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SYSTEMS THEORY and APPLICATIONS

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(part of the 2007 CSCC Multiconference)**

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Preface

The book you are currently holding contains the Proceedings of the 11th WSEAS International Conference on SYSTEMS (July 23-25, 2007), which is a part of the 11th WSEAS CSCC (Circuits, Systems, Communications, Computers) Multiconference, Agios Nikolaos, Crete Island, Greece, July 23-28, 2007.

As the various branches of engineering advance, and as new mathematical methods and computational techniques appear, Systems Theory becomes more and more interesting. Problems of all branches of science and engineering (ie: automatic control, robotics, mechatronics, electronics, space science, chemistry, applied physics, acoustics, nanotechnology, biomedicine etc.) are continuously dealt by scientists who work on Systems Theory. The Mathematical Systems Theory has offered new tools and methods in differential geometry, finite elements, boundary elements, applied optimization, pattern recognition, computational intelligence, etc.

The CSCC conference is organized annually by the World Scientific and Engineering Academy and Society (WSEAS) in collaboration with important university laboratories, academies and research centers. In 2007 the CSCC international multiconference was organized by WSEAS in collaboration with IARAS (<http://www.iaras.org>) and the Computer Science Laboratory of Hellenic Naval Academy. Several other universities laboratories contributed with special sessions and plenary lectures as one can see below. In 2008 it will be organized by WSEAS and Universidade do Algarve in Algarve, Portugal (June 11-13, 2008).

A variety of topics constituted the focus of paper submissions. Prominent lectures provided key-note speeches for the conference. Moreover, special sessions were organized, and invited lectures were given by well-known researchers.

For this CSCC conference, the Chairmen of the International Scientific Committee were:

Prof. Nikos E. Mastorakis, Hellenic Naval Academy, GREECE, Prof. Stamatios Kartalopoulos, University of Oklahoma, USA, Prof. Panos Pardalos, University of Florida, USA, Prof. Argyrios Varonides, University of Scranton, USA, Prof. Ioannis Pountourakis, National Technical University of Athens, GREECE, Prof. Valeri Mladenov, Technical University of Sofia, BULGARIA, Prof. Zoran Bojkovic, Technical University of Belgrade, SERBIA, Prof. Emmanuel Antonidakis, Techn. Educational Institute of Crete, GREECE

The Plenary Speeches of CSCC'07 were:

- *A New Look at Convexity, Duality, and Optimization*
by Prof. Dimitri Bertsekas, MIT (Massachusetts Institute of Technology Lab. for Information and Decision Systems Cambridge, MA 02139, USA)
- *Key Technologies in Next Generation Optical Networks*
by Prof. Leonid Kazovsky, Stanford University, USA

- *Numerical and Parametrical Optimisation for the Simulation of a Turbulent Combustion Phenomenon in a Well-Stirred Reactor in Steady State Conditions*
by Professor Vincenzo Niola, Department of Mechanical Engineering for Energetic, University of Naples "Federico II", ITALY
- *Study of controllability of two-order singular systems under an algebraic point of view*
by Prof. M. Isabel Garcia-Planas, Universitat Politecnica de Catalunya, Spain
- *System Identification with Quantized Observations*
by Prof. Le Yi Wang, Wayne State University, Detroit, USA
- *Island hopping with Optical Wireless: deployment and security*
by Prof. Stamatios Kartalopoulos, University of Oklahoma, USA
- *PEM Fuel Cells Using Neural Networks*
by Prof. Jose Carlos Quadrado, Instituto Superior de Engenharia de Lisboa, Portugal
- *Information Aggregation as one of the Pillars of Intelligent Systems*
by Prof. Imre J. Rudas, Institute of Intelligent Engineering Systems, John von Neumann Faculty of Informatics, Hungary
- *Non-Linear Symbolic Program Analysis for Increased Parallelization*
by Prof. Kleanthis Psarris, Department of Computer Science, University of Texas at San Antonio, U.S.A.
- *Novel Transform Domain Principal Component Analysis(PCA) Techniques and Some Applications : Facial and Automatic Target Recognition*
by Prof. Wasfy B Mikhael, School of Electrical Engineering and Computer Science, University of Central Florida, Orlando, Florida, USA
- *A Concurrent Modular Neural System for Pattern Recognition and its Applications in Biometrics and Satellite Imagery*
by Prof. Victor-Emil Neagoe, Polytechnic University of Bucharest, Romania

We would like to thank all members of the organizing laboratories for their contribution to the organization of the conference.

The contents of this Book, together with the contents of 3 other books, are also published in the CD-ROM Proceedings of the Conference. Both will be sent to the WSEAS collaborating indices after the conference: www.worldses.org/indexes.

In addition, the papers of this book are permanently available to all the scientific community via the WSEAS E-Library. Another additional feature of CSCC'07 was that the WSEAS society provided the participants with a username and password without an expiry date for on-line access in the WSEAS Conference proceedings (1996 -...).

Expanded and enhanced versions of papers published in these conference proceedings are also going to be considered for possible publication in one of the WSEAS journals that participate in the major International Scientific Indices (Elsevier, Scopus, EI, Compendex, INSPEC, CSA see: www.worldses.org/indexes) these papers must be of high-quality (break-through work) and a new round of a very strict review will follow. (No additional fee will be required for the publication of the extended version in a journal).

We cordially thank all the people of WSEAS for their efforts to maintain the high scientific level of conferences, proceedings and journals.

The Editors

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