

Age invariant face recognition: A survey

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Facial aging is an important yet challenging problem that has recently been added to the problem of the face recognition. Human face varies over time in many aspects, including large inter-user similarity such as facial texture wrinkles, shape weight gain, facial hair, presence of glasses, etc. and large intra-subject variations such as pose, illumination, expression, and aging. Age invariant face recognition recently has gained a significant interest within the image processing and computer vision research community because of its explosively emerging real-world applications in many areas, such as forensic art, electronic customer relationship management, security control and surveillance monitoring, biometrics, entertainment, and cosmetology. This paper presents a thorough analysis on the problem of facial aging and further provides a complete account of the many interesting studies that have been performed on this topic. The face recognition methods that overcome aging fall into two main categories: generative and non-generative. Here we discuss a detail analysis of above two approaches that have been proposed for this problem and offer insights into future research on this topic. However, designing an appropriate feature representation and an effective matching framework for age invariant face recognition remains an open problem as no reliable and high performing research result is reportedly implemented. Investigation results related to various illumination conditions, different expressions, biometric performance issues, etc are not satisfactory or not available at all.

Key words: Age invariant face recognition, craniofacial growth, facial feature drifts, generative approach, non-generative approach

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