**2 PhD positions / Early Stage Researchers (ESR) available in medical technology**

Do you want to work in the growing sector of medical technology? Do you want to start your career in a European network of leading universities, hospitals and industry?

The Intervention Centre at Oslo University Hospital is one of the institutions in the new EU-project “Personalised In-silico Cardiology” (PIC), with 15 young researchers (F1 to F15) divided between 10 different European research institutions and companies. We are looking for excellent candidates to fill our two fellowships for 3-year Early Stage Researcher positions (PhD-students) at the Intervention Centre in the topic of miniaturized motion sensors attached to the heart for monitoring heart function. The PhD projects will be part of the PIC project, which is an Innovative Training Network funded through the Marie Skłodowska-Curie actions.

**The Intervention Centre** is a unique cross-disciplinary organised hospital research and development department. The centre has pioneered the development of novel miniaturized motion sensors for monitoring cardiac function, which is one of several high-tech medical technology research activities at the centre. The clinical research department provides high-tech infrastructure, including operating theatres with cutting-edge technology for experimental and clinical research and advanced clinical procedures. The Intervention Centre has a cross-disciplinary staff of 45 employees where more than 50% of the staff has a technological background including 4 professors and 3 associate professor employed at the Faculty of Medicine and the Faculty of Mathematics and natural sciences of University of Oslo (UiO) and the Department of Electronics and Telecommunication of the Norwegian University of Science and Technology (NTNU).

**PIC** will educate young researchers (biomedical engineers) to become international experts in key areas of medical technology through a coordinated plan of individual research projects addressing specific topics in sensor+device technology and cardiac computer models to monitor function, guide therapy and aid in the diagnosing process. Multi-disciplinary dialogue and work between clinicians and biomedical engineers is crucial to address the challenges in this emerging field. By providing researchers with knowledge and training from specific topics in sensor+device technology, computational biology, biomedical engineering, research methodologies, innovation and entrepreneurship, the link between academic research and industry will be strengthened. The scientific and clinical goal of PIC is to improve methods for monitoring heart function and controlling pacemaker devices by miniaturized motion sensors as well as develop better diagnostic methods through personalised computer models incorporating anatomical and electrical data from each patient. For a more information of the PIC-project see: <http://picnet.eu>.

**The two ESR positions at the Intervention Centre**.

For over 10 years researcher at the Intervention Centre have collected heart motion data using miniaturized inertial measurement units attached to hearts in several experimental and patient studies with different pathologies. One of the two projects (F5) will be to develop signal processing methods to extract clinical information from the measured signals, develop algorithms that can automatically detect abnormalities in cardiac motion to raise an alarm, and find out how best to describe changes in the motion in response to pharmacological or other treatments. The main focus of the other project (F12) will be to use motion sensors in order to best control pacemaker treatment. This will involve extraction of the best motion measurement that can give feedback to the clinician about where to place the pacemaker leads and optimize the pacing intervals. There will be a tight collaboration between the two ESRs as well as with other partners in PIC. ESRs at Medtronic Bakken Research Centre (F9) located in Maastricht, the University in Maastricht (F2 and F7), King’s College London (F10) and University of Zaragoza (F3) are working on related projects. The project will include visits to and from these partners in order to collaborate with and learn from each other.

Both ESRs will start by analysing and developing algorithms to extract clinical information from already acquired data. The ESRs will be involved in all phases of the development of the sensor system, from assembly and packaging of the sensor itself, software development for acquisition of measured signals, with a special focus on signal processing for the purpose of interpretation and extraction of clinically interesting information, validation of the sensor accuracy, and testing of developed methods in experimental and clinical studies. New knowledge will be disseminated in international peer-reviewed journals, conferences and workshops. In this context, we are looking for two talented candidates in the field of biomedical engineering to join our team of engineers and researchers.

**Qualifications**

* Must have a Master of science degree in one of the following fields: electronics, computer science/informatics, medical cybernetics, biomedical engineering, biophysics, physics, or mathematics. Candidates from related scientific disciplines are welcome to apply.
* Good programming knowledge / experience with C/C++ and Python and/or experience in Matlab or similar are required.
* Knowledge and experience with hardware and interface with computers is advantageous.
* Knowledge and experience with data acquisition, signal processing and analysis is advantageous.
* Strong academic record with a weighted average grade of master’s or equivalent education with a grade of B or higher.
* Advantageous to have a special interest and competence within medical technology, hardware, practical experience with research methods, and R&D work at research institutes, universities and/or the health sector, validation studies, pre-clinical and clinical studies
* Emphasis on teamwork, innovation, being dynamic and enthusiastic as well as collaborating well with other members of a team.

Relevant certificates, including all grades, credits and marks and recommendation letters must be submitted along with the application. Certified copies of study credits with grades will be needed from those called to an interview.

**Special rules for eligibility of ESR candidates:**

Early-Stage Researchers (ESRs)shall, at the time of recruitment by the host organization, be in the first four years (*full-time equivalent research experience*) of their research careers and have not been awarded a doctoral degree.

**Mobility Rule**: at the time of recruitment by the host organization, researchers must not have resided or carried out their main activity (work, studies, etc.) in Norway for more than 12 months in the last 3 years. Compulsory national service and/or short stays such as holidays are not taken into account.

For further information about the position, please contact Senior Scientist, Espen Remme ([espen.remme@medisin.uio.no)](mailto:espen.remme@medisin.uio.no)). You will find more information about The Intervention Centre at: [www.ivs.no](http://www.ivs.no/)

Application deadline: 1st October 2017.