Face Beauty Score Implementation (FBI)

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[J.21, test]

Abstract: The LaTeX-Class `lni` uses the layout for articles in LNI. This document describes the usage of the LaTeX-Class and gives some examples. This abstract should give a short overview about your work and can have between 70 and 150 words. The formatting will be done automatically within the abstract area.

Keywords:

Investigate the literature from psychology, medicine and pattern recognition for face beauty scoring methods

1 Introduction

In the recent years, artificially generated media (images, video, sound, etc.) has seen a noticable increase in production. This can in large part be attributed to the steady grow of better computers as well as more stuff.

One area that has been getting a lot of notice is AI-generated images. This can be seen in multiple big software solutions such as [Names i don't remember right now]. With this rise, it has become more important to enable software to have some idea of the likelyhood of an image being a fake or real.

As seen in ref[humans more beutiful huehue] humans tend to score higher on attractivness with more symmetric faces. This is further investigated in ref[] that comes to some conclusion.

With the enormous amounts of images being produced by GAN's and published on the interent, multiple sources worry that this could lead to a detereoration in results using AI, as the generated content might be slightly misleading.

To mitigate this, this survey will instead look at handcrafcted approaches that take spring from research regarding what parameters humans value other humans attractivness based on.

First a taxonomy is introduced expanding on the already established ISO[...] for describing compute-related tasks. Then an implementation of a current solution for a hand-crafted

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approach will be used. Lastly a survey of current handcrafted solutions will be shown, comparing several current solutions in there established benefits, speeds and more.

Lastly a comparison between the chosen implementation and surveyed implementation will be reviewed pondering on the benefits of the chosen solution as well as its weaknesses.

2 Background

This section gives an overview of background information regarding. Section 2.1 explains relevant concepts and their background for stuff not covered by the

2.1 Nomenclature

3 Methodology

4 Litterature Survey

5 Experimental evaluation

From the handcrafted approaches it was determined, that [J.21,] implemented a good hybrid between hand-crafted features and using machine-learning to heighten the applicability. The implementation of the approach was derived from instructions in their paper, although some things were not clear, and were therefor guesstimated.

The solution uses the following pipeline:

1. Querry image
2. Extract features from this image
   - Facial landmarks
   - Texture
   - Color
   - Shape
3. Gather extracted features in one vector
4. Use feature-vector as input to different machine-learning-models

All features are handcrafted and based on solid research into what constitutes a pretty face seen from a human standpoint.

5.1 Extracting features

This section will discuss the different features extracted, how they are calculated and why they are used.

5.1.1 Facial landmarks

5.1.2 Texture

5.1.3 Color

5.1.4 Shape

5.2 Models

5.3 Results

6 Discussion

References

[J.21] J. Iyer, Tharun; K., Rahul; Nersisson, Ruban; Zhuang, Zhemin; Joseph Raj, Alex Noel; Refayee, Imthiaz: Machine Learning-Based Facial Beauty Prediction and Analysis of Frontal Facial Images Using Facial Landmarks and Traditional Image Descriptors. Computational Intelligence and Neuroscience, 2021:1–14, 2021.