1 PhD and 2 postdoc positions in deep learning applied to magnetic resonance imaging/physics

Department of Radiology and Nuclear Medicine, St. Olav’s University Hospital, Trondheim, Norway

About the positions

One PhD and two postdoc positions are available at the Department of Radiology and Nuclear Medicine at St. Olav’s University Hospital in Trondheim, Norway, to start in the autumn/winter of 2020. All three positions are full time (100%), and have a fixed term of three years. The three positions will constitute the main workforce for the project “Deep learning cancer diagnostics from diffusion-weighted magnetic resonance imaging”, funded by the Research Council of Norway. The project will be led by Dr. Peter T. While, physicist and researcher at the Department of Radiology and Nuclear Medicine at St. Olav’s University Hospital.

This project will open up a new, non-invasive means for assessing cancer. Presently, cancer diagnosis and treatment monitoring using an MRI scanner require the injection of a potentially harmful contrast agent, whereas contrast-free alternatives are too inefficient and imprecise for clinical use. The proposed approach will combine highly efficient, novel imaging strategies with artificial intelligence, to permit fast, contrast-free and robust cancer diagnostics.

Main duties and responsibilities

- Perform research towards the fulfilment of the project objectives
- Disseminate results through the publication of scientific papers and the delivery of seminars and conference presentations
- Keep abreast with current developments in the research field through regular literature surveys
- Initiate and/or participate in new research projects in collaboration with the research group
- Assist with the supervision of research fellows and/or students

Selection criteria

Qualification requirement for a PhD position:

Eligibility requires the completion of a master’s degree or second degree (equivalent to 120 credits) with a strong academic background in physics, applied mathematics, computer science or a similar discipline, or equivalent education with a grade of B or better in terms of the grading scale used by the Norwegian University of Science and Technology (NTNU). Applicants with no letter grades from previous studies must demonstrate an equally good academic foundation. Applicants who are unable
to meet these criteria may be considered only if they can document that they are particularly suitable candidates for education leading to a PhD degree. Applicants who expect to complete their master’s degree by autumn 2020 may also apply.

Qualification requirement for a postdoc position:

Eligibility requires the completion of a doctoral degree in physics, applied mathematics, computer science or a similar discipline, which is recognized as equivalent to a Norwegian doctoral degree. Applicants who expect to complete their doctoral degree by autumn 2020 may also apply.

Desired criteria for all three positions:

- Strong background and experience in deep/machine learning
- Strong background and experience in MR physics and image processing
- Good computer programming skills in Matlab, Python or similar
- Excellent written and oral English language skills
- Good publication record relative to career stage

In the evaluation of which candidates are best qualified, emphasis will be placed on education, experience and personal suitability, in terms of the qualification requirements specified in the advertisement. The employer reserves the right to substitute PhD and postdoc positions in the case of exceptionally qualified applicants relative to career stage (for example, to employ 2 PhD candidates and 1 postdoc instead).

Personal characteristics

- Strong motivation for the position
- Takes initiative and excels in problem solving
- Professional independence
- Actively participates in teams
- Good communication skills
- Contributes to a supportive and friendly working environment

We offer

- Stimulating tasks of international relevance in a strong academic environment
- An open and inclusive work environment based on mutual respect and goodwill
- Favourable salary and pension scheme by international standards

Salary and conditions

PhD candidates are placed in code 1017, and are normally remunerated at gross from NOK 479 600 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.
Appointment to a PhD position requires that the candidate apply for and be admitted to a PhD programme at NTNU as soon as possible from the date of employment, and that the candidate participates in an organized PhD programme during the employment period.

Postdoctoral fellows are placed in code 1352, and are normally remunerated at gross from NOK 542 400 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.

For all three positions, it is a prerequisite that the employee can be present at and accessible to the institution on a daily basis. After the appointment, the employee must assume that there may be changes in the area of work.

It is a goal that the workforce of the institution reflects the diversity of the population. We therefore encourage anyone who is qualified to apply, regardless of age, gender, disability or cultural background.

Under Section 25 of the Freedom of Information Act, information about the applicant may be made public even if the applicant has requested not to have his or her name entered on the list of applicants.

About the application

The application and supporting documentation must be in either English or a Scandinavian language. The application should show clearly how the applicant’s skills and experience meet the criteria set out above, and state explicitly the position type (PhD or postdoc) for which the applicant is applying.

The application must contain:

- The applicant’s CV, including contact information for at least 2 references
- Copies of academic diplomas and transcripts; applicants from universities outside of Norway are requested to send a diploma supplement (or a similar document) which describes in detail the study and grading system
- A complete list of publications and other scientific work; in cases where the applicant is not the primary author, a short summary outlining the applicant’s contribution must be attached in order to be considered
- Applicants from outside the Nordic countries where English is not the official language must provide official documentation of their English competence. Approved tests and results include: TOEFL iBT – 92 (writing 22); IELTS Academic – 6.5 (no section lower than 5.5); PTE Academic – 62; Cambridge CAE/CPE – grade A or B

Applicants are encouraged to attach any additional documents they consider to be of relevance to the application. Applicants for the postdoc positions may optionally provide a brief research statement outlining a possible additional project that could be undertaken in collaboration with the research group during the employment period.

Applicants invited for interview must provide at least two reference letters, as well as certified copies of their transcripts.

Applications must be submitted electronically via the corresponding advertisement in Webcrouter:
https://570918465.webcrouter.no/Main/Recruit/Public/4225326545?language=NB&link_source_id=0
For further information about the position, please contact Dr. Peter T. While, email: Peter.Thomas.While@stolav.no, phone: +47 728 36627

Application deadline: 31.05.2020

**General information**

Norway provides all residents universal healthcare, free schooling, subsidized child-care and overall equality. Trondheim is the innovation capital of Norway, with a population of 200,000. It 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. St. Olav's University Hospital in Trondheim is one of Europe's most modern hospital facilities. It is closely integrated with the Faculty of Medicine and Health Sciences at NTNU, where clinicians, researchers and students work side by side. The hospital has approximately 10,500 employees and a gross budget of NOK 10 billion. The Department of Radiology and Nuclear Medicine currently operates eight MRI scanners, including a hybrid PET-MRI (3T) scanner and PET cyclotron, and an ultra-high field 7T scanner.