Automatic Segmentation of Abdominal Fat in MRI-Scans, Using Graph-Cuts and Image Derived Energies

For many clinical studies changes in the abdominal distribution of fat is an important measure. However, the segmentation of abdominal fat in MRI scans is both difficult and time consuming using manual methods. We present here an automatic and flexible software package, that performs both bias field correction and segmentation of the fat into superficial and deep subcutaneous fat as well as visceral fat with the spinal compartment removed. Assessment when comparing to the gold standard - CT-scans - shows a correlation and bias comparable to manual segmentation. The method is flexible by tuning the image-derived energies used for the segmentation, allowing the method to be applied to other body parts, such as the thighs.

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Image Analysis & Computer Graphics, Rector's office, Statistics and Data Analysis, University of Copenhagen
Pages: 109-120
Publication date: 2017

Host publication information
Title of host publication: Image Analysis
Volume: 10270
Publisher: Springer
ISBN (Print): 9783319591285
(Lecture Notes in Computer Science, Vol. 10270).
Keywords: Computer Science, Image Processing and Computer Vision, Pattern Recognition, Artificial Intelligence (incl. Robotics), Computer Graphics, Data Mining and Knowledge Discovery
DOIs: 10.1007/978-3-319-59129-2_10
Source: FindIt
Source-ID: 2372493663
Research output: Research - peer-review › Article in proceedings – Annual report year: 2017