

BERNOULLIS TAFELRUNDE

GRADUATE STUDENT SEMINAR

Thursday, 26 March, 12:15-13:00

Seminarraum 05.002, Spiegelgasse 5

ANTAL HORVATH

Universität Basel

Segmentation and Classification of Inner Structures of the Spinal Cord on MRI Images with Continuous Graph Cuts and Principal Component Analysis

First I will talk about medical image analysis and to which scientific fields it is close to. Medical image analysis is a sub-field of computer vision and has to do with artificial intelligence, machine learning, pattern recognition, object recognition, scene reconstruction, event detection, motion estimation and image restoration.

Then I want to present my PhD project that deals with constructing automatic segmentation and classification algorithms of MRI images of the internal structures of the human spinal cords. With this automatic algorithm large pharmaceutical studies of drugs against multiple sclerosis (MS) will be possible.

As I have just started with my research, I want to present my approach to segment the spinal cord. Furthermore I will talk about my first knowledge I gained about discrete and continuous graph cuts, the min-cut-max-flow theorem and the statistical principal component analysis.