your Bachelor's degree or equivalent
  - diploma and transcript from your Master's degree or equivalent
  - diploma supplement for completed degrees
  - documentation of English language proficiency
- The works (published or unpublished) which the applicant wishes to be taken into consideration during the assessment process must be submitted in the web portal.

All documentation that is to be evaluated must be translated into English or a Scandinavian language.

Information and material to be considered during the assessment must be submitted by the stipulated deadline.

General
We make the appointment in accordance with the regulations in force concerning State Employees and Civil Servants and guidelines at UiT. At our website, you will find more information for applicants.

Questions concerning the organisation of the working environment, such as the physical state of the place of employment, health service, possibility for flexible working hours, part time, etc. as well as questions about the PhD programme may be directed to the telephone reference in this announcement.

UiT has HR policy objectives that emphasize diversity, and therefore encourages qualified applicants to apply regardless of their age, gender, functional ability and national or ethnic background.

The university is an IW (Inclusive Workplace) enterprise, and will therefore emphasize making the necessary adaptations to the working conditions for employees with reduced functional ability.

Personal data given in an application or CV is processed in accordance with the Personal Data Act. You may request not to be registered on the public list of applicants, but the University may decide that your name will be made public. You will receive advance notification in the event of such publication.

Tilleggsinformasjon

Arbeidssted: