短文

一种基于签名分段和HMM 的离线中文签名验证方法

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摘要
离线中文签名的自动验证是一个极其复杂的问题，其困难主要在于难以建立能够容忍类内偏移同时对类间区别相对敏感的签名模型. 借鉴离线中文识别系统中笔划提取的成功经验，同时结合签名验证自身的特点提出了一个计算更简单、鲁棒性更高的签名分段方法. 对每个分段提取一个六维的特征矢量，按特征矢量的分量在物理意义上的区别将特征矢量分为两组分别进行矢量量化，以得到观测值序列. 用每个签名个体的12 个真实签名进行训练得到该签名个体的模型. 实验中使用了 4576 个测试签名进行验证，得到了交叉错误率为5.5% 的较好结果.

关键词　 签名验证　 分段　 隐马尔柯夫模型　 矢量量化

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Off-Line Chinese Signature Verification Based on Segmentation and HMM

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Abstract
Automatic off-line Chinese signature verification is a very complicated problem. The difficulty lies in the fact that it is hard to find a signature model that is insusceptible to intro-classes distance and at the same time is sensitive to inter-classes distance. In this paper, a simple robust segmentation method with low computation cost is proposed which can successfully extract strokes of handwritten Chinese characters and takes into account the characteristics of signature verification. After being segmented and feature extracted, each signature is represented by a series of six-dimensional vectors quantized using an improved vector quantization method to obtain a series of observation values. Twelve genuine samples were used to train the signature DHMM of a writer and 4576 signatures are used in the test. The cross error rate is only 5.5%.

Key words　 Signature verification　 segmentation　 HMM　 vector quantization

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