Fast Alignment for Sparse Representation based Face Recognition

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Highlights

- This paper proposes a fast alignment strategy for sparse representation based algorithms. The key idea is to pre-compute the most expensive operation, Hessian matrix, which was needed to be calculated in each iteration. Subsequently, with help of the proposed fast alignment strategy, two algorithms, deformable SRC and shape-constrained texture matching, are extended to their fast versions, i.e., fast deformable SRC and fast shape-constrained texture matching. Experimental evaluations have been conducted on the public datasets such as Multi-PIE, FERET, and Cohn-Kanade. We demonstrate that the proposed alignment strategy greatly improves the efficiency of original algorithms without losing accuracy and robustness.