

Call for Papers for a Special Issue on

Optimization and Nonconvex Programming in Data Mining

<http://www.springer.com/journal/11634>

The journal *Advances in Data Analysis and Classification* will publish a Special Issue on **Optimization and Nonconvex Programming in Data Mining**¹.

In fact, *Mathematical Programming*, *Operations Research*, and *Data Mining* are closely related to each other by the fact that all three are often concerned with the solution of optimisation problems and also are directly oriented to practical problems from the scientific, administrative, or industrial world. As far as Data Mining is concerned, a major scientific challenge is the optimal exploitation of large amounts of – possibly multidimensional - data or other information stored in various different forms. Whereas the current computer technology enables the collection and storage of large or even giant databases, there remains the need to develop new computational tools, conceptual models, and theoretical results in order to process and analyse such data and to find optimum constellations, parameters, classifications, etc. in an efficient way. Any success in this domain will entail direct consequences for many exciting and actual research areas such as web page clustering, computer vision, financial mathematics, bioinformatics, etc. The perceptron algorithm, support vector machines, margin classifiers, *k*-means clustering, *EM*-algorithm, are just a few keywords encountered in classification, clustering and machine learning. *Optimization* is at the heart of such methodologies and therefore undoubtedly a modern key technology for Data Mining.

This Special issue of ADAC is designed to collect a range of high quality research papers from the field of **Optimization and Nonconvex Programming** and its application to **Data Mining** problems. Topics of particular interest may include, but are not limited to:

- Methodological investigations in optimisation, and new algorithms related to data modeling and analysis.
- Their application in classification, clustering, pattern recognition, machine learning and support vector machines, statistical learning and kernel methods
- Application of advanced methods in specific domains such as bioinformatics, biomedicine, image processing, finance, text and web mining, etc.

Researchers and practitioners are kindly requested to submit any relevant and innovative papers for publication in this Special Issue.

Papers should preferably be written with LaTeX. The source files and a pdf file should be submitted to the coordinating Guest Editor, Prof. Le Thi (Metz, France).

¹ This is one of the main topics of the *International Conference on Nonconvex Programming (NCP07): Local and Global Approaches. Theory, Algorithms and Applications* to be held in Rouen (France) on December 17-21, 2007. See <http://ncp07.insa-rouen.fr/>

Important Date:

- Submission deadline is January 31, 2008 (earlier submission encouraged).

Submission Details: The full paper should be approximately 12 pages (A4) including illustrations and tables. The front page of the manuscript has to show its title, the names and affiliations of all authors, and the fax and e-mail addresses of the coordinating author. Writing instructions are given on the journal's homepage *www.springer.de/journal/11634* or can be downloaded from the website *www.stochastik.rwth-aachen.de*. - Submitted papers must contain original unpublished work that has not been submitted to another journal. All papers will undergo the classical double-blind reviewing process.

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