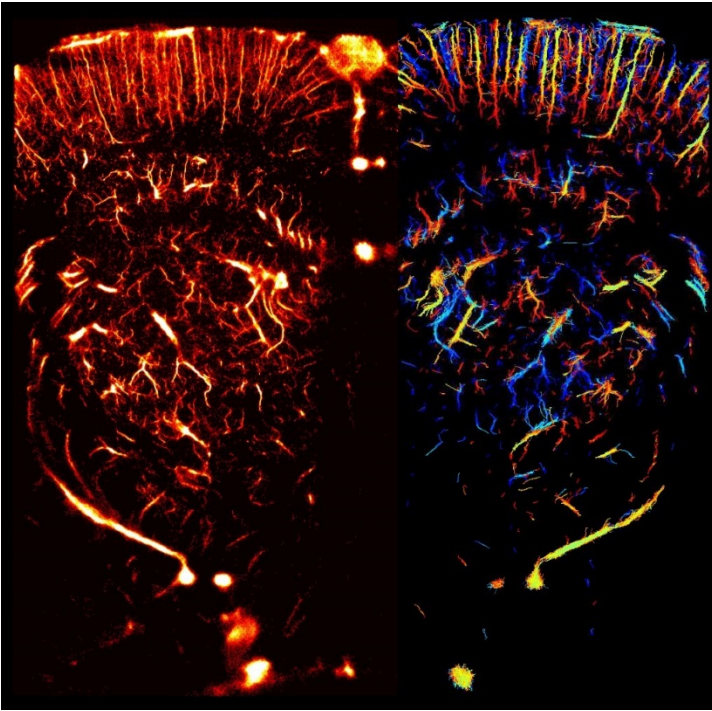# BSc/MSc-project for students in Biomedical Engineering, DTU/KU

Title: Super-resolution imaging using ultrasound

Description: By detecting and tracking individual bubbles in an ultrasound contrast agent, their exact position is estimated with micrometer precision and their trajectory can be drawn to show even the narrowest blood vessels, the capillaries. In this way, a complete map of the blood vessels in a tissue region can be made, to help evaluate the function of a given organ, the development of a tumor, etc.

In this project, the students will become familiar with the scanner we use for data acquisition, will set up a phantom for supper-resolution studies (narrow vessels in 3D-printed silicone blocks) and perform experiments. The data will be processed by existing bubble detection and tracking modules, and attempts will be made to tune and improve them.

Required qualifications: Matlab knowledge

Responsible institution: Center for Fast Ultrasound Imaging

Contact information: Borislav G. Tomov, Jørgen Arendt jensen

Allowed no of students per report: 1 or 2

DTU supervisor: Borislav G. Tomov, Jørgen A. Jensen