UNIVERSITI TEKNOLOGI MARA

AUTOMATIC EAR RECOGNITION UNDER VARYING ILLUMINATION

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Abstract

Recognition systems grow rapidly and there are many recognition systems that have been investigated such as iris systems, fingerprint systems, face detection systems and many others. In this thesis, we created ear database under variant distances and illumination environment consisting of 200 images from fifty persons. In addition, we identified a new ear segmentation approach which is able to extract the ear section despite of the distance and illumination of the captured ear image. The processes to segment the ear sections are Biased Normalized Cuts, image adjustment, entropy, thresholding, skeletonizing, image filling, image opening and substitution. Then, we enhanced the ear recognition rate. For feature extraction, we used 1D log-Gabor filter to generate an ear code and hamming distance is utilized as matching algorithm. Subjective evaluations showed that our proposed system managed to achieve 95% for ear segmentation rate and 96.662% for ear recognition rate.

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