FACE AND FACIAL EXPRESSION DETECTION FROM STATIC IMAGES

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ABSTRACT

This research is a preliminary research to identify facial expression. The research objective is to detect face and facial expression from static images that contain human face. Image can be obtained from a image or from video. For the video, the image be converted to frames using FrameGrabber software. For face detection, it will use the Ranknet method is being used to extracted the image and convert to grayscale image. Then the resolution of the image is reduced due to memory constraint and to increase processing speed. The experiments have been made using Sobel Edge Detection, Canny Edge Detection, Prewitt Edge Detection and Robert Edge Detection. When experiment to detect face figure is conducted with zero threshold, Sobel Edge Detection is the best method to apply, while Canny Edge Detection detected with much noise. But if experiment conducted with 0.35 threshold, Sobel Edge Detection, Prewitt Edge Detection and Robert Edge Detection only detects less edge, while Canny Edge Detection can detect face figure properly. From this experiment, Canny Edge Detection has been proven to be the best technique for edge detection. Then using prior knowledge, the eyes and mouth regions are detected. The result of this region could be input to any pattern recognition classifier.

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CHAPTER 1

INTRODUCTION

This chapter will cover attributes about the "Face Detection and Facial Expression Region from Static Images" using image processing technique. It will cover:

i. Background
ii. Problem Statements
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v. Project Significant
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1.1 Background

Face recognition has emerged as an investigating research field both under the machine and the biological vision systems point of views. In fact, this research field has attracted intense and growing attention by the vision research community, finding many important practical applications, such as in security, human-machine interaction and psychology purpose. It has many applications in a variety of fields such as identification for law enforcement, authentication for banking and security system access, psychological (detecting facial expression) and personal identification among others. The methods for face recognition can be broadly grouped in two classes, i.e. static and dynamic approaches. The former concerns face recognition in single (static) images, while the latter concentrates on people possibly moving in video sequences. The static approach has developed many interesting and powerful techniques, succeeding in different applications. Nevertheless, as far as recognition in video sequences is concerned, much work still remains to be done.