PhD Research Fellow in Informatics/Computer Science

Job description

Position as PhD Research Fellow in Informatics/Computer Science available at the Department of Informatics.

The fellowship period is 3 years devoted to research education within a project entitled Building Sustainable Machine Learning Applications. Candidates may be offered one additional year by the Department of Informatics; the 4 years position then entails a compulsory work load of 25% that may consist of teaching, supervision duties, and research assistance.

No one can be appointed for more than one PhD Research Fellowship period at the University of Oslo. Starting date no later than 01.10.2020.

More about the position

Background:

There has been an explosion of applications using Machine Learning (ML) approaches in recent years. Such kinds of applications require specific software engineering techniques, as also documented by Google research.

ML applications usually work well in the beginning, but, as the overall software systems grow in complexity, it becomes difficult to evolve and maintain them for engineers and data scientists. Many organizations implement ML applications, and are eager to understand how to build them in a sustainable way, without accumulating technical debt, which can be very disruptive.

Project description:

The candidate will investigate novel techniques to code, structure and test ML applications that are easy to maintain and evolve in the future. Examples of emerging architectural techniques are microservices. The specific techniques are not predefined and will be chosen in accordance with the results of a first investigation of the practical needs of ML practitioners.

The project will investigate challenges faced in the development of a machine learning platform ImmuneML for disease diagnostics based on interrogation of the adaptive immune system. ImmuneML integrates developments connected to a large number of complementary machine learning research projects (five local PhD students, two research centers ImmunoLingo and CoDirc, and two international collaborations). The platform is set to be launched in the first half of 2020 and is planned to be continually maintained and expanded through the coming decade.

In addition, several organizations in the Nordics and in Europe, in contact with the supervisors of the project, are interested in further advances on this topic, and the candidate will have the possibility to develop and test the results with some of them during the PhD project.

Impact and employability for the candidate:

This research is critical to improve the ways of working of the ever-growing plethora of organizations (public and commercial) using ML. Therefore, the candidate will acquire specialized knowledge that is (and will be) critical for many years in the future, relevant both for industrial and academic careers. The contact with industry during the project will also give possibilities of future collaborations.

Supervision:

The main supervisor for the candidate will be Antonio Martini, Associate Professor in Software Engineering and leading expert in the research field of technical debt (which is related to practical development of maintainable and evolvable software). Associate Prof. Martini has several ongoing collaborations with companies in the Nordics and in Europe, collaborates with several international Universities, especially Chalmers University of Technology in Gothenburg. Associate Prof. Martini is very active in the research community, with several roles as Program and General Chair for relevant conferences related to the topic of the position. He will assure solid supervision on software engineering techniques, together with the software engineering group, and will provide the candidate with access to a broad academic and industrial network.

Publications:

https://dblp.uni-trier.de/pers/hd/m/Martini:Antonio

LinkedIn:

https://www.linkedin.com/in/antmartini/

UiO webpage:

https://www.mn.uio.no/ifi/english/people/aca/antonima/

The co-supervisor for the candidate will be Geir Kjetil Sandve, Associate Professor in the Research Group of BioMedical Informatics, at the Section of Machine Learning. Associate Prof. Sandve has more than fifteen years of experience with machine learning and statistical inference applied to the biomedical domain. He has been a main developer of a long-lived software system The Genomic HyperBrowser for statistical analyses of genomic datasets. This software
system served as an underlying platform for more than 20 of his publications over a period of almost ten years (https://mn.uio.no/ifi/english/research/projects/hyperbrowser). Together with a team of programmers and machine learning researchers in Oslo, Sandve is currently developing the new software platform ImmuneML that will serve as case for the present position.

**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.

- **Required:** Master’s degree or equivalent in Software Engineering, Computer Science or Data Science. Foreign degrees (M.Sc.-level) must correspond to a minimum of four years in the Norwegian educational system.
- **Conditionally required:** If the degree is in Data Science or Computer Science, it is required to have either practical programming skills (to be well documented) or to have taken at least 15 study points (or equivalent) courses on Software Engineering.
- **Conditionally required:** In case of Software Engineering and Computer Science background, it is required to have either some experience with developing Machine Learning applications (to be well documented) or to have taken courses related to Machine Learning.
- **Desired:** Previous industrial experience is a strong advantage, although not strictly required if one of the previous two points are well covered.

**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. Good skills with a Scandinavian language would be an advantage, but it’s not required.
- **English requirements for applicants from outside of EU/EEA countries**

**Personal skills:**

- Good communication skills are a strong advantage, in order to elicit needs from the developers working with the applications.
- Good attitude towards conducting technical and practical implementation.
- Good attitude towards abstracting and writing reports and articles.

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 479 600 - 523 200 per annum 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).
- Desired: proof of previous industrial employment or proof of practical skills.

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).

Applicants may be called in for an interview.

**Formal regulations**

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

No one can be appointed for more than one PhD Research Fellowship period 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 enquiries about this position please contact: Ass. Professor Antonio Martini, phone: +47 22840853, e-mail: antonima@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.

Jobbnorge-ID: 187277, Søknadsfrist: 8. juni 2020