Bilkent University

Department of Computer Engineering

Senior Project

Who do you resemble?

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Project Specifications

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Motivation:

People always discuss whether they resemble to their fathers or mothers. They also wonder how much they resemble to their favorite stars. However, the answer of these questions differs from person to person. Everybody seems to have their own opinion on this subject, however, would not it be nice if there were a scientific method to measure it? By this way, final words upon the matter could be told.

Problem Definition:

Finding the similarities between faces is a very interesting face recognition problem. Besides, face recognition is still a developing subject that can be improved and used in different fields with different applications, such as at security, shopping, marketing, media, criminal recognition etc. Although the face recognition problem has been studied for several years, it has not been solved yet. It is mostly very hard for people to compare two faces and find the exact similarities or differences. The computers are supposed to perform these operations better than people and give approximately exact results in the issue of comparing human faces.

Methodology:

Since face recognition is a large scale problem, in this project we will narrow the problem domain to obtain concrete results and try to find solutions to this problem by using the face similarities in a given data set. To begin with, we will form the face database consisting of face photographs taken from front side. The website MyHeritage performs a comparison between faces by comparing a given photo with a certain set of celebrity photos. We will start with a data set consisting of photographs used in MyHeritage. Then, we will continue with a literature survey on face similarity algorithms, since there are lots of algorithms developed on this subject. We are going to use the existing algorithms in our research and test these existing algorithms in the context of our problem. We will analyze and compare the results. Later, if one of them proves to be efficient amongst others and gives a good performance, then we will try to improve that algorithm. Otherwise, we will work on developing a new algorithm for our problem that gives better results than the existing algorithms. With the usage of final algorithms, a given photograph will be compared with the photographs in the data set and we will get a result that shows how much the face in a given photograph resembles to which face in the data set.