Preface

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Biographical notes: Chefi Triki is an Associate Professor of Operations Research and Logistics Systems. His major research interests lie in the field of stochastic programming with application to logistics and transportation. He has published and served as a reviewer in a variety of international scientific journals. His teaching activities consists in a wide range of undergraduate and graduate courses on logistics, simulation, informatics and optimisation for the engineering, mathematics, computer science and management science students.

Mehiddin Al-Baali is a Professor in Optimisation at Sultan Qaboos University, Oman. His research interest lies in numerical optimisation field. In addition to his attractive 'first practical convergence result', he published several papers, edited books, delivered talks at high level conferences and institutes, organised several international conferences successfully and become an Associate Editor for some journals (e.g., *Computational Optimization and Applications*, *Optimization Methods and Software*) and Mathematical Reviewer. Concerning teaching experience, he published four textbooks and five lecture notes (some in Arabic) and taught a range of mathematical subjects at all university levels for undergraduate and postgraduate students.

This special edited issue 'Models and algorithms for applied optimisation problems' of *International Journal of Operational Research* is associated with the *Third International Conference on Numerical Analysis and Optimisation: Theory, Methods, Applications and Technology Transfer* (NAOIII-2014) held on 5–9 January 2014, at Sultan Qaboos University (SQU), Muscat, Oman. The NAO conference series is held once every three years at SQU: the first conference (NAO-2008) was held on 6–8 April 2008, and the second one (NAOII-2011) was held on 3–6 January, 2011. The NAO conference will

hopefully become a forum where prominent mathematicians, engineers, worldwide experts and active researchers gather and meet to share knowledge on new scientific methodologies and simulate the communication of new innovative ideas, promote scientific exchange and discuss possibilities of further cooperation, networking and promotion of mobility of senior and young researchers and research students. NAOIII-2014 was inaugurated by the Under-Secretary of the Ministry of Higher Education, Vice Chancellor of SQU and Ambassador of Italy to the Sultanate. The conference was sponsored by SQU, The Research Council of Oman, The International Center for Theoretical Physics (ICTP, Italy), German University of Technology (GUtech) in Oman, AMPL (USA), Al-Anan Press (Oman), and Al-Roya Newspaper (Oman). Twenty world leading researchers gave keynote lectures. In total, 40 international participants have contributed with interesting talks. After the conference, selected contributed papers were submitted for publication in this special issue of the *International Journal of Operational Research* and also on *SQU Journal for Science*. More information is available at http://conference.squ.edu.om/nao.

Ten papers were accepted for this edited special issue of *IJOR*, each of them was accepted after a peer review process by independent reviewers. They are listed in alphabetical order based on the first author of each paper. These papers analyse a wide range of topics and propose innovative ideas that will be described briefly in the sequel.

The paper of Osama Abdel Raouf and Ibrahim M. Hezam proposes a novel metaheuristic algorithm with a useful capability shown by testing using benchmarking and engineering problems. Noure-Roukayya Badurally Adam, Muhammad Zaid Dauhoo and Mohammad Khalil Elahee develop three models for the forecast of the monthly peak electricity demand and show their performance by using Mauritius as an application country. Mohammad Saeid Atabaki and Mohammad Mohammadi propose a genetic algorithm to solve successfully a nonlinear programming problem. Biket Ergüneş, Linet Özdamar, Onur Demir and Nur Gülcan consider solving a set of mixed integer nonlinear programming problem (MINLP) by using an interval partitioning method. Issam A.R. Moghrabi suggests two algorithms based on the implicit update multi-step and extra update techniques for unconstrained optimisation. Hashem Omrani and Ali Bozorgi-Amiri deal with estimating the efficiency of decision making units in presence of uncertain data by integrating robust data envelopment analysis, stochastic frontier analysis and principal component analysis. Yindong Shen, Jingpeng Li and Kunkun Peng estimate a solution of very complex integer programming problem by the estimation of distribution algorithm with illustration on a real life application. Gagandeep Singh, Leo Mougel, Yvan Beauregard and Yaoyao Fiona Zhao introduce the concept of task switching into a network of engineers and develop a mathematical model based on queuing theory and Jackson networks. Chefi Triki, Jamila Akil and Nasser Al-Azri deal with a gas distribution application and develop three heuristic methods based on assigning the customers to the service days and then solving several VRPs, which seem to work well when tested on real-life applications. Finally, the tenth paper by Maryam Zangiabadi, Soodabeh Asadi and Hossein Mansouri who propose an algorithm to perform only one full Nesterov-Todd step on each iteration of the infeasible interior point algorithm for symmetric optimisation.

The guest editors wish to express our gratitude to all contributors. They are also indebted to the many anonymous referees for the care taken in reviewing the papers submitted to this special issue.