Title:Age Classification Using Neighborhood Properties

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ABSTRACT

Age estimation can be defined as determination of a person's age or age group. Person's age can be determined in many ways, but this research is concerned with age estimation based on two-dimensional images of human face. Human faces, as important visual cues, convey a significant amount of nonverbal information to facilitate the real-world human-to-human communication. Human age estimation by face images is an interesting yet challenging research topic emerging in recent years. Facial age estimation is a relatively new research topic in the area of facial image analysis. Compared with other facial information such as identity, expression and gender, estimation of age exhibits certain difficulties. Even a human observer can rarely guess the exact age of a face image. The reason is that the facial aging progress could be affected by various factors, including not only the human gene, but also many external factors, such as health, lifestyle, weather conditions, etc. This makes age estimation a unique and challenging problem. The current age estimation performance is still not good enough for practical use and more effort has to be put into this research

direction. Age estimation is an important task in facial image classification. Human face embodies rich amount of information usable in many interesting applications like age classification, face recognition, facial expression etc. These issues has inspired many researchers and leading to a diverse set of solutions. In this respect, more is needed to prove the classifications based on human faces to be worthwhile in more general and realistic scenarios, i.e., in settings acquired in unconstrained conditions. Any classification involved with human faces is a very challenging problem because the appearance of a particular face varies due to changes in pose, expressions, illumination, and other factors such as make-up, occlusions, image degradations caused by blur and noise etc. Thus, finding a universal classification model based on human faces for various issues is troublesome.

Human faces, as important visual cues, convey a significant amount of nonverbal information to facilitate the real-world human-to-human communication**.** As a result, the modern intelligent systems are expected to have the capability to accurately recognize and interpret human faces in real time. Facial attributes, such as identity, age, gender, expression, and ethnic origin, play a crucial role in real facial image analysis applications including multimedia communication, human computer interaction (HCI), and security. In such applications, various attributes can be estimated from a captured face image to infer the further system reactions. For example, if the user's age is estimated by a computer, an age specific human computer interaction (ASHCI) system may be developed for secure network/ system access control. The ASHCI system ensures

young kids have no access to internet pages with adult materials. A vending machine, secured by the ASHCI system, can refuse to sell alcohol or cigarettes to the underage people. In image and video retrieval, users could retrieve their photographs or videos by specifying a required age range. Ad-agency can find out what kind of scroll advertisements can attract the passengers (potential customers) in what age ranges using a latent computer vision system.

Although automatic image-based age estimation is an important technique involved in many real-world applications, it is still a challenging problem to estimate human ages from face images.

The present research divides the facial image in to various regions and based on facial attributes. And evaluates various features related to shape, size, texture on various facial parts like eye brows, ears, mouth, nose, chin etc… The present research make's use of various classifiers to classify age in to various groups.