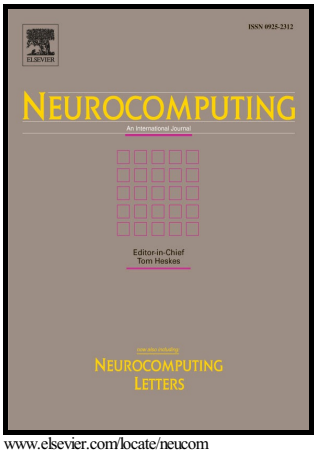

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Partial Least Squares for Face Hashing

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Abstract

Face identification is an important research topic due to areas such as its application to surveillance, forensics and human-computer interaction. In the past few years, a myriad of methods for face identification has been proposed in the literature, with just a few among them focusing on scalability. In this work, we propose a simple but efficient approach for scalable face identification based on partial least squares (PLS) and random independent hash functions inspired by locality-sensitive hashing (LSH), resulting in the *PLS for hashing* (PLSH) approach. The original PLSH approach is further extended using feature selection to reduce the computational cost to evaluate the PLS-based hash functions, resulting in the state-of-the-art *extended PLSH* approach (ePLSH). The proposed approach is evaluated in the dataset FERET and in the dataset FRGCv1. The results show significant reduction in the number of subjects evaluated in the face identification (reduced to 0.3% of the gallery), providing averaged speedups up to 233 times compared to evaluating all subjects in the face gallery and 58 times compared to previous works in the literature.

Keywords: computer vision, face recognition, image indexing, partial least squares

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