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An Improved Hough Transform-Based Fingerprint Alignment Approach

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Abstract

An improved Hough Transform based fingerprint alignment approach is presented, which improves computing time and memory usage with accurate alignment parameter (rotation and translation) results. This is achieved by studying the strengths and weaknesses of existing Hough Transform based fingerprint alignment algorithms, and combining the strengths to an improved approach. The results of alignment parameters are checked manually for each image after alignment. The experimental results indicated that the improved approach improves accuracy at a less computing time and memory usage. The experiments were performed using FVC2000 and FVC2004 databases as there are different impressions of fingerprints that represent possible fingerprint rotations and translations.