

Preface

An increasing number of problems and methods involve infinite-dimensional aspects. This is due to the progress of technologies which allow us to store more and more information while modern instruments are able to collect data much more effectively due to their increasingly sophisticated design. This evolution directly concerns the statisticians who have to propose new methodologies while taking into account such high-dimensional data (e.g. continuous processes, functional data, etc.). The numerous applications (micro-arrays, paleo-ecological data, radar waveforms, spectrometric curves, speech recognition, continuous time series, 3-D images, etc.) in various fields (biology, econometrics, environmetrics, the food industry, medical sciences, paper industry, speech recognition, etc.) make researching this statistical topic very worthwhile. New challenges emerge both from theoretical and practical point of views. This First International Workshop on Functional and Operatorial Statistics (IWFOS) aims to emphasize this fascinating field of research and this volume gathers the contributions presented in this conference. It is worth noting that this volume mixes applied works (with original datasets and/or computational issues) as well as fundamental theoretical ones (with deep mathematical developments). Therefore, this book should cover a large audience, like academic researchers (theoreticians and/or practitioners), graduate/PhD students and should appeal to anyone working in statistics with industrial companies, research institutes or software developers.

This Workshop covers a wide scope of statistical aspects. Numerous works deal with classification (see for instance chapters 6, 7, 17, 21 or 41), functional PCA-based methods (see for instance chapters 2, 16, 30 or 37), mathematical toolbox (see for instance chapters 11, 13, 24 or 29), regression (see for instance chapters 3, 4, 5, 8, 10, 18, 19, 23, 26, 27, 33 or 34), spatial statistics (see for instance chapters 9, 22, 35, 36 or 42), time series (12, 28, 39, 40 or 44). Other topics are also present as subsampling (see chapter 38) as well as transversal/explorative methodologies (see for instance chapters 14, 20, 31 or 43). In addition, interesting works focus on original/motivating applications (see for instance chapters 15, 25 or 32). This splitting into topics (classifica-

tion, functional PCA-based methods, ...) is introduced just for giving an idea on the contents but most of the time, one can assign a same work to several subjects. It is worth noting that numerous contributions deal with statistical methodologies for functional data which is certainly the main common denominator of IWFOS (see chapters 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 29, 30, 31, 32, 33, 34, 35, 36, 37, 40, 41, 43, 44).

The scientific success of this event is obviously linked with the wide variety of participants coming from about 20 countries covering all the continents. One would like to thank them gratefully and specially the invited speakers and all the contributors for the high quality of their submitted works.

Of course the hard core is the STAPH members (see chapter 1), which managed and coordinated this Workshop both from a scientific and organizational point of view. But this international conference would not exist without the help of many people. In particular, K. Benhenni (France), B. Cadre (France), H. Cardot (France), A. Cuevas (Spain), A. Dahmani (Algeria), A. Goia (Italia), W. Gonzalez-Manteiga (Spain), W. Härdle (Germany), A. Kneip (Germany), Ali Laksaci (Algeria), A. Mas (France), E. Ould-saïd (France), M. Rachdi (France), E. Salinelli (Italia) and I. Van Keilegom (Belgium) have greatly contributed to the high quality of IWFOS'2008 and are gratefully thanked.

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