Table of Contents

Message from the General Chairs ................................................................. xi
Message from the Program Chairs ............................................................... xii
Organizing Committee ................................................................................ xiii

Keynotes

High-Productivity Programming and Execution Models for Multi-core
Based Parallel Systems ................................................................................ 3
  Hans P. Zima

Contribution of Applied Algorithms to Applied Computing .................. 4
  Ivan Stojmenovic

OOPar: An Object Oriented Environment for Implementing Parallel Algorithms ................................................................. 5
  Philippe Devloo

Session 1: Advanced Networking and Applications

Work-Optimal Routing in Wavelength-Division Multiplexed Dense Optical Tori ...................................................... 9
  Juha-Pekka Liimatainen and Risto T. Honkanen

A Multicriteria Model Applied in the Diagnosis of Alzheimer’s Disease:
A Bayesian Network .................................................................................. 15
  Plácido Rogério Pinheiro, Ana Karoline A. de Castro, and Mirian Caliope D. Pinheiro

An Efficient Context-Specific Pure Overlay Space for Context Dissemination in Ambient Networks ...................... 23
  Dineshbalu Balakrishnan and Amiya Nayak
Session 2: Distributed and Parallel Computing

An Experimental Study on How to Build Efficient Multi-core Clusters for High Performance Computing .................................................................33

Luiz Carlos Pinto, Luiz H. B. Tomazella, and M. A. R. Dantas

A Study of Adaptive Co-scheduling Approach for an Opportunistic Software Environment to Execute in Multi-core and Multi-processor Configurations ...............................................................................................................................41

R. P. Mendonça and M. A. R. Dantas

Automatic Dynamic Task Distribution between CPU and GPU for Real-Time Systems .........................................................48

Mark Joselli, Marcelo Zamith, Esteban Clua, Anselmo Montenegro, Aura Conci, Regina Leal-Toledo, Luis Valente, Bruno Feijó, Marcos d’ Ornellas, and Cesar Pozzer

A High-Throughput Multi-cluster NoC Architecture ..........................................................................................................................56

Henrique C. Freitas and Philippe O. A. Navaux

ICE: Managing Multiple Clusters Using Web Services .....................................................................................................................64

Rodrigo Righi, Laércio Pilla, Alexandre Carissimi, Nicolas Maillard, and Philippe Navaux

Session 3: Scientific Computing I

Including Rigorous Numerical Bounds in Quantum Chemistry Calculations: Gaussian Integral Evaluation.................................................................75

Pete P. Janes and Alistair P. Rendell

Specialized Eigenvalue Methods for Large-Scale Model Order Reduction Problems .................................................................83

Joost Rommes and Nelson Martins

A Domain Decomposition Method Applied to the Simplified Transport Equations .................................................................91

Maxime Barrault, Bruno Lathuilière, Pierre Ramet, and Jean Roman

A Parallel Direct/Iterative Solver Based on a Schur Complement Approach.................................................................98

J. Gaidamour and P. Hénon

Session 4: Embedded and Ubiquitous Computing

Application Specific Processors for Multimedia Applications .................................................................................................109

Muhammad Rashid, Ludovic Apvrille, and Renaud Pacalet

A New Context Script Language and Its Processor for Developing Context-Aware Applications in Ubiquitous Computing .................................................................117

Jaewoo Chang and Ahreum Kim
Model to Integration of RFID into Wireless Sensor Network for Tracking and Monitoring Animals

Daniel Patrick Pereira, Wanderson Roger Azevedo Dias, Marcus de Lima Braga, Raimundo da Silva Barreto, Carlos Mauricio S. Figueiredo, and Virginia Brilhante

Intelligent Open Spaces: Using Neural Networks for Prediction of Requested Resources in Smart Spaces

Amgad Madkour and Ahmed Sameh

**Session 5: Grid Computing**

Joint Application-Fabric Layer Optimization in Grid Computing

Chunlin Li

Toward an Efficient Middleware for Multithreaded Applications in Computational Grid

José Augusto Andrade Filho, Rodrigo Fernandes de Mello, Evgenii Dodonov, Luciano José Senger, Laurence Tianruo Yang, and Kuan-Ching Li

Extending OGSA-DAI Possibilities with a JDBC Driver

Mathias Santos de Brito and Líria Matsumoto Sato

Improving Application Execution in Multicluster Grids

Zhou Lei, Zhifeng Yun, Gabrielle Allen, Xin Li, Nian-Feng Tzeng, and Christopher White

Adaptation to Dynamic Resource Availability in Ad Hoc Grids through a Learning Mechanism

Behnaz Pourebrahimi and Koen Bertels

**Session 6: P2P, Web, and Internet Computing**

Intelligent Search Agent for Internet Computing with Fuzzy Approach

Meikang Qiu, Hung-Chung Huang, Laurence T. Yang, and Jiande Wu

Quality of Service Management for Web Service Compositions

Diego Zuquim Guimarães Garcia and Maria Beatriz Felgar de Toledo

TIGRAS: A Topology-Independent Gradient Search Approach for Peer-to-Peer Key Look Up

Mutaleci Miranda, Geraldo Xexeo, and Jano Moreira de Souza

An Experimental Peer-to-Peer E-mail System

Edson Kageyama, Carlos Maziero, and Altair Santin

**Session 7: Engineering Computing I**

Improving Potts MRF Model Parameter Estimation in Image Analysis

Alexandre L. M. Levada, Nelson D. A. Mascarenhas, and Alberto Tannús
Session 8: HPC Applications

Application Performance Tuning for Clusters with ccNUMA Nodes
Abdullah Kayi, Edward Kornkven, Tarek El-Ghazawi, and Greg Newby

Exploiting Intensive Multithreading for the Efficient Simulation of 3D Seismic Wave Propagation
Fabrice Dupros, Hideo Aochi, Ariane Ducellier, Dimitri Komatitsch, and Jean Roman

Parallelization of the Electrodiffusion Mechanism of the Computational Model of Spreading Depression

Ion Cyclotron Antennas (ICANT) Code Parallelization
Paulo S. Silveira, Gesil S. Amarante Segundo, Martha Torres, and Marcos V. V. Souza

Session 9: Intelligent and Bio-inspired Computing I

A Clustering Approach Based on Artificial Neural Networks to Solve Routing Problems
Thiago A. S. Masutti and Leandro N. de Castro

Stabilizing and Improving the Learning Speed of 2-Layered LSTM Network
Débora C. Corrêa, Alexandre L. M. Levada, and José Hiroki Saito

A Comparison between Hybrid and Non-hybrid Classifiers in Diagnosis of Induction Motor Faults
Sergio P. Santos and Jose Alfredo F. Costa

Stochastic Synchronization and Array-Enhanced Coherence Resonance in a Bio-inspired Chemical Sensor Array
Kazuki Nakada, Jun Igarashi, Tetsuya Asai, Katsumi Tateno, Hatsuo Hayashi, Yoshitaka Ohtubo, Tsutomu Miki, and Kiyonori Yoshii
Session 10: Scientific Computing II

Object Localization Based on Global Structure Constraint Model and Particle Swarm Optimization
Miao Liu, Dongwei Guo, Jie Ma, Chenguang Zhou, and Congshi Wang

Building Efficient Frontier by CVaR Minimization for Non-normal Asset Returns Using Copula Theory
Kapil Agrawal

Accelerating Simulations of Light Scattering Based on Finite-Difference Time-Domain Method with General Purpose GPUs
A. Balevic, L. Rockstroh, A. Tausendfreund, S. Patzelt, G. Goch, and S. Simon

A Theoretical Framework for Local Search Techniques
Eric Monfroy, Frédéric Saubion, Broderick Crawford, and Carlos Castro

Session 11: Database, Data Mining and Analysis

Adaptive and Fault Tolerant Simulation of Relativistic Particle Transport with Data-Level Checkpointing
Ruipeng Li, Hai Jiang, Hung-Chi Su, Bin Zhang, and Jeff Jenness

Accessing and Processing Sensing Data
Gilberto Zonta Pastorello Jr., Claudia Bauzer Medeiros, and André Santanchè

A Fuzzy Clustering Algorithm Based on Fuzzy Distance Norms for Asynchronously Sampled Data
JiHsian Lee and Ruijie Liu

ACN: An Associative Classifier with Negative Rules
Gourab Kundu, Md. Monirul Islam, Sirajum Munir, and Md. Faizul Bari

Session 12: Mobile Computing and Wireless Communications

Available Bandwidth Estimation in Wireless Ad Hoc Network: Accuracy and Probing Time
Abdelaziz Amamra and Kun Mean Hou

Dynamic Pricing Approach for Cooperation Stimulation and QoS in Mobile Ad Hoc Networks
Dona Mathews, Ananda Krishna B, and Radha S

Energy Efficient Broadcast in Distributed Ad Hoc Wireless Networks
Subhas Kumar Ghosh

Energy Model for H2S Monitoring Wireless Sensor Network
Xiaojuan Chao, Waltenegus Dargie, and Guan Lin
Session 13: Intelligent and Bio-inspired Computing II

Fusion of Fingerprint Recognition Methods for Robust Human Identification ................................................................. 413
Fernanda Pereira Sartori Falguera, Aparecido Nileu Marana, and Juan Rogelio Falguera

AdSeD: An Adaptive Quality of Security Control in Disk Systems ..................................................................................... 421
Mais Nijim and Adel Ali

Applying Digital Rights Management to Complex Content Management Systems ............................................................. 429
Marcos C. d’Ornellas

A Trust Model Applied to E-mail Servers ......................................................................................................................... 436
Leonardo Oliveira and Carlos Maziero

Session 14: Engineering Computing II

Hybrid Heuristic Strategies for Planning and Scheduling Forest Harvest and Transportation Activities ................................. 447
Arnaldo Vieira Moura and Rafael Augusto Scaraficci

Heuristics and Constraint Programming Hybridizations for a Real Pipeline Planning and Scheduling Problem .................... 455
Arnaldo V. Moura, Cid C. de Souza, Andre A. Cire, and Tony M. T. Lopes

Tail—A Java Technical Analysis Library ........................................................................................................................... 463
Márcio V. Santos, Alexandre Takinami, Alfredo Goldman, and Cecilia Fernandes

An Efficient Technique for Computing a Sub-optimal Disturbance Attenuation $H_\infty$ Control Problem Feedback Solution ................................................................................................................................. 471
Francisco Damasceno Freitas, João Yoshiyuki Ishihara, and Geovany de Araújo Borges

3D Computer Simulations of Pulsatile Human Blood Flows in Vessels and in the Aortic Arch: Investigation of Non-Newtonian Characteristics of Human Blood ............................................................... 479
Renat A. Sultanov, Dennis Guster, Brent Engelbrekt, and Richard Blankenbecler

Author Index ........................................................................................................................................................................... 487