

Available PhD position in fetal cardiac MRI

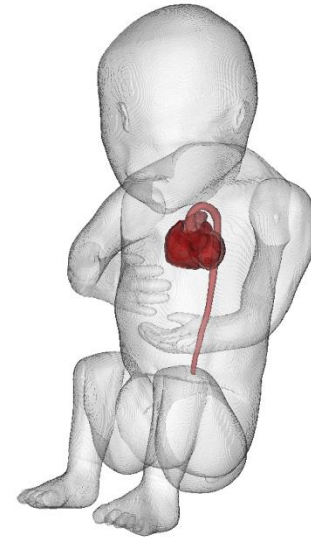
Duration: 4 years

Location: Lausanne, Switzerland

Start date: January 2022

Application deadline: November 31st 2021

Background: Advances in fetal cardiac imaging, have contributed to improved decision making and a decrease in the morbidity and mortality of children with congenital heart disease. As a result, there is growing interest in using magnetic resonance imaging (MRI) during pregnancy as a safe diagnostic tool that can compliment the current gold standard ultrasound. The convergence of emerging 3D MRI technology with the unmet challenges of fetal imaging have inspired this Swiss National Science Foundation (SNSF) funded project to create a new approach to fetal cardiac MRI. Through the development of fetal-specific dynamic 3D acquisition and reconstruction strategies we aim to create an easy-to-use comprehensive and quantitative diagnostic tool for evaluating the fetal heart in utero.



Project Description: This work will combine cutting-edge physics and engineering research with an impactful clinical application. Upon familiarizing yourself with the technical (i.e. MR acquisition and reconstruction) and clinical (fetal cardiology) aspects of the project, you will start to explore the development and optimization of 3D MRI sequences and motion-robust image reconstruction algorithms tailored to imaging the fetal heart. Initial development and simulation will be performed in Matlab followed by optimization in phantoms and healthy adult volunteers, before scanning in pregnant volunteers.

Location: This PhD project will take place in the Department of Radiology at the Lausanne University Hospital (CHUV) and the University of Lausanne (UNIL) in Switzerland under the supervision of Dr. Christopher Roy as part of the research team of Prof. Matthias Stuber. You will be part of a group of ~15 engineers and physicists working within the hospital in close collaboration with our clinical partners in Radiology and Cardiology. Our group has access to 4 state-of-the-art clinical MRI scanners, and you will actively collaborate with Siemens Healthcare, and will be able to learn pulse-sequence programming in the Siemens MRI scanner environment.

Qualifications: We are looking for highly motivated candidates with a master's degree in engineering, physics, life science, or a similar degree. Strong communication skills, and the ability to think creatively and critically within a team environment are required. Computer programming skills are desirable. Previous experience with MRI physics and image processing is an advantage.

To Apply: For further information or to apply (including a CV and motivation letter), please contact Dr. Christopher Roy (christopher.roy@chuv.ch) before November 31st 2021.