Reviewer's report

Title: A semiautomatic tool for prostate segmentation in radiotherapy treatment planning

Version: 2
Date: 23 October 2013

Reviewer: S. Sara Mahdavi

Reviewer's report:

In this work, a semi-automatic tool for segmenting the prostate in MRI images is presented. A prior shape is created by fitting ellipses to manual segmentations. From this elliptical model and initial points marked by the user, a best fitting set of ellipses is found.

Major Compulsory Revision:

My main concern is the novelty of the work and more specifically the justification of using ellipses for segmenting the prostate. There have been previous attempts to segment the prostate by fitting ellipses and ellipsoids (see Badiei et al's work) but the general shape of the prostate is not elliptical and therefore a relatively large error can occur especially in the posterior region of the gland. You have focused on introducing more flexibility of the model by introducing slice-wise best fitting ellipses (a reasonable approach which I assume this is to conform better to the sup-inf shape of the prostate) however, you use an over simplified model, i.e. ellipses, in each slice. A more sophisticated model is in my opinion a better approach.

On page 3, it is claimed that this approach results in the same accuracy with less effort and it is stated in the article that this method produces initial contours from which physicians can start from. It would be beneficial if the authors report the proportion of the slices that have to be modified by a physician. This information is useful to know since in practice a physician knows where the prostate boundary is and generally does not need help finding the prostate boundary, therefore, initial contours that usually need modification would not simplify the process of contouring.

How robust is the algorithm to changes (e.g. inter/intra-observer variability) in initialization?

Minor essential revisions:

page 9, line 2: The number of slices containing prostate information is 10.478+-2.626.... What does that mean?

Level of interest: An article of limited interest

Quality of written English: Acceptable
**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that other than conducting research on a very similar subject, I have no competing interests.