

## PROGRAMME AND ABSTRACTS

4th CSDA International Conference on  
**Computational and Financial Econometrics (CFE 10)**

<http://www.cfe-csda.org/cfe10>

and

3rd International Conference of the  
ERCIM (European Research Consortium for Informatics and Mathematics) Working Group on  
**Computing & Statistics (ERCIM 10)**

<http://www.cfe-csda.org/ercim10>

Senate House, University of London, UK  
10-12 December 2010



**Queen Mary, University of London**

<http://www.qmul.ac.uk>

**Birkbeck, University of London**

<http://www.bbk.ac.uk>

**London School of Economics**

<http://www.lse.ac.uk>

**CFE 10 & ERCIM 10 International Organizing Committee:**

A.-M. Fuertes, J. Niland, E. Ruiz, B. Rustem, E.J. Kontoghiorghes and G. Loizou.

**CFE 10 Co-chairs:**

George Kapetanios, Oliver Linton, Michael McAleer and Esther Ruiz.

**CFE 10 Programme Committee:**

A. Amendola, F. Audrino, P. Boswijk, M. Billio, M. Binder, C. Chen, D. van Dijk, C. Francq, A.-M. Fuertes, A.B. Galvao, R. Gerlach, D. Guegan, S. Hodges, S.J. Koopman, L. Khalaf, J.F. Kiviet, T. Lux, S. Mittnik, M. Ooms, J. Nankervis, Y. Omori, M. Paolella, D.S.G. Pollock, T. Proietti, M. Reale, M. Riani, B. Rustem, W. Semmler, M. Steel, M. So, E. Tzavalis, D. Veredas, M. Wagner, P. Winker, P.L.H. Yu, P. Zadrozny, P. Zaffaroni, J.-M. Zakoian and A. Zeileis.

**CSDA Annals of CFE Managing Editors:**

David A. Belsley, Erricos J. Kontoghiorghes and Herman K. Van Dijk.

**CSDA Annals of CFE Guest Editors:**

Luc Bauwens, Siem Jan Koopman, Oliver Linton and Michael McAleer.

**ERCIM 10 Co-chairs:**

Ana Colubi, Ana-Maria Fuertes, Irini Moustaki, D. Stephen G. Pollock, Stefan Van Aelst and Peter Winker.

**ERCIM 10 Programme Committee:**

M. Alfo, W. Bergsma, D. Boehning, E. Ceyhan, A. Christmann, C. Croux, M. Debruyne, M. Deistler, I. Demetriou, T. Denoeux, V. Esposito Vinzi, P. Filzmoser, K. Fokianos, P. Foschi, R. Fried, C. Gatu, M.A. Gil, S.G. Gilmour, J. Godolphin, B. Grun, M. Hubert, D. Kuhn, U. Ligges, A. Luati, D. Maringer, S. Meintanis, A. C. Monti, D. Morales, M.C. Pardo, S. Paterlini, B.U. Park, C. Perna, S. Petrone, I. Poli, I. Prunster, G. Storti, M. Timmerman, K. Triantafyllopoulos, L. Ugarte and A. Zeileis.

**Local Organizing Committee:**

Diane Loizou, Elizabeth Price, Evgenia Tsinti and Sharon Woolf.

ES38: GOODNESS OF FIT (Room: MAL 152) . . . . .	60
ES09: OPTIMIZATION HEURISTICS IN ESTIMATION AND MODELLING (Room: MAL 532) . . . . .	61
ES11: STATISTICAL SIGNAL EXTRACTION AND FILTERING I (Room: MAL 509) . . . . .	62
ES52: ROBUST METHODS, COMPUTATION, AND APPLICATIONS (Room: MAL B35) . . . . .	62
ES18: INTEGER TIME SERIES I (Room: MAL 421) . . . . .	63
<b>Parallel Session I – CFE (Saturday 11.12.2010 at 15:15 - 16:55)</b>	<b>65</b>
CS51: BAYESIAN ECONOMETRICS AND APPLICATIONS II: ECONOMETRICS (Room: MAL B33) . . . . .	65
CS16: BAYESIAN MODEL AVERAGING (Room: MAL B29) . . . . .	65
CS22: BAYESIAN METHODS IN MACROECONOMICS AND FINANCE II (Room: MAL B34) . . . . .	66
CS36: BEHAVIOURAL FINANCE I (Room: MAL 151) . . . . .	66
CS40: SHORT PANEL DATA MODELS (Room: MAL B20) . . . . .	67
CS66: DYNAMIC FACTOR MODELLING AND FORECASTING (Room: MAL B30) . . . . .	68
CS79: NUMERICAL METHODS IN QUANTITATIVE FINANCE (Room: Senate Beveridge Hall) . . . . .	68
CP04: POSTERS IV (Room: Senate Crush Hall ) . . . . .	69
<b>Parallel Session I – ERCIM (Saturday 11.12.2010 at 14:45 - 16:50)</b>	<b>71</b>
ES20: MATRIX COMPUTATIONS AND MULTIVARIATE DATA ANALYSIS (Room: MAL 152) . . . . .	71
ES24: NONLINEAR DIMENSIONALITY REDUCTION (Room: MAL G16) . . . . .	71
ES06: STATISTICAL ALGORITHMS AND SOFTWARE II (Room: MAL B36) . . . . .	72
ES08: QUANTILE REGRESSION AND SEMIPARAMETRIC METHODS (Room: MAL B35) . . . . .	73
ES61: INTEGER TIME SERIES II (Room: MAL 421) . . . . .	74
ES55: ALGORITHMS FOR DESIGN (Room: MAL 509) . . . . .	74
ES65: TOPICS IN BAYESIAN NONPARAMETRICS (Room: MAL 532) . . . . .	75
EP03: POSTERS III (Room: Senate Crush Hall ) . . . . .	76
<b>Parallel Session J – CFE (Saturday 11.12.2010 at 17:20 - 19:25)</b>	<b>78</b>
CI96: INVITED SESSION: MODELS FOR LARGE MULTIVARIATE SYSTEMS (Room: Senate Beveridge Hall) . . . . .	78
CS20: EMPIRICAL MODELLING OF FINANCIAL MARKETS (Room: MAL 151) . . . . .	78
CS26: FINANCIAL MODELING (Room: MAL 355) . . . . .	79
CS88: CONTRIBUTIONS TO COMPUTATIONAL ECONOMETRICS (Room: MAL B29) . . . . .	80
CS41: FINANCIAL VOLATILITY ESTIMATION AND FORECASTING II (Room: MAL B20) . . . . .	80
CS13: FINANCIAL TIME SERIES MODELLING AND FORECASTING II (Room: MAL G16) . . . . .	81
CS81: HIGH FREQUENCY AND SEASONAL DATA (Room: MAL B30) . . . . .	82
CS67: QUANTITATIVE RISK MANAGEMENT II (Room: MAL B33) . . . . .	83
<b>Parallel Session J – ERCIM (Saturday 11.12.2010 at 17:20 - 19:00)</b>	<b>84</b>
ES30: APPLIED STATISTICS II (Room: MAL 509) . . . . .	84
ES47: COMPUTATIONAL ISSUES ON TIME SERIES (Room: MAL 421) . . . . .	84
ES49: GOODNESS-OF-FIT AND MODEL SELECTION IN GLLVM (Room: MAL B34) . . . . .	85
ES69: MIXTURE MODELS I (Room: MAL 532) . . . . .	86
ES51: RECURSIVE PARTITIONING (Room: MAL 152) . . . . .	86
ES57: ROBUSTNESS AND COMPLEXITY IN SEMI- AND NON-PARAMETRICAL STATISTICS (Room: MAL B35) . . . . .	87
ES58: FUZZY SETS IN STATISTICS (Room: MAL B36) . . . . .	88
<b>Parallel Session K – CFE (Sunday 12.12.2010 at 09:00 - 10:40)</b>	<b>89</b>
CS29: MULTIVARIATE VOLATILITY MODELS II (Room: MAL 152) . . . . .	89
CS28: RISK MANAGEMENT (Room: MAL B34) . . . . .	89
CS33: BAYESIAN FINANCIAL ECONOMETRICS AND RISK MANAGEMENT (Room: MAL G16) . . . . .	90
CS47: BEHAVIOURAL FINANCE II (Room: MAL 151) . . . . .	91
CS55: ROBUSTNESS IN COMPLEX MODELS AND TIME SERIES (Room: MAL B33) . . . . .	91
CS59: LARGE PANEL DATA MODELS (Room: MAL B30) . . . . .	92
CS74: REAL-TIME MODELLING WITH MIXED-FREQUENCY DATA (Room: MAL B36) . . . . .	92
CS76: IDENTIFICATION AND INFERENCE (Room: MAL B35) . . . . .	93
<b>Parallel Session K – ERCIM (Sunday 12.12.2010 at 09:00 - 10:40)</b>	<b>94</b>
ES23: BAYESIAN NONPARAMETRICS: THEORY (Room: MAL 532) . . . . .	94
ES26: DATA MODELING BY SHAPE RESTRICTION (Room: MAL 509) . . . . .	94
<b>ES27: ANALYSIS OF SPATIAL DATA: ESTIMATION, MODELLING, AND INFERENCE</b> (Room: MAL 355) . . . . .	<b>95</b>

**E723: Data fitting by divided differences and splines***Presenter:* **Evangelos Vassiliou**, University of Athens, Greece

A smooth univariate function is measured at a finite number of points and the measurements contain random errors. We seek an approximation that should be closer than the measurements to the true function values. The approximation task can be done either by a parametric or by a non-parametric approach. The first approach assumes that the underlying function is described by a functional form that depends on a set of parameters, for example by using splines functions. There are several notions of nonparametric approach, and we take the view that the errors should be corrected by making least the sum of squares of the errors by imposing a limit,  $q$  say, on the number of sign changes of the divided differences of a prescribed order  $r$ . Depending on the values of  $r$  and  $q$ , interesting properties may be revealed, like monotonicity, piecewise monotonicity, convexity, convexity/concavity, etc. This paper applies initially a divided difference method in order to smooth the data and then applies a spline regression on the smoothed data by following the shape of the smoothed data. Some examples with real and simulated data are presented in order to illustrate this method. They all suggest that the method provides usually quite suitable fits, because the user is directed by the divided difference step in locating the knots of the spline.

**ES27 Room MAL 355 ANALYSIS OF SPATIAL DATA: ESTIMATION, MODELLING, AND INFERENCE****Chair: Elvan Ceyhan****E152: Estimates for geographical domains through geoadditive models in presence of missing information***Presenter:* **Chiara Bocci**, University of Florence, Italy*Co-authors:* **Emilia Rocco**

The implementation of geoadditive models needs the statistical units to be referenced at point locations. If the aim of the study is to analyze the spatial pattern or to produce a spatial interpolation of a studied phenomenon, spatial information are required only for the sampled units. If, however, the geoadditive model is used to produce estimates of a parameter of interest for some geographical domains, the spatial location is required for all the population units. This information is not always easily available. Typically, we know the coordinates for sampled units, but for the non-sampled units we know just the areas - like blocks, municipalities, etc. - to which they belong. In such situation, the classical approach is to locate all the units by the coordinates of their corresponding area centroid. This is obviously an approximation and its effect on the estimates can be strong, depending on the level of nonlinearity in the spatial pattern and on the area dimension. We decided to investigate a different approach: instead of using the same coordinates for all the units, we impose a distribution for the locations inside each area. To analyze the performance of this approach, various MCMC experiments are implemented.

**E393: Linear approximations of individual-level models for infectious disease***Presenter:* **Grace Pui Sze Kwong**, University of Guelph, Canada*Co-authors:* **Rob Deardon**

Individual-level models (ILMs) for infectious diseases, fitted in a Bayesian MCMC framework, are an intuitive and flexible class of models that can take into account population heterogeneity via various individual-level covariates. ILMs containing a geometric distance kernel to account for geographic heterogeneity provide a natural way to model the spatial spread of many diseases. However, in even only moderately large populations, the likelihood calculations required can be prohibitively time consuming. It is possible to speed up the computation via a technique which makes use a linearized distance kernel. Here we examine some methods of carrying out this linearization and compare the performances of these methods.

**E182: Adjusted calibration estimators for sparse spatial data***Presenter:* **Ivan Sciascia**, Università di Torino, Italy

The technique of calibrated estimation is coupled with an algorithm of vehicles routing, building through the latter, a distance function that adjusts the estimator. The calibration and a vehicle routing algorithm are considered in this paper with the constraint of the limited availability of auxiliary variables and with the use of remotely sensed distances. Remote sensing is an interesting topic due to the development of modern GIS systems which can be useful for sample surveys with geospatial data. In a context of spatial data analysis with a constraint of low-density we propose to adjust the calibrated estimator by a distance function. The Traveling Salesman Problem (TSP) is a basic routing problem stated for visit to  $P$  cities with the shortest closed tour. Different algorithms have been developed to resolve heuristically the TSP. This article develops a distance function calculated on the shortest tour distance coming from a heuristic algorithm. The performances of the proposed estimator are evaluated using a simulation study.

**ES46 Room MAL B29 COMPONENT ANALYSIS****Chair: Marieke Timmerman****E284: The generic subspace clustering model***Presenter:* **Marieke Timmerman**, University of Groningen, Netherlands*Co-authors:* **Eva Ceulemans, Kim De Roover**

The clustering of high-dimensional data can be troublesome. In the case of high-dimensional data, a subspace clustering model can be used to achieve a proper recovery of the clusters and to obtain an insight into the structure of the variables relevant to the clustering. In such a model the objects are assigned to mutually exclusive classes in low dimensional spaces. In this paper, we present the Generic Subspace Clustering Model. As will be shown, this model encompasses a range of existing (subspace) clustering techniques as special cases. The specific properties of the model variants will be discussed. An algorithm for fitting the Generic Subspace Clustering Model is presented and its performance is evaluated by means of a simulation study. The value of the model for empirical research is illustrated with data from psychiatric diagnosis research.

**E340: Clusterwise SCA-P***Presenter:* **Kim De Roover**, K.U. Leuven, Belgium*Co-authors:* **Eva Ceulemans, Marieke Timmerman, Patrick Onghena**

Numerous research questions in educational sciences and psychology concern the structure of a set of variables. For instance, one can study the structure of a number of variables, measured on multiple occasions for different subjects. In that case, one may wonder whether the same structure is underlying the data of all subjects. Obviously, the crucial question is how such data have to be analyzed to find out whether and in what way the structure of the variables differs across the persons. A number of principal component analysis techniques exist to study such structural differences, for instance, simultaneous component analysis (SCA). However, these techniques suffer from important limitations. Therefore, we propose a novel modeling strategy, called Clusterwise SCA-P, which solves these limitations and which encompasses several existing techniques as special cases. Clusterwise SCA-P partitions the subjects into a number of clusters and specifies a simultaneous component model per cluster. Also, it allows for between subject differences in the variances and the correlations of the cluster specific components, to offer additional insight into interindividual differences. The value of the model for empirical research is illustrated.