Online Signature Feature Extraction from Video

József Németh

Handwritten signature verification is an intensively investigated area through it is an easy way to electronically verify a person's identity. While other authentication techniques may be more reliable, HSV is more convenient and less intrusive. Most early works focused only on the offline (static) HSV which only requires only an image of the signature. When the signatures are acquired using an electronic graphic tablet or an other special device the dinamics (i.e. the movement) of the writing is also captured and can be used for the verification (online systems, see [1]).

We present a video based online signature verification method. The signatures are acquired using a low-cost camera which records not only the track of the pen tip but other data like the movement of the whole pen. We use calibration patterns to estimate the camera parameters thus the trajectory of the pen can be reconstructed. Furthermore we extract other features which are also used to compare the signatures data.

We performed our experiments on our private database in which each person provided 10 genuine and 5 forgery signatures. The learning dataset is consisted of 5 randomly selected genuine signature for each signer. The comparison and classification of the signatures are achived using classical online HSV methods like dynamic time warping (DTW). These experiments showed that which features can be used most efficiently for signature verification. The proposed system achieved an equal error rate of 6%.

References

[1] G.K. Gupta. The State of the Art in On-line Handwritten Signature Verification, 2006.