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Computational Science and Its Applications – ICCSA 2004

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Preface

The natural mission of Computational Science is to tackle all sorts of human problems and to work out *intelligent* automata aimed at alleviating the burden of working out suitable tools for solving complex problems. For this reason Computational Science, though originating from the need to solve the most challenging problems in science and engineering (computational science is the key player in the fight to gain fundamental advances in astronomy, biology, chemistry, environmental science, physics and several other scientific and engineering disciplines) is increasingly turning its attention to all fields of human activity.

In all activities, in fact, intensive computation, information handling, knowledge synthesis, the use of ad-hoc devices, etc. increasingly need to be exploited and coordinated regardless of the location of both the users and the (various and heterogeneous) computing platforms. As a result the key to understanding the explosive growth of this discipline lies in two adjectives that more and more appropriately refer to Computational Science and its applications: interoperable and ubiquitous. Numerous examples of ubiquitous and interoperable tools and applications are given in the present four LNCS volumes containing the contributions delivered at the 2004 International Conference on Computational Science and its Applications (ICCSA 2004) held in Assisi, Italy, May 14–17, 2004.

To emphasize this particular connotation of modern Computational Science the conference was preceded by a tutorial on Grid Computing (May 13–14) concerted with the COST D23 Action (METACHEM: Metalaboratories for Complex Computational Applications in Chemistry) of the European Coordination Initiative COST in Chemistry and the Project *Enabling Platforms for High-Performance Computational Grids Oriented to Scalable Virtual Organization* of the Ministry of Science and Education of Italy.

The volumes consist of 460 peer reviewed papers given as oral contributions at the conference. The conference included 8 presentations from keynote speakers, 15 workshops and 3 technical sessions. Thanks are due to most of the workshop organizers and the Program Committee members, who took care of the unexpected exceptional load of reviewing work (either carrying it out by themselves or distributing it to experts in the various fields).

Special thanks are due to Noelia Faginas Lago for handling all the necessary secretarial work. Thanks are also due to the young collaborators of the High Performance Computing and the Computational Dynamics and Kinetics research groups of the Department of Mathematics and Computer Science and of the Department of Chemistry of the University of Perugia. Thanks are, obviously,

due as well to the sponsors for supporting the conference with their financial and organizational help.

May 2004

Antonio Laganà
on behalf of the co-editors:
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Table of Contents – Part III

Workshop on Computational Geometry and Applications (CGA 04)

Geometric Graphs Realization as Coin Graphs	1
<i>Manuel Abellanas, Carlos Moreno-Jiménez</i>	
Disc Covering Problem with Application to Digital Halftoning	11
<i>Tetsuo Asano, Peter Brass, Shinji Sasahara</i>	
On Local Transformations in Plane Geometric Graphs Embedded on Small Grids	22
<i>Manuel Abellanas, Prosenjit Bose, Alfredo García, Ferran Hurtado, Pédro Ramos, Eduardo Rivera-Campo, Javier Tejel</i>	
Reducing the Time Complexity of Minkowski-Sum Based Similarity Calculations by Using Geometric Inequalities	32
<i>Henk Bekker, Axel Brink</i>	
A Practical Algorithm for Approximating Shortest Weighted Path between a Pair of Points on Polyhedral Surface	42
<i>Sasanka Roy, Sandip Das, Subhas C. Nandy</i>	
Plane-Sweep Algorithm of $O(n \log n)$ for the Inclusion Hierarchy among Circles	53
<i>Deok-Soo Kim, Byunghoon Lee, Cheol-Hyung Cho, Kokichi Sugihara</i>	
Shortest Paths for Disc Obstacles	62
<i>Deok-Soo Kim, Kwangseok Yu, Youngsong Cho, Donguk Kim, Chee Yap</i>	
Improving the Global Continuity of the Natural Neighbor Interpolation	71
<i>Hisamoto Hiyoshi, Kokichi Sugihara</i>	
Combinatorics and Triangulations	81
<i>Tomas Hlavaty, Václav Skala</i>	
Approximations for Two Decomposition-Based Geometric Optimization Problems	90
<i>Minghui Jiang, Brendan Mumey, Zhongping Qin, Andrew Tomascak, Binhai Zhu</i>	
Computing Largest Empty Slabs	99
<i>Jose Miguel Díaz-Báñez, Mario Alberto López, Joan Antoni Sellarès</i>	

3D-Color-Structure-Code – A New Non-plainness Island Hierarchy	109
<i>Patrick Sturm</i>	
Quadratic-Time Linear-Space Algorithms for Generating Orthogonal Polygons with a Given Number of Vertices	117
<i>Ana Paula Tomás, António Leslie Bajuelos</i>	
Partitioning Orthogonal Polygons by Extension of All Edges Incident to Reflex Vertices: Lower and Upper Bounds on the Number of Pieces	127
<i>António Leslie Bajuelos, Ana Paula Tomás, Fábio Marques</i>	
On the Time Complexity of Rectangular Covering Problems in the Discrete Plane	137
<i>Stefan Porschen</i>	
Approximating Smallest Enclosing Balls	147
<i>Frank Nielsen, Richard Nock</i>	
Geometry Applied to Designing Spatial Structures: Joining Two Worlds	158
<i>José Andrés Díaz, Reinaldo Togoies, César Otero</i>	
A Robust and Fast Algorithm for Computing Exact and Approximate Shortest Visiting Routes	168
<i>Håkan Jonsson</i>	
Automated Model Generation System Based on Freeform Deformation and Genetic Algorithm	178
<i>Hyunpung Park, Kwan H. Lee</i>	
Speculative Parallelization of a Randomized Incremental Convex Hull Algorithm	188
<i>Marcelo Cintra, Diego R. Llanos, Belén Palop</i>	
The Employment of Regular Triangulation for Constrained Delaunay Triangulation	198
<i>Pavel Maur, Ivana Kolingerová</i>	
The Anchored Voronoi Diagram	207
<i>Jose Miguel Díaz-Báñez, Francisco Gómez, Immaculada Ventura</i>	
Implementation of the Voronoi-Delaunay Method for Analysis of Intermolecular Voids	217
<i>A.V. Anikeenko, M.G. Alinchenko, V.P. Voloshin, N.N. Medvedev, M.L. Gavrilova, P. Jedlovsky</i>	
Approximation of the Boat-Sail Voronoi Diagram and Its Application	227
<i>Tetsushi Nishida, Kokichi Sugihara</i>	

Incremental Adaptive Loop Subdivision	237
<i>Hamid-Reza Pakdel, Faramarz F. Samavati</i>	
Reverse Subdivision Multiresolution for Polygonal Silhouette	
Error Correction	247
<i>Kevin Foster, Mario Costa Sousa, Faramarz F. Samavati, Brian Wyvill</i>	
Cylindrical Approximation of a Neuron from	
Reconstructed Polyhedron	257
<i>Wenhao Lin, Binhai Zhu, Gwen Jacobs, Gary Orser</i>	
Skeletizing 3D-Objects by Projections	267
<i>David Ménegaux, Dominique Faudot, Hamamache Kheddouci</i>	

Track on Computational Geometry

An Efficient Algorithm for Determining 3-D Bi-plane	
Imaging Geometry	277
<i>Jinhui Xu, Guang Xu, Zhenming Chen, Kenneth R. Hoffmann</i>	
Error Concealment Method Using Three-Dimensional	
Motion Estimation	288
<i>Dong-Hwan Choi, Sang-Hak Lee, Chan-Sik Hwang</i>	
Confidence Sets for the Aumann Mean of a Random Closed Set	298
<i>Raffaello Seri, Christine Choirat</i>	
An Algorithm of Mapping Additional Scalar Value in 2D Vector	
Field Visualization	308
<i>Zhigeng Pan, Jianfeng Lu, Minming Zhang</i>	
Network Probabilistic Connectivity: Exact Calculation	
with Use of Chains	315
<i>Olga K. Rodionova, Alexey S. Rodionov, Hyunseung Choo</i>	
Curvature Dependent Polygonization by the Edge Spinning	325
<i>Martin Čermák, Václav Skala</i>	
SOM: A Novel Model for Defining Topological Line-Region Relations	335
<i>Xiaolin Wang, Yingwei Luo, Zhuoqun Xu</i>	

Track on Adaptive Algorithms

On Automatic Global Error Control in Multistep Methods with	
Polynomial Interpolation of Numerical Solution	345
<i>Gennady Yu. Kulikov, Sergey K. Shindin</i>	