Online Authenticity Verification of a Biometric Signature Using Dynamic Time Warping Method and Neural Networks

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Abstract : An offline signature is well-known however not the safest way to verify identity. Nowadays, to ensure proper authentication, i.e. in banking systems, multimodal verification is more widely used. In this paper the online signature analysis based on dynamic time warping (DTW) coupled with machine learning approaches has been presented. In our research signatures made with biometric pens were gathered. Signature features as well as their forgeries have been described. For verification of authenticity various methods were used including convolutional neural networks using DTW matrix and multilayer perceptron using sums of DTW matrix paths. System efficiency has been evaluated on signatures and signature forgeries collected on the same day. Results are presented and discussed in this paper.

Keywords : dynamic time warping, handwritten signature verification, feature-based recognition, online signature
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