

Journal club report

Nov 3, 2017

The main idea of these paper:

MPS(matrix product state) algorithm: applying MPS on training set to obtain the common factors $\mathcal{B}_{i_1}^{(1)}, \dots, \mathcal{B}_{i_{n-1}}^{(n-1)}, \mathcal{C}_{i_n}^{(n)}, \dots, \mathcal{C}_{i_N}^{(N)}$ and core matrix $\mathcal{G}_k^{(n)}$, then use the common factors to obtain the core matrix of the test set.

For the Tmac+TT, due to the blocking-artifacts, introducing an operation called image concatenation.

Main discussion:

MPS (matrix product state) algorithm:

- 1) the mode of MPS and the mode of tensor train is similar;
- 2) using the feature matrix obtained through this algorithm to classification, the result is very good. Because the common factors are very detailed.

Classification: we discuss the classification process, the conclusion is that this paper just uses simple classification algorithm. It does not have a feedback to update the common factors or improve the quality.

image concatenation operation: we think this operation is analogous to the shift operation we used in block multi-low rank decomposition to reduce the blocking-artifacts. The theory of this operation is unknown.

The possible work: 1) KA+MPS; 2) the application for MPS.