工程与应用

基于ANN的哈萨克文手写文字识别系统的研究

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摘要　　光学字符识别系统在自动处理，人机交互，办公自动化以及商业领域中有非常广泛的应用。论文主要讨论如何结合结构方法和神经网络的技术，来实现哈萨克语手写文字识别系统的实现。该方法有以下几个优点：方法使用了基于规则（结构）的方法和分类测试；方法更加适合于像哈萨克文字一样具有较大的字符集和字符尺寸不一致的字符集；特征提取的代价较低，运行时间主要由字符尺寸和字体决定。该系统使用一个五层的人工神经网络对字符进行分类，使用10个用户的不同的手写字体进行测试，正确识别率为91%。

关键词　　手写文字　哈萨克字符　平行细化　特征提取　人工神经网络

分类号

Hand-written Kazakh character recognition system using artificial network

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Abstract

Character recognition system can contribute tremendously to the advancement of the automation process and can improve the interaction between man and machine in many applications，including office automation，check verification and a large variety of business and data entry applications.The main theme of this paper is the automatic recognition of hand-written kazakh characters using artificial neural networks in addition to conventional techniques.This approach has a number of advantages；it combines rule-based and classification tests；it is more efficient for large and complex sets such as kazakh characters；feature extraction is inexpensive and the execution time is independent of character font and size.Finally，a five layer artificial neural networks is used for the character classification.The system was tested by 10 different users，whose writing range from acceptable to poor in quality and the correct recognition rate was 91%.

Key words　hand-written　Kazakh characters　parallel thinning　feature extraction　neural networks

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