Available PhD position in flow MRI

Duration: 4 years
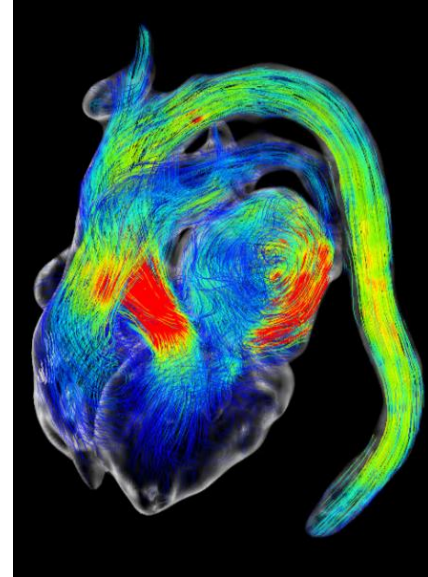Location: Lausanne, Switzerland
Start date: April 2023
Application deadline: March 15th 2023

Background: Advances in magnetic resonance imaging (MRI), have contributed to improved decision-making and patient management in diseases that affect the heart. In particular, methods for three-dimensional time-resolved flow MRI (4D flow) offer a comprehensive and quantitative assessment of the cardiovascular system. On-going technological advances seek to improve the resolution, scan time, and ease-of-use of 4D flow which offers exciting opportunities for development and discovery in this Swiss National Science Foundation (SNSF) funded project.

Project Description: This work will combine cutting-edge physics and engineering research with an impactful clinical application. Upon familiarizing yourself with the technical and clinical aspects of the project, you will start to explore the development and optimization of 3D MRI sequences and image reconstruction algorithms tailored to quantifying blood flow. Initial development and simulation will be followed by optimization in phantoms and healthy adult volunteers, before scanning in patient cohorts. This project is part of an established collaboration with clinicians in Cardiology and Radiology at the Lausanne University Hospital (CHUV) which has already had an impact in changing clinical practice. You will have the opportunity to disseminate your work and collaborate with our extensive international network of research institutions including our partners for this flow project, Northwestern University in Chicago, USA.

Location: This project will take place in the Department of Radiology at 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 ~20 engineers and physicists working within the hospital. Our group has access to 5 state-of-the-art MRI scanners, including a low-field system, and you will actively collaborate with Siemens Healthcare, and learn pulse-sequence programming.

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 March 15th 2023.