Advances in Data Analysis and Classification (ADAC)
Theory, Methods, and Applications in Data Science
http://www.springer.com/journal/11634

Call for Papers for a Special Issue on
New Perspectives in Functional Data Analysis

The journal *Advances in Data Analysis and Classification* will publish a Special Issue on ‘New Perspectives in Functional Data Analysis’.

Functional Data Analysis (FDA) is a collective name for a group of statistical methods designed for the analysis of data that are represented by curves or functions varying over a continuum, which is often time or space.

In the last years extensive research activities on FDA have produced a plethora of models and methods and led to a considerable progress in this field. Current and future perspectives in this domain can be characterized by challenges and developments in the following areas: Functional Data Models, Spatially Dependent Functional Data, Functional Data as Complex Data.

‘Functional Data Models’ includes models and methods that have frequently the same objectives as conventional multivariate data analysis. However, the need of using non-classical information about the observed functions (such as modal values, derivatives, curvature) leads to exploring and developing new functional equation models and estimation methods.

‘Spatially Dependent Functional Data’ originate from application fields where the variability among curves depends on their spatial locations. Corresponding challenges and contributions emerge in the areas of geostatistics, point processes and areal data. Especially, measures for the variability of spatial functions, distance functions which account for spatial components, spatial prediction and smoothing methods, are themes that deserve careful attention. These and other main features of spatial statistic needs to be defined in the functional framework.

‘Complex Data Structures’ such as, for instance, image data, medical data, or streaming data can often be considered as functional data. Extracting features from multi-dimensional functional data contour and colour distributions of images is a challenging task. Some other main issues refer to the high correlated functional data, non-stationary behaviour, misalignment of curves, etc. Thus, dimensionality reduction for functional data, multi-scale fault diagnosis, evolution monitoring and prediction are some of the topics to be dealt with.

This Special Issue of the journal ‘Advances in Data Analysis and Classification’ is designed to collect a range of innovative and high quality research papers on new challenges and recent developments in Functional Data Analysis and their application to real problems. ¹

**Submission details:** The full paper should not exceed 15 pages (A4 or Letter size with 12 point), including illustrations and tables. The front page of the manuscript must contain a concise and informative title, the names, affiliations, postal and e-mail addresses of all authors, telephone, and fax number of the corresponding author, an abstract of 8–10 lines, and 4–6 keywords which can be

¹ This Special Issue was motivated by the workshop “New Perspectives on Functional Data Analysis” held in Caserta, Italy, on September 26-27, 2012.
used for indexing purposes. Further formatting instructions are given on the journal’s homepage http://www.springer.com/journal/11634. The manuscript should be electronically submitted as a pdf file by Springer’s Editorial Manager on the ADAC website and qualified as a paper for this special issue.

**Important dates:**
- Submission of manuscripts: June 30, 2013 (earlier submissions are explicitly encouraged).
- Notification to authors after reviewing: October 30, 2013 (tentative).
- Final papers for the Special Issue: December 31, 2013 (tentative).

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