International Conference

EURO Mini Conference

"Continuous Optimization and Knowledge-Based Technologies"
(EurOPT-2008)

Edited by

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May 20-23, 2008,
Neringa, Lithuania

European Association of Operational Research
Societies

Institute of Mathematics and Informatics

Vilnius Gediminas Technical University

Lithuanian Operational Research Society

EURO Working Group on Continuous Optimization

German OR Society

IBM Europe

Vilnius TECHNIKA 2008

Conference *EurOPT-2008* aims at a more exhaustive study of optimization and optimal decision making towards knowledge-based technologies. The subject of papers of Proceedings covers topics and streams in order to overview the trends and gain a common attitude towards robust optimization; complexity and efficiency of optimization algorithms; stochastic optimization; large-scale methods in global search; optimization in data mining; optimization and dynamical systems jointly applied to processes of information and development; data visualization for optimal decisions; application of continuous optimization to combinatorial problems; applications in industry and business; optimization in finance; analysis and engineering of algorithms, optimization methods in machine learning, clustering and its modern optimization methods, multi-objective and vector optimization, semi-infinite optimization, application of knowledge-based technologies in government, learning and business, formal and knowledge based models for analysis of software systems, computational statistics, optimization in bioinformatics and computational biology and others.

All papers are reviewed

The International Conference, EURO Mini Conference CONTINUOUS OPTIMIZATION
AND KNOWLEDGE-BASED TECHNOLOGIES
(May 20-23, 2008, Neringa, Lithuania)

Organised by

- European Association of Operational Research Societies (EURO);
- Institute of Mathematics and Informatics, Vilnius, Lithuania;
- Vilnius Gediminas Technical University, Vilnius, Lithuania;
- Lithuanian Operational Research Society (LitORS);
- EURO Working Group on Continuous Optimization (EUROPT WG);
- German OR Society (GOR).

In cooperation with

- European Chapter on Metaheuristics (EUME);
- European Chapter on Combinatorial Optimization (ECCO);
- IBM Europe (Zurich);
- Kaunas University of Technology, Lithuania

Supported by

- European Association of Operational Research Societies (EURO);
- EURO Working Group on Continuous Optimization (EUROPT WG);
- German OR Society (GOR);
- IBM Europe (Zurich);
- Society for Industrial and Applied Mathematics (SIAM);
- European Office of Aerospace Research & Development (EOARD)
- Ministry of Education and Science of Republic of Lithuania..
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The board of reviewers was formed from known experts in the field of the conference topics

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EDITORIAL

Optimization techniques pierced through many chapters of OR, because their utilization "facilitates the choice and the implementation of more effective solutions which, typically, may involve complex interactions among people, materials and money problems" (www.euro-online.org). The latter challenge stimulates a study of existing techniques as well as development of new concepts for optimization.

The scope of the International conference *"Continuous Optimization and Knowledge-Based Technologies"* is to overview trends, to gain a common attitude towards latest challenges in continuous optimization and advanced applications for knowledge-based technologies, such as robust optimization, complexity and efficiency of optimization algorithms, stochastic optimization, large-scale methods in global search, optimization in data mining, optimization and dynamical systems jointly applied to processes of information and development, data visualization for optimal decisions, application of continuous optimization to combinatorial problems, applications in industry and business, optimization in finance, analysis and engineering of algorithms, optimization methods in machine learning, clustering and its modern optimization methods, multi-objective and vector optimization, semi-infinite optimization, application of knowledge-based technologies in government, learning and business, formal and knowledge based models for analysis of software systems, computational statistics, optimization in bioinformatics and computational biology and others. We wish to contribute to education in Europe and the world, and to a deepening and initializing of scientific collaboration in the family of EURO and among our peoples.

This volume contains selected papers of the EURO MC EUROPT-2008. Before the Conference its Programme Committee selected 92 papers from 124 applications. International Board of reviewers reviewed all the papers.

The conference is initiated by the European Working Group on Continuous Optimization (EUROPT WG). WG EUROPT has been founded at IPM2000 Workshop in Budapest, Hungary, July 2000 (see, http://www.iam.metu.edu.tr/EUROPT/). At these days, we are about 50 founding members. In the sequel of our first workshop, EUROPT had three further workshops: Smooth and Non-smooth Optimization, Theory and Applications, in Rotterdam, The Netherlands, July 2001, before EURO XVIII, then Workshop on Advances in Continuous Optimization, in Istanbul, Turkey, July 2003, before the 5th EURO/INFORMS Joint International Meeting 2003, and Workshop on Challenges of Continuous Optimization in Theory and Applications, July 2004, before EURO XX. Still in July 2004, we enjoyed EURO Summer Institute "Optimization and Data Mining" in Ankara, while in June-July 2005, we celebrated *17th Mini EURO Conference "Continuous Optimization in the Industry"* in Pécs, Hungary. In Ankara, November 2005, we were co-organizers of "Workshop on Sustainable Living in Rural Areas of Turkey" and of "Spatial Data Mining Workshop" (ISPRS 2005). In 2006, our workshop "Advances in Continuous Optimization" and a very strong contribution to EURO XXI 2006, both in Reykjavik, Iceland, and EURO Summer Institute 2006 "Optimization Challenges in Engineering: Methods, Software and Applications", Wittenberg, Germany, in the months August and September, belonged to the special enterprises of our EURO working group. EUROPT proposed EURO Working Groups "Operational Research for Development" and "Computational Biology, Bioinformatics and Medicine"; both became accepted by EURO Executive Committee, and with our friends and new leaders of the two groups we founded during EURO XXI 2006. We gave support for Workshop on "Sustainable Living in Rural Areas of Turkey" held in March 2005 and April 2006, for the 1st Summer School "Achievements and Applications of Contemporary Informatics, Mathematics and Physics" in Kiev, Ukraine, August 2006, and for 5th Ballarat

Workshop on Global and Non-smooth Optimization: Theory, Methods and Applications, in Ballarat, Australia, November 2006. In the year 2007, our Joint EUROPT-OMS Conference "Advances in Continuous Optimization" and a very strong contribution to EURO XXII 2007, both celebrated in Prague, Czech Republic, belonged to our core activities. But we also served as a co-organizing institution of the PhD Workshop in OR for Development of EURO WG OR for Development, and stood at the side of EURO CBBM Workshop – Workshop on OR in Computational Biology, Bioinformatics and Medicine; both of these events took place in Prague, too. Besides of our EURO conference, we gave our help to the other renowned conference series, INFORMS International. All the aforementioned meetings took place in July 2007. What is more, again, we served to three event series: International Symposium on Health Informatics and Bioinformatics (HIBIT), Turkey 07, in Antalya, Turkey, in April-May 2007, also Workshop on Sustainable Living at Turkish Rural Countryside, Ankara, Turkey, in June, and 2nd Summer School "Achievements and Applications of Contemporary Informatics, Mathematics and Physics" in Kiev, Ukraine, in August 2007. Further activities inside of EUROPT, for EURO, the national OR Societies in EURO, to other EURO Working Groups and the entire community of nations is explained below and completes the spectrum of our engagement. Now, in May 2008, the EWG EUROPT have about *1000 members*.

In the year 2008, EUROPT has a very precious scientific program, with the *20th Mini EURO Conference "Continuous Optimization and Knowledge-Based Technologies" (EUROPT-2008)*, Neringa, Lithuania, May 20-23, 2008, in its core!

Leonidas Sakalauskas, Gerhard-Wilhelm Weber, Edmundas Zavadskas