NTNU
Kunnskap for en bedre verden

Jobbnorge ID: 176774
Deadline: 11/10/2019
Website: http://www.ntnu.no
Scope: Fulltime
Duration: Temporary

The Department of Computer Science has a vacancy for a

PostDoc Position within Machine Learning related to Digital Rocks

This is NTNU
At NTNU, creating knowledge for a better world is the vision that unites our 7 000 employees and 40 000 students.

We are looking for dedicated employees to join us.

Video: https://www.youtube.com/watch?v=cIgKd1SwGLI

About the position
We have a vacancy for a Postdoctoral Fellow at the Department of Computer Science at NTNU's Trondheim campus. The work will be carried out in close collaboration with the company Pericore and will be affiliated with the Norwegian Open AI Lab. The candidate will perform research on next-generation machine learning methods related to digital rocks, in particular the development of new deep learning tools to process three-dimensional micro-tomographic images.

The PostDoc position is for two years.

The position reports to head of department

The human's future depends on our capacity to stop emitting CO2 to the atmosphere while keep growing to reduce poverty and improving the quality of life in developing countries. In this scenario, technologies such as Carbon dioxide Capture and Storage (CCS) and more efficient O&G production will play a very important role. The derivation of rock properties from high-resolution images (Digital Rocks) is a disruptive technology that can fundamentally change how the industry measures the basic rock properties. This technology is based on the use of high-resolution 3D images to derive digital models of reservoir rocks.

Main duties and responsibilities
The proposed PostDoc position is part of the project "SmartRocks - Artificial Intelligence improving Digital Rock Technology", funded by Petricore and The Research Council of Norway. The derivation of rock properties from high-resolution images (Digital Rock Technology) is disruptive as it can fundamentally change how the industry measures rock properties used to characterize reservoir production and predict their performance.

The primary objective of the "SmartRocks" project is the development of Artificial Intelligence tools to enhance the capabilities of Digital Rock Technology. Such tools will perform automatic processing of rock images and will combine different 2D-3D images to build a multi-scale SmartRock model that will solve the main limitation of size vs. resolution by combining several images into one model. This will lead to increased quality and a substantial reduction of costs and processing time. Sub goals include automatic segmentation of 3D micro-CT images, registration of 2D-3D and 3D-3D images, extending 2D high-resolution images into 3D rock models, automatic petro-physical rock-typing and a cloud-based interface for Software as a Service (SaaS) functionality related to digital rocks.

The candidate is expected to conduct research in core areas of the project in close collaboration with key personal at both the Department of Computer Science at NTNU and Petricore in Trondheim.

Qualification requirements

The postdoc's main objective is to hone and further develop research skills acquired during his/ her Phd. The qualification requirement is completion of a PhD degree with a strong academic background in Computer Science with a focus on AI/Machine Learning/Deep Learning and/or modern Computer Vision, or equivalent education.

The position requires strong English oral and written skills (interacting with an international team, academic work, progress reports etc.)

Applicants from a non-English-speaking country 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 or 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

Further assessment of both written and oral English language skills and the ability to communicate fluently may be conducted in the continued selection process and during any interview for all applicants, including those providing the required documentation of English proficiency.

The appointment is to be made in accordance with the regulations in force concerning State Employees and Civil Servants and national guidelines for appointment as PhD, postdoctor and research assistant

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

Other qualifications

- Excellent written and oral Norwegian or Scandinavian language skills are a plus but not a requirement
- Excellent programming skills and good knowledge of key programming languages and frameworks used in date science and machine learning
- Ability to work independently as well as collaboratively

Personal characteristics

We seek a Post Doc fellow that is motivated, has good communication and networking skills, is proactive and forthcoming, and able to work independently if needed. The successful candidate should be creative and demonstrate persistence in addressing challenging research problems.

- Strong analysis skills (e.g. abstract and mathematical thinking)
- Strong writing skills (e.g. synthesizing and expressing complex ideas clearly)
- Team player, collaborative, respectful and value the inputs and opinions of others
- Self-motivated, ambitious, resourceful, result-oriented, and independent

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal suitability, as well as motivation, in terms of the qualification requirements specified in the advertisement

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

Postdoctoral candidates are remunerated in code 1352, and are normally remunerated at gross from NOK 523 200 before tax per year. From the salary, 2 % is deducted as a contribution to the Norwegian Public Service Pension Fund.

The period of employment is two 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 criterias 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.

General information

A good work environment is characterized by diversity. We encourage qualified candidates to apply, regardless of their gender, functional capacity or cultural background. Under the Freedom of Information Act (offentleglova), information about the applicant may be made public

The national labour force must reflect the composition of the population to the greatest possible extent, NTNU wants to increase the proportion of women in its scientific posts. Women are encouraged to apply. Furthermore, Trondheim offers great opportunities for education (including international schools) and possibilities to enjoy nature, culture and family life (http://trondheim.com/). Having a population of 200 000, Trondheim is a small city by international standards with low crime rates and little pollution. It also has easy access to a beautiful countryside with mountains and a dramatic coastline.

Questions about the position can be directed to Professor Frank Lindseth, email: frankl@ntnu.no or to the Head of department John Krogstie, email: john.krogstie@ntnu.noeven if the applicant has requested not to have their name entered on the list of applicants.

About the application:

The application must contain:

- One-page cover letter including an explanation of how the candidate's research interests and background would fit the position
- CV with information about education and relevant experience
- Copies of academic diplomas, transcripts, and certificates (Applicants from universities outside Norway are kindly requested to include a document describing in detail the study and grading system)
- A short essay (up to 1000 words) describing the candidates' view on current state-of-the-art methods and research challenges related to deep learning based segmentation of 3D images in general
- Any publications relevant to the research scope or any other work which the applicant wishes to be taken into account, e.g. their master thesis
- Names and contact information of at least three references

Publications and other academic works that the applicant would like to be considered in the evaluation must accompany the application. Joint works will be considered. If it is difficult to identify the individual applicant's contribution to joint works, the applicant must include a brief description of his or her contribution.

Please submit your application electronically via jobbnorge.no with your CV, diplomas and certificates. Applications submitted elsewhere will not be considered. Diploma Supplement is required to attach for European Master Diplomas outside Norway. Chinese applicants are required to provide confirmation of Master Diploma from China Credentials Verification (CHSI): http://www.chsi.com.cn/en/).

Applicants invited for interview must include certified copies of transcripts and reference letters. Please refer to the application number 2019/31687 when applying.

Application deadline: 10.11.2019

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

Department of Computer Science

We are the leading academic IT environment in Norway, and offer a wide range of theoretical and applied IT programmes of study at all levels. Our subject areas include hardware, algorithms, visual computing, AI, databases, software engineering, information systems, learning technology, HCI, CSCW, IT operations and applied data processing. The Department has groups in both Trondheim and Gjøvik. The Department of Computer Science is one of seven departments in the Faculty of Information Technology and Electrical Engineering .

Additional information

Place of service:
Trondheim 7491 Trondheim (Trondheim Municipality)