Vessel segmentation in Magnetic Resonance Angiography projection images
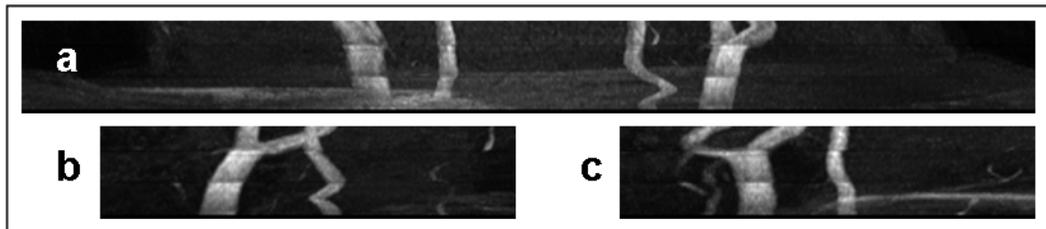

Figure 1: MR projection images from the carotids

Magnetic resonance angiography is an image modality which can be used very well for the visualization of vessels.
One possible application is the 3D acquisition of the human carotids.

In addition to the slice images, three projection images are available, the front projection (1, a), a projection from right to left (1,b) as well as from left to right (1, c).
The goal of this work is the identification of the image regions containing vessels in the three projection images. This information will later be used to speed up the segmentation in the corresponding 3D dataset.

Tasks:

- **Preprocessing**
  The acquired data is noisy and contains "steps" (different acquisition volumes). Some basic filtering & denoising has to be done.

- **Feature extraction/selection**
  Special properties of the vessels should be identified. (e.g. higher intensities, form of the vessels)

- **Classification**

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