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# Fisher Discrimination Based Low Rank Matrix Recovery For Face Recognition

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## Abstract

In this paper, we consider the issue of computing low rank (LR) recovery of matrices with sparse errors. Based on the success of low rank matrix recovery in statistical learning, computer vision and signal processing, a novel low rank matrix recovery algorithm with Fisher discrimination regularization (FDLR) is proposed. Standard low rank matrix recovery algorithm decomposes the original matrix into a set of representative basis with a corresponding sparse error for modeling the raw data. Motivated by the Fisher criterion, the proposed FDLR executes low rank matrix recovery in a supervised manner, i.e., taking the within-class scatter and between-class scatter into account when the whole label information are available. The paper shows that the formulated model can be solved by the augmented Lagrange multipliers, and provides additional discriminating power over the standard low rank recovery models. The representative bases learned by the proposed method are encouraged to be closer within the same class, and as far as possible

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