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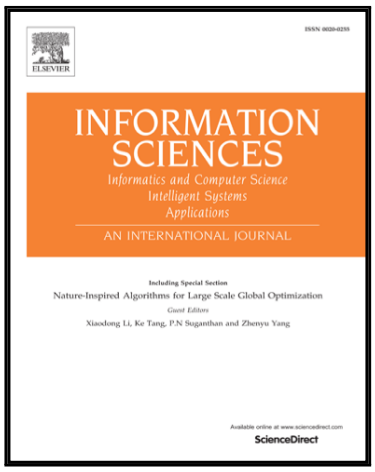

Collaborative Filtering Using Multiple Binary Maximum Margin Matrix Factorizations

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Highlights

- In Maximum Margin Matrix Factorization(MMMF), ratings matrix with multiple discrete values is treated by specially extending hinge loss func- tion to suit multiple levels. We view this process as analogous to extending two-class classifier to a unified multi-class classifier.
- Alternatively, multi-class classifier can be built by arranging multiple two- class classifiers in a hierarchical manner. In this paper, we investigate this aspect for collaborative filtering and propose an efficient and novel framework of multiple bi-level MMMFs.
- We propose an stage-wise matrix completion technique that makes use several bi-level MMMFs in a hierarchical fashion.
- We compare our method with nine well-known algorithms on two bench- mark datasets and show that our method outperforms these methods on NMAE measure.
- We also show that our method yields latent factors of lower ranks and the trade-off between empirical and generalization error is low.

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