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EAR SEGMENTATION USING ACTIVE CONTOURS MODEL

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Ear Segmentation using Active Contours Model

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SUPERVISOR'S APPROVAL

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Approved by

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July 29, 2015

STUDENT'S DECLARATION

I certify that this report and the project to which it refers is the product of my own work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practise of the discipline.

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ABSTRACT

Active Contours Model is an image processing technique which is efficient for automatic ear detection on a side face ear image. The technique first separates ear regions from the rest of the image and then envelops the ear within the image. Ear detection process involves three major steps. Initialization process is done to determine the optimal location of the ear from the image. Then, the image is resized to allow faster iterations of the Active Contours. Next, iteration process of Active Contours Model to detect the boundary of the ear and segment the ear from the rest of the image. Then, ear multiplication to validate and compare the segmented ear whether it fits with the original image. To handle the detection of ears of various shapes and sizes, an ear template is created considering the ears of various shapes and resized automatically to a size suitable for the detection and iterations of the technique. The evaluation method for the accuracy is Area Overlap. The results shows an average of 74.55% for the left ear images and an average of 75.30% for the right ear images. The recommendations can be done by adjusting the initialization coordinate to a more optimized scale.

Keywords: Ear, Image processing, Ear segmentation, Initialization, Active Contours Model.