

عنوان مقاله:

Fuzzy Local Binary Patterns: A Comparison between Min-Max and Dot-Sum Operators in the Application of Facial Expression Recognition

محل انتشار:

هشتمین کنفرانس ماشین بینایی و پردازش تصویر ایران (سال: 1392)

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خلاصه مقاله:

The Local Binary Patterns (LBP) feature extraction method is a theoretically and computationally simple and efficient methodology for texture analysis. The LBP operator is used in many applications such as facial expression recognition and face recognition. The original LBP is based on hard thresholding the neighborhood of each pixel, which makes texture representation sensitive to noise. In addition, LBP cannot distinguish between a strong and a weak pattern. In order to enhance the LBP approach, Fuzzy Local Binary Patterns (FLBP) is proposed. In FLBP, any neighborhood does not represent only by one code, but, it is represented by all existing codes with different degrees. In FLBP, any fuzzy Intersection and Union operators may be used. In this study, the following operators are applied and their results are compared together: Dot-Sum, Min-Max and normalized Min-Max. Based on the extensive experiments, the fuzzy Min-Max operators are more useful and can improve the accuracy in the application of Facial Expression Recognition (FER) about 4% (i.e., from 82.98% to 86.88%).

کلمات کلیدی:

component; Fuzzy Local Binary Patterns; Min-Max Operators; Dot-Sum Operators; Facial Expression Recognition Support Vector Machine

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