Weakly Supervised Geodesic Segmentation of Egyptian Mummy CT Scans

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Overview

CT scans are standard data used in medical image processing, but the methods proposed in the literature are not suitable for 3D mummy CT scans segmentation. In fact, mummies’ tissues do not have the same characteristics as typical medical data.

Our contribution: we propose an efficient interactive segmentation method, with limited user interaction needed. To the best of our knowledge, this is the first work attempting to solve the problem of mummy 3D CT scan segmentation by a weakly supervised method.

Results

Qualitative Results

Quantitative Results

In the absence of a large number of subjects for validating the proposed method, we generated additional CT scans by transforming the original scan using thin-plate splines [1] for evaluation.

We compared the average IOU score of our proposed method with standard interactive segmentation methods:

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<td>OFU</td>
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<td>OFU with tracking</td>
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We performed an ablation study on the different available and generated subjects, in order to assess the effectiveness of the tracking algorithm:

References: