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Triangular Geometric Feature for Offline Signature Verification

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Abstract : Handwritten signature is accepted widely as a biometric characteristic for personal authentication. The use of appropriate features plays an important role in determining accuracy of signature verification; therefore, this paper presents a feature based on the geometrical concept. To achieve the aim, triangle attributes are exploited to design a new feature since the triangle possesses orientation, angle and transformation that would improve accuracy. The proposed feature uses triangulation geometric set comprising of sides, angles and perimeter of a triangle which is derived from the center of gravity of a signature image. For classification purpose, Euclidean classifier along with Voting-based classifier is used to verify the tendency of forgery signature. This classification process is experimented using triangular geometric feature and selected global features. Based on an experiment that was validated using Grupo de Senales 960 (GPDS-960) signature database, the proposed triangular geometric feature achieves a lower Average Error Rates (AER) value with a percentage of 34% as compared to 43% of the selected global feature. As a conclusion, the proposed triangular geometric feature proves to be a more reliable feature for accurate signature verification.

Keywords : biometrics, euclidean classifier, features extraction, offline signature verification, voting-based classifier
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