Hiwi Position:

## Assessment of Fluid Tissue Interaction Using Multi-Modal Image Fusion for Characterization and Progression of Coronary Atherosclerosis

Computer Aided Medical Procedures (CAMP) | Technische Universität München
Lehrstuhl 16 Prof. Navab / Prof. Klinker

Heart attack is the third leading cause of death in Germany. It is a cardiac injury, whereby the oxygen supply to parts of the heart gets cut off by a thrombus. Atherosclerosis of coronary arteries is the main cause of the formation of such thrombus. The main objective of this project is the correlation of dynamical and morphological information to better understand the evolution of atherosclerotic lesions.

Dynamical information can be assessed as follows: Using CT-A images of the heart, it is possible to extract a model of the coronary artery. This model can be then used for blood flow simulation. Morphological information can be acquired by using a catheter-based technology named Intravascular Ultrasound (IVUS), permitting the imaging of the inner wall of the coronary artery.

We are looking for students to support us in a joint research project with LMU Cardiology department, Sabanci University (Istanbul, Turkey) and Yeditepe University (Istanbul, Turkey). Besides the benefit of working on an interdisciplinary project in direct contact with medical partners, you have the chance to gain practical experience in registration and segmentation methods. Moreover, interested students will have the great opportunity to spend some time at the vision lab in Sabanci University (Istanbul).

If you are interested, please contact Olivier Pauly (pauly@in.tum.de).
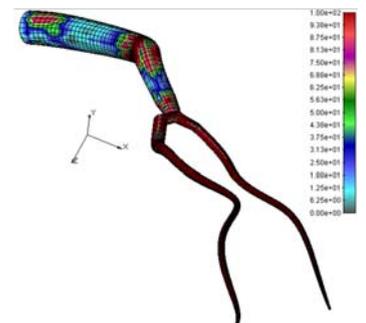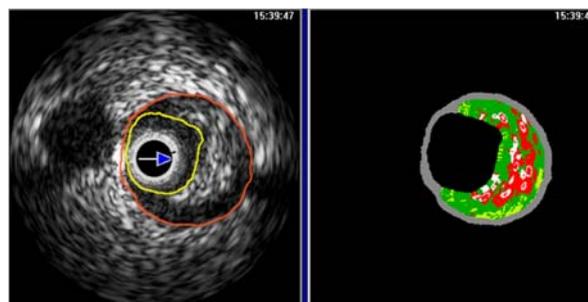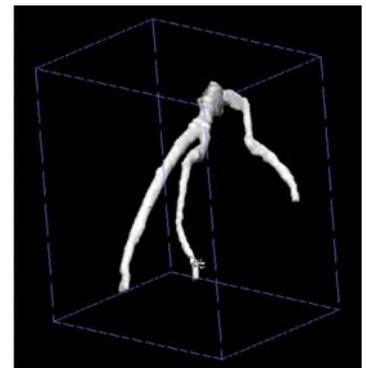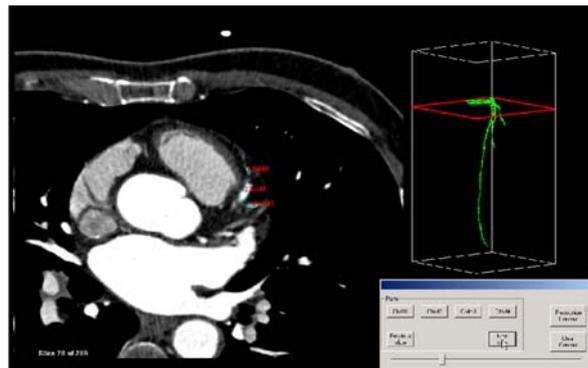
Requirements

- Programmiererfahrung (MatLAB, C++, OpenGL)

- Interesse an medizinischen Fragestellungen und Therapiemethoden

- Interesse an interdisziplinärer Zusammenarbeit

Nutzen

- Möglichkeit in interdisziplinärem Umfeld zu arbeiten
- Softwareentwicklung für medizinischen Einsatz
- Einblick in die fantastische und schnell wachsende Welt der neuesten medizinischen Bildgebungstechnik
- Lernen am Puls der Zeit