Final Year Project Report

Compound emotions detection

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Dedication

This all hard work is dedicated to our families and our teachers who has supported and helped us in any kind of problems and difficulties.

Final Approval

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We are also thankful to Martinez group for providing their dataset which was helpful in our research work.

ABSTRACT

The automatic analysis of human facial emotion is a demanding problem with many applications. Emotion detection and recognition is an emerging area of researchers for last few years. The human face has several emotions in which 7 are basic emotions and 15 are compound emotions. The basic emotions are sadness, fear, surprise, anger, and disgust, happiness and the last one is the neutral and the compound emotions are those which are made up of the combination of the basic emotions. It is cleared by the example that a person see something unexpected then he gets surprised and when he faces some scared environment or some unpredictable than he get fearful so when these both things happen together than a new emotion comes into existence that is fearfully surprised this emotion is called the compound emotion because it is made up of the two basic emotions. In this paper we explore the deep learning for the increase of accuracy in detection of both basic and compound emotions. We use the Martinez dataset [1] to extract the features and to find more valid and clear accuracy while image detection. We find the accuracy of basic and compound emotions individually in which we will use different types of approaches in the deep learning.

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DEFINITIONS AND ACRONYMS

Emotions: The emotions are the state of feelings or mood of a person which tells the mental state of a person. The state of feeling of a person describes his mood state and personality. There are two kinds of emotions Basic emotions and Compound emotions.

Basic emotions: There are seven kinds of basic emotions i.e. sadness, fear, happiness, anger, surprise, disgust and neutral. Through these emotions we can identify the mental behavior of the human being.

Compound emotions: Compound emotions are those emotions which are made due to the combination of two basic emotions. These emotions include the sadly disgusted, happily disgusted, sadly fearful, fearfully disgusted, sadly angry, sadly surprised, fearfully angry, happily surprised, fearfully surprised, disgustedly surprised, hatred, appalled, and awed.

Deep learning: Deep learning is the subset of the machine learning .it is used to implement the artificial intelligence. It is used for the feature extraction and for large dimensionality of data.

Action Units: It is the activation or deactivation of the muscle or group of muscles.

Fiducial Points: These are the land marks on the human face to get the distance between muscles. it can also be explained as the points on the image for reference of viewing an imaging system which display on produced image.

FACS: Facial Action Coding System.

CNN: Convolution Neural Networks. It is the class of the deep learning.

DNN: Deep Neural Networks.

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1 INTRODUCTION

1.1 Problem Overview

The detection of emotion is not the easy task. The emotions are of two types one of them are basic emotions and the other one is the compound emotions. The accuracy of the compound emotion is difficult than the basic emotions. The accuracy detection of the compound emotion is not easy task. The researchers and scientist starting work on the compound emotion detection recently to get the accuracy in the detection of the face expression through deep learning.