

Paper Submission

Authors are encouraged to submit high-quality, original work that has neither appeared in, nor is under consideration by, other journals.

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Manuscripts should be submitted to: <http://DAMI.edmgr.com>. Authors should choose Article Type: **Data Mining with Matrices** when submitting a paper to this special issue. This online system offers easy and straightforward log-in and submission procedures, and supports a wide range of submission file formats.

Important Dates

- Paper submission deadline: May 1, 2009
- Notification to authors: July 1, 2009
- Camera ready papers: August 1, 2009

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Special Issue Call for Papers

Data Mining with Matrices, Graphs and Tensors

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The field of data mining increasingly adapts methods and algorithms from advanced matrix computations, graph theory and optimization. Prominent examples are spectral clustering, non-negative matrix factorization, principal component analysis (PCA) and singular value decomposition (SVD) related clustering and dimension reduction, tensor analysis, and L-1 regularization. Compared to probabilistic and information theoretic approaches, matrix-based methods are fast, easy to understand and implement, and they are especially suited for parallel and distributed-memory computers to solve large-scale challenges such as searching and extracting patterns from the entire Web. Hence, the area of data mining using matrices, graphs and tensors is a popular and growing area of research activities.

This special issue will provide a leading forum for timely, in-depth presentation of recent advances in algorithms, theory and applications in the field of data mining with matrices, graphs and tensors. The main topic areas include (but are not limited to):

Methods and algorithms:

- Principal component analysis and singular value decomposition for clustering and dimension reduction
- Nonnegative matrix factorization for unsupervised and semi-supervised learning
- Spectral graph clustering
- L-1 regularization and sparsification

- Sparse PCA and SVD
- Randomized algorithms for matrix computation
- Web search and ranking algorithms
- Canonical decompositions (CANDECOMP/PARAFAC)
- Tensor analysis: Rank-1 decomposition, PARAFAC/CANDECOMP, GLRAM/2DSVD, Tucker decompositions (e.g., the Higher-Order SVD)
- GSVD for classification
- Latent semantic indexing and other developments for information retrieval
- Linear, quadratic and semi-definite programming
- Non-linear manifold learning and dimension reduction
- Computational statistics involving matrix computations
- Feature selection and extraction
- Graph-based learning (classification, semi-supervised learning and unsupervised learning)

Application areas:

- Information search and extraction from the Web
- Text processing and information retrieval
- Image processing and analysis
- Genomics and bioinformatics
- Scientific computing and computational sciences
- Social networks