A Robust Technique to Characterize the Palmprint using Radon transform and Delaunay triangulation

Abstract

For the purpose of biometric applications, we explore in this paper a new robust approach to characterizing palmprint features. Instead of processing the acquired image in the spatial domain, the proposed technique extracts palmprint features using Radon transform and a geometric Delaunay triangulation jointly. In such a process, Radon transform enables the extraction of directional characteristics from the palm of the hand. Afterwards, the most significant information is structured using Delaunay triangulation, thus providing a specific palmprint signature. In order to compare the uniqueness as well as the stability of the palmprint signature, Hausdorff distance has been used as a criterion of similarity. As will be shown in this paper, the palmprint signature is very robust even when considering a low Signal-to-Noise Ratio (SNR). Promising results are obtained from a local database containing 200 palmprint images. This technique is mainly appropriate for authentication applications.
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Reference

- D. S Huang, W. Jia and D. Zhang, “Palmprint verification on principal lines”, Pattern Recognition, vol. 41, 2008, 1316-1328.
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