Graduation thesis in Computer Science

Human emotion recognition based on facial landmarks

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Abstract

Machine Learning (ML) is everywhere, since long that it has become a vital part of our life. From features like Facebook’s face recognition feature to tag your friend to even more complex ones like automatons, ML’s development is increasing significantly. Being a branch of ML, Image Processing also take part in being an important part of the whole. Realizing that there are researchers who are working on recognizing human’s face emotions, we also want to take part in improving that problem my approaching a different implementation that is recognizing human’s face emotions (RHFE) based on facial landmarks which was represented on “One Millisecond Face Alignment with an Ensemble of Regression Trees” by Vahid Kazemi and Josephine Sullivan.

Keywords: machine learning, image processing, facial landmarks, human emotion

TOB (Update later)

## Introduction

In this thesis, we propose an implementation that could operate fast enough to recognize people’s facial emotions. This chapter provides an overview of the problem area (Section 1), describe the scecific problem that we deal with in this work (Section 2), sketches our approach for solving this problem (Section 3) and outlines the rest of the thesis (Section 4)

### Overview of the Area

### The Problem

### The Approach

### Outline of the Thesis

We will provide our explaination of foundations (Chapter 3) and data collecting procedure (Chapter 4). After design and implement our system (Chapter 5), we will evaluate its result based on previous work from others (Chapter 6). Then we will discuss about the advantage and disadvantage of our implementation through Chapter 7 and reach out for a conclusion in Chapter 8.

## foundations

### Methodology

## Preprocessing data

### Data collecting

#### Collecting resource

Our datasets are included in 300-W In The Wild Challenge paper which consists of: HELEN, AFW, IBUG, LFPW dataset.

#### Result

Approximately 3.500 images have been collected with notation files included.

### Preprocessing data

#### Methodology

For each image + its own notation, we will crop the image by its facial landmarks’s bounding box, then resize it to 100px wide and save it to this with the facial landmarks’s new position calculated into different folder.

#### Result

## system and implementation

### System architecture

### Platform

### Library

### Machine learning

## EVALUATION

## Discussion

### Strong points of this method

### Limitations

### Future of this method

## conclusion

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