

论文

基于方向场信息的指纹图像质量评测

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摘要:

指纹图像的质量严重影响指纹识别系统的性能,指纹图像质量评测在指纹识别系统中的指纹分割、匹配等环节有重要应用,对指纹识别算法的研究具有重要意义。利用指纹图像的方向场信息,提出了一种基于指纹方向场信息连续性的指纹图像质量评测方法,评测结果将指纹图像分成质量较好和较差两类。该评测方法对于指纹图像的每个分块,分别计算原始方向场信息和低通滤波平滑后的方向场信息,根据统计的整幅图像低通滤波平滑前后原始方向场的变化率,评测指纹图像的质量。实验结果表明该方法能够较为有效地提高低质量指纹图像质量评测的正确率。

关键词: 指纹图像质量 质量评测 方向场连续性 低通滤波 变化率

Quality evaluation for fingerprint image based on orientation field

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Abstract:

Fingerprint image quality seriously affects the performance of fingerprint identification system, quality evaluation for fingerprint image has important applications in fingerprint identification system such as the fingerprint segmentation, matching etc, and is also of great significance on the research of fingerprint recognition algorithm. In this paper, using fingerprint image orientation field information, a quality evaluation method for fingerprint image based on the continuity of the orientation field information is presented. For each fingerprint image sub block, the original orientation field information and the new orientation field information smoothed through Low pass filtering are calculated in this method, and the quality of fingerprint image is evaluated based on the statistics of the rate of orientation change after Low pass filtering. Experimental results show that the method proposed can more effectively improve the quality classification accuracy on fingerprint image with low quality.

Keywords: fingerprint image quality quality evaluation continuity of orientation field Low-pass filtering the rate of change

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