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INSELSPITAL
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HOPITAL UNIVERSITAIRE DE BERNE
BERN UNIVERSITY HOSPITAL

PhD position in electrical/biomedical engineering (100%)

You are excited about how miniaturized cardiac pacemakers offer new perspectives for cardiovascular patients?
The Group for Cardiac Technology and Implantable Devices at the sitem Center for Translational Medicine and Biomedical Entrepreneurship and the Dept. of Cardiology, Bern University Hospital, develops novel technologies for cardiovascular patients. We are a highly interdisciplinary group, which collaborates with engineers and physicians from hospitals, academia, and the medical technology industry. We are offering a fully-funded PhD position for 3 years, starting in spring 2020 upon agreement.

Your tasks:

As a PhD candidate, you will conduct applied research in the field of leadless cardiac multisite pacemakers. Such devices are strongly desired from a clinical perspective. However, significant technical challenges need to be overcome. In particular, a new technology for ultra-low power communication inside the heart is required. Specifically, the work will include:

- Numerical modeling of human body communication and experimental measurements on existing prototypes.
- Development and characterization of application-specific integrated circuits (ASIC) for ultra-low power communication based on conductive communication.
- Integration of the developed circuits in pacemaker prototypes in collaboration with mechanical engineers.
- Experimental validation of the developed prototypes and *in-vivo* tests of leadless pacemaker systems.

Your profile:

We are looking for a dynamic, ambitious, independent and self-motivated personality with a master's degree in electrical engineering. Biomedical engineers with a strong background in electrical engineering are also encouraged to apply. The outstanding candidate has:

- Experience in the design, simulation (e.g. MATLAB/Simulink, SPICE) and manufacturing of mixed signal circuits.
- Knowledge in simulation, design and manufacturing of application-specific circuits (e.g. Cadence Virtuoso Analog/Digital Design Environment, Cadence Spectre Circuit Simulator).
- Interest and enthusiasm to conduct interdisciplinary and applied research to improve cardiovascular therapies.
- A good understanding of basic biomedical principles.
- Excellent writing and communication skills in English, while German and French is a plus.
- Strong problem-solving, reasoning, organization, planning and analytical skills.

We offer:

- A unique R&D position in a highly interdisciplinary team working in translational cardiovascular engineering.
- A meaningful applied project at the forefront of cardiovascular device technology that benefits human health.
- The opportunity to present results in scientific journals and at international conferences.
- The opportunity to collaborate with medical technology industry, applied researchers and physicians.
- A well-defined accompanying PhD curriculum, managed by the local graduate school (www.gcb.unibe.ch).
- State-of-the art facilities in the largest center for cardiovascular medicine in Switzerland.
- A pleasant working environment in one of the cities with the highest quality of life internationally.
- A fully funded position for 3 years (salary according to the Swiss National Science Foundation, www.snf.ch).

Contact:

We are looking forward to your application that includes a motivation letter, a complete CV, certificates and references. Please find further information here www.sitem.unibe.ch/research/cardiac_technology_and_implantable_devices/ or contact us via e-mail: Andreas Haeberlin, MD, PhD; Adrian Zurbuchen, PhD; Thomas Niederhauser, PhD (Bern University Hospital and University of Bern, Freiburgstrasse 3, CH-3010 Bern, Switzerland; andreas.haeberlin@insel.ch, adrian.zurbuchen@sitem.unibe.ch, thomas.niederhauser@bfh.ch).