
Preface

Yannis Theodoridis

Univ. Piraeus, Greece (chair)
E-mail: ytheod@unipi.gr

Gennady Andrienko

Fraunhofer Inst. IAIS, Germany
E-mail: gennady.andrienko@iais.fraunhofer.de

Fosca Giannotti

ISTI CNR, Italy
E-mail: fosca.giannotti@isti.cnr.it

Myra Spiliopoulou

Univ. Magdeburg, Germany
E-mail: myra@iti.cs.uni-magdeburg.de

Michalis Vazirgiannis

Athens Univ. of Economics and Business, Greece
E-mail: mvazirg@aueb.gr

Biographical notes: Yannis Theodoridis is Assistant Professor at the Department of Informatics, University of Piraeus, Greece. His research interests include spatial and spatiotemporal databases, geographical information management, knowledge discovery and data mining. He has co-authored three monographs and over 50 articles in scientific journals (including *Algorithmica*, *ACM Multimedia* and *IEEE TKDE*) and conferences (including *ACM SIGMOD*, *PODS*, *VLDB* and *ICDE*) with over 400 citations in his work. He serves in the program committees of major database and data mining conferences as well as in the editorial board for the *International Journal on Data Warehousing and Mining (IJDWM)*. He is member of ACM and IEEE.

Gennady Andrienko received his Master Degree in Computer Science from Kiev State University (1986) and PhD from Moscow State University (1992). Since 1997 he is a research fellow at the Fraunhofer Institute for Intelligent Analysis and Information Systems. He published about 40 journal papers and co-authored the book *Exploratory Analysis of Spatial and Temporal Data* (Springer 2006). He has coordinated workpackages in many international research projects on topics of geovisualisation, information visualisation, visual analytics, and data mining. He co-organised several workshops and conferences and co-edited three journal special issues. He is chairing the ICA Commission on GeoVisualisation [<http://geoanalytics.net>].

Fosca Giannotti is a senior researcher at ISTI-CNR (Italian National Research Council) in Pisa, within the Research Lab. Knowledge Discovery and Data Mining. She is the national responsible for the line Data Mine, Ontologies and Semantic Web of Department ICT of CNR. Current research interests include languages for pattern discovery, spatio-temporal data mining and privacy preserving data mining. She coordinates the European project GeoPKDD – Geographic Privacy-aware Knowledge: www.geopkdd.eu. She serves in scientific committees of major data mining and databases conferences: program co-chair of ECML/PKDD 2004, and of IEEE ICDM08, to be held in Pisa in December 2008.

Myra Spiliopoulou is Professor of Business Information Systems in the Otto-von-Guericke-University Magdeburg, Germany. Her research is on data mining for dynamic environments, including mining on web clickstreams, textstreams and online communities. She organised the 29th Conference of the German Classification Society (GfKI 2005) in Magdeburg. She was PC Co-Chair of the ECML/PKDD 2006, Berlin and is PC Co-Chair of the NLDB 2008, London. She is involved in the organisation of many workshops and conference tracks and serves as reviewer in major data mining conferences and journals.

Michalis Vazirgiannis, currently Associate Professor in Department of Informatics, Athens Univ. of Economics & Business, has conducted research in GMD-IPSI, Fern-Universitaet Hagen (Germany), INRIA/Paris and Max Planck Institut (Germany). His research work ranges from Interactive Multimedia Systems to Spatiotemporal databases and Data Mining. His current research interests include web graph analysis and distributed machine learning. He is leading local research teams in competitive R&D projects and has participated in programme committees of international conferences related to Data Bases, Data Mining/Machine learning and the Web. He participates in the *Intelligent Data Analysis Journal* editorial board and has earned the Marie Curie Intra-European fellowship.

Knowledge Discovery in Data (KDD) is a well-established interdisciplinary field in the crossroads of statistics, operational research, machine learning and database management, with great applications in several fields, such as decision making and optimisation. Raw datasets complexity and volume ask for robust pre-processing techniques, high-quality analysis relies on sophisticated, high-performance DMKD techniques, algorithms and infrastructures, while efficient post-processing of data mining results is also an emerging request. EURO conference is the leading European event of researchers and professionals in Operational Research. EURO XXII was held in Prague, Czech Republic, during 8–11 July, 2007, and within its fascinating technical program, the guest editors of this special issue organised the “Data mining and knowledge discovery” stream.

The original call for papers for DMKD stream attracted 18 submissions, out of which 14 were selected to be presented in Prague. Then, the authors of selected submissions were invited to submit full papers in order to be considered for publication in this special issue after a blind review process. A number of 11 submissions were received and reviewed by at least two reviewers each. The outcome is the current special issue consisting of six papers, which results in a 33.3% acceptance ratio if we consider the

full procedure, from the original EURO/DMKD submissions to the accepted IJBIDM papers.

The paper titled ‘Internal quality measures for clustering in metric spaces’, by Q.H. Nguyen and V.J. Rayward-Smith, reviews clustering in metric spaces and evaluates fitness measures for measuring cluster quality. The paper titled ‘A stochastic nature inspired metaheuristic for clustering analysis’ by Y. Marinakis, M. Marinaki, and N. Matsatsinis, presents a stochastic solution in the data clustering problem based on optimisation techniques. The paper titled ‘Fuzzy clustering of intuitionistic fuzzy data’ by N. Pelekis, D.K. Iakovidis, E.E. Kotsifakos, and I. Kopanakis, proposes a novel fuzzy clustering scheme based on intuitionistic fuzzy set theory and applied on cultural image databases. Moving to geographical applications, the paper titled ‘Efficient clustering technique for regionalisation of a spatial database’ by L.K. Sharma, S. Scheider, W. Kloesgen, and O.P. Vyas, tackles the problem of regionalisation by efficiently clustering spatial objects, while the paper titled ‘Traffic mining in a road-network: How does the traffic flow?’ by I. Ntoutsis, N. Mitsou, and G. Marketos, analyses traffic in urban areas by overlaying sensor data over a graph representation of the underlying road network. Finally, the paper titled ‘Improving the accuracy of continuous aggregates and mining queries on data streams under load shedding’ by Y-N. Law and C. Zaniolo, discusses uncertainty introduced by sampling in streaming data and introduces an error model that enhances the quality of query answers.