

Abstract: Face Recognition using Fuzzy Measure Method

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Abstract

This study proposes a mathematical and morphological erosion calculation through defuzzification of the fuzzy set measure corresponding to the fuzzy integral by reducing detecting areas required for matching through areal labeling and filtering and applying the template matching uses edges to the detecting areas. It defines a λ -fuzzy set measure in application and all subsets of defuzzification for fuzzy sets which measures degrees of inclusion on the fuzzy set measure of each subset, replaces as a result of the fuzzy integral by performing defuzzification of images within the mask of such measures, and defines a fuzzy morphological calculation operator by an erosion on the basis of the fuzzy set measure. As a result of an experiment, the heterogeneous template matching shows 86% in achievement and the matching based on the fuzzy set measure 92%, respectively and the heterogeneous matching took average 27.4 seconds in performing and the fuzzy matching averaged 13.3 seconds, separately. It is proved that the proposed method in this study for the fuzzy set measure achieves more strong detections on the facial color and the face in the similar background than using the method of heterogeneous template matching, and reduces the detecting time by skipping the templates.