INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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SHORT ABSTRACT

In this thesis, we propose a number of online signature verification systems, in line with DTW based approach. We see that such systems in literature perform a temporal alignment between the feature vectors that are derived at each sample point of the online trace of the signatures being compared. The resulting scores after the accumulation of distance values along the warping path are used to verify the authenticity of the signature. From the survey of works, we note that the warping path, leading to the DTW score, is rarely exploited for verification. The warping path is obtained by placing constraints on the alignments between pair of sample points of the two signatures being compared. In this thesis we demonstrate that, at times, the sole dependence on the DTW score may not be effective enough in discriminating the skilled forgery signatures from the genuine. This is the case, especially, when the signature patterns exhibit values that are quite close to each other. The verification decision (based on the threshold), may lead to either a genuine signature getting rejected and/or a skilled forgery signature getting accepted. Thus there arises a need to improve the verification capability of the traditional DTW system. We believe that the analysis of the characteristics of the warping path in the cost matrix may provide us additional cues that can be possibly exploited for reducing the false acceptance of forgeries and rejection of genuine signatures. We explore in this direction by proposing three different strategies.