



Universität  
Basel

## Research Project

### Quantification of Atrophy in the Spinal Cord

#### Third-party funded project

**Project title** Quantification of Atrophy in the Spinal Cord

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**Organisation / Research unit**

Departement Biomedical Engineering / Center for medical Image Analysis & Navigation (Cattin)

**Department**

**Project start** 01.04.2011

**Probable end** 31.03.2014

**Status** Completed

The spinal cord is a vital nervous structure of the human body. It can undergo morphological changes caused for example by either pathology or trauma. Of particular interest in this context is atrophy of the nervous tissue that can often be observed, for example, in multiple sclerosis patients or in trauma patients such as paraplegics and tetraplegics. The state-of-the-art methods for segmenting the spinal cord and measuring atrophy require substantial and time-consuming manual intervention. Thus, the focus of this work lies on automating this tedious manual process as much as possible.

The aim of the project is to develop a software tool that enables its users to automatically segment the spinal cord and derive quantitative measures that accurately quantify the progress of disease. Besides the quantification of atrophy the project aims at spatially correlating atrophy progression over a longer period of time in longitudinal studies, which will then make it possible to assess the effects of either a specific drug or of physical training on the progression of the degenerative processes.

**Financed by**

Foundations and Associations

#### Add publication

#### Published results

2846341, Pezold, Simon; Fundana, Ketut; Amann, Michael; Andelova, Michaela; Pfister, Armanda; Sprenger, Till; Philippe. C. Cattin., Automatic segmentation of the spinal cord using continuous max flow with cross-sectional similarity prior and tubularity features, Publication: ConferencePaper (Artikel, die in Tagungsbänden erschienen sind)

3223390, Pezold, Simon; Ammann, Michael; Weier, Katrin; Fundana, Ketut; Radue, Ernst W.; Sprenger, Till; Cattin, Philippe C., A semi-automatic method for the quantification of spinal cord atrophy, 978-3-319-07268-5 ; 978-3-319-07269-2, Publication: ConferencePaper (Artikel, die in Tagungsbänden erschienen sind)

**Add documents**

**Specify cooperation partners**