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Athanasios Migdalas • Angelo Sifaleras
Christos K. Georgiadis • Jason Papathanasiou
Emmanuil Stiakakis
Editors

Optimization Theory, Decision Making, and Operations Research Applications

Proceedings of the 1st International
Symposium and 10th Balkan Conference
on Operational Research

 Springer

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*We dedicate this book to the memory of
Prof. Konstantinos Paparrizos*

Preface

It is a pleasure to introduce this book entitled *Optimization Theory, Decision Making, and Operational Research Applications*, of the series *Springer Proceedings in Mathematics*, which contains selected, refereed Proceedings from the 1st International Symposium and 10th Balkan Conference on Operational Research (BALCOR 2011).

This conference is an established biennial event attended by a large number of Operational Research (OR) scientists, instructors, and students, not only from the Balkan countries but also usually from all over Europe. In order to promote the conference and to attract people not only from Europe, but also from all over the world, it was decided to extend it with the 1st International Symposium on Operational Research in Thessaloniki. According to the number of different countries of the participants, we believe that this goal was achieved.

The general aim of the conference is to facilitate the exchange of scientific and technical information related to OR and to promote international cooperation especially among the Balkan countries. The conference was co-organized by the Branch of Macedonia-Thrace of the Hellenic Operational Research Society (HELORS) and the University of Macedonia, Economic and Social Sciences. It took place in the Holiday Inn Thessaloniki Hotel, Greece, 22–24 September 2011. The conference chair was Prof. Athanasios Migdalas, supported by the seven board members of the Branch of Macedonia—Thrace of HELORS, Prof. G. Arabatzi, Prof. C.K. Georgiadis, Dr. L. Karamitopoulos, Prof. V. Kostoglou, Dr. J. Papathanasiou, Dr. A. Sifaleras, and Dr. E. Stiakakis. Around 110 papers were presented in 32 streams, including combinatorial optimization, stochastic optimization, multiobjective optimization, computational operational research, parallel processing in OR, multicriteria decision making, data envelopment analysis, inventory management, project management, etc. BALCOR 2011 was attended by participants from around 20 different countries, both from the Balkans and from France, Israel, Russia, Brazil, China, Algeria, Iran, etc.

Three plenary talks were given by eminent researchers in the field of optimization. Professor Vangelis Th. Paschos opened the conference by addressing the possible trade-off between polynomial approximation and exact computation.

He demonstrated how to use the ideas from both fields in order to design approximation algorithms for several combinatorial problems. Professor Nenad Mladenovic presented an overview of variable neighborhood search (VNS) meta-heuristic, and surveyed VNS-based approaches for solving the Travelling Salesman Problem (TSP). Finally, Prof. Leo Liberti presented theory and applications of combinatorial methods in Euclidean distance geometry to the protein visualization problem.

Apart from the funds provided by the co-organizers, University of Macedonia, Economic and Social Sciences, the conference attracted the sponsorship of well-known optimization software companies, such as LINDO Systems, Inc., Banxia Software Ltd., and Marathon Data Systems. These companies provided single-user professional software licenses of LINGO, What's Best, LINDO API, Frontier Analyst, or Decision Explorer as the best paper awards. They were given to the authors of four papers, selected by the Program Committee as these present interesting optimization models and methods.

This volume is dedicated to the memory of Prof. Konstantinos Paparrizos who passed away on Tuesday, December 6, just a few months after the BALCOR 2011 conference.

Professor Konstantinos Paparrizos was born in 1949 in Kozani, Greece. He earned his B.Sc. degree with honors in Mathematics from the Aristotle University of Thessaloniki, Greece (1972) and an M.Sc. and PhD both of them with honors in Operations Research (Minor in Computer Science) from the Case Western Reserve University, Cleveland OHIO, USA, in 1981 and 1983, respectively. He was a full-time professor at the Department of Applied Informatics, University of Macedonia, Economic and Social Sciences, Greece, Thessaloniki and also a professor in the Hellenic Open University, since 2008.

The late Prof. K. Paparrizos was a founding member of the Branch of Macedonia-Thrace of the Hellenic Operational Research Society. He was also a member of INFORMS and of the International Honorary Society OMEGA RHO, Case Western Reserve University Student Chapter. He served as a member of the Editorial Board of the *Operational Research: An International Journal* and the *Yugoslav Journal of Operations Research*. He also served as a member of the scientific and organizing committee of several Balkan Conferences on Operational Research in the past, as also in the recent BALCOR 2011 in Thessaloniki.

Professor K. Paparrizos was an established expert in the area of optimization algorithms. His research interests included mathematical programming, linear programming and network flows, design and analysis of algorithms, and data structures. He had significant research contributions in the design and analysis of exterior point simplex-type algorithms for linear and network optimization problems and also published several papers in leading international peer-reviewed journals (e.g., Mathematical Programming).

Thessaloniki, Greece

Athanasios Migdalas
Angelo Sifaleras
Christos K. Georgiadis
Jason Papathanasiou
Emmanuel Stiakakis

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