Computer Vision Report

Incisor Segmentation

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1 Introduction

The aim of this project was to write an algorithm that is capable of segmenting the upper and lower incisors in panoramic radiographs using a model based approach. The choosen method is called Active Shape Models and it is described in [1] Cootes at al. The implemented model can be broken down into sub-parts, namely: Building the model, Preprocessing the input images and Fitting the model on the new image. In addition our observations and experimental results will be discussed in the final part of the report.

1.1 Active Shape Model

The reason we are building an Active Shape Model is to create a more general representation of each incisor, which is not very sensitive to variability, this way allowing to analyse and process complex images such as radiographs. This method is based on a prior model of what is expected to be seen on the new image. In our case these are the incisors, represented with landmarks.

References

[1] T. Cootes. An introduction to Active Shape Models. In , *Image Processing and Analysis.,*. pages 223–248. 2000.

[2] An introduction to Active Shape Models

[3] A statistical method for robust 3D surface reconstruction from sparse data

[4] Model reconstruction