

Table of Contents – Part IV

Workshop on Advanced Methods of Digital Image Processing

The New Graphic Description of the Haar Wavelet Transform	1
<i>P. Porwik, A. Lisowska</i>	
On New Radon-Based Translation, Rotation, and Scaling Invariant Transform for Face Recognition	9
<i>T. Arodź</i>	
On Bit-Level Systolic Arrays for Least-Squares Digital Contour Smoothing	18
<i>J. Glasa</i>	
Bayer Pattern Demosaicking Using Local-Correlation Approach	26
<i>R. Lukac, K.N. Plataniotis, A.N. Venetsanopoulos</i>	
Edge Preserving Filters on Color Images	34
<i>V. Hong, H. Palus, D. Paulus</i>	
Segmentation of Fundus Eye Images Using Methods of Mathematical Morphology for Glaucoma Diagnosis	41
<i>K. Stępor, A. Świtonski, R. Chrastek, G. Michelson</i>	
Automatic Detection of Glaucomatous Changes Using Adaptive Thresholding and Neural Networks	49
<i>K. Stępor, L. Pawlaczyk, R. Chrastek, G. Michelson</i>	
Analytical Design of 2-D Narrow Bandstop FIR Filters	56
<i>P. Zahradník, M. Vlček</i>	
Analytical Design of Arbitrary Oriented Asteroidal 2-D FIR Filters	64
<i>P. Zahradník, M. Vlček</i>	
A $\{k, n\}$ -Secret Sharing Scheme for Color Images	72
<i>R. Lukac, K.N. Plataniotis, A.N. Venetsanopoulos</i>	

Workshop on Computer Graphics and Geometric Modelling (CGGM 2004)

Declarative Modelling in Computer Graphics: Current Results and Future Issues	80
<i>P.-F. Bonnefoi, D. Plemenos, W. Ruchaud</i>	
Geometric Snapping for 3D Meshes	90
<i>K.-H. Yoo, J.S. Ha</i>	
Multiresolution Approximations of Generalized Voronoi Diagrams	98
<i>I. Boada, N. Coll, J.A. Sellarès</i>	
LodStrips: Level of Detail Strips	107
<i>J.F. Ramos, M. Chover</i>	
Declarative Specification of Ambiance in VRML Landscapes	115
<i>V. Jolivet, D. Plemenos, P. Poulingeas</i>	
Using Constraints in Delaunay and Greedy Triangulation for Contour Lines Improvement	123
<i>I. Kolingerová, V. Strych, V. Čada</i>	
An Effective Modeling of Single Cores Prostheses Using Geometric Techniques	131
<i>K.-H. Yoo, J.S. Ha</i>	
GA and CHC. Two Evolutionary Algorithms to Solve the Root Identification Problem in Geometric Constraint Solving	139
<i>M.V. Luzón, E. Barreiro, E. Yeguas, R. Joan-Arinyo</i>	
Manifold Extraction in Surface Reconstruction	147
<i>M. Varnuška, I. Kolingerová</i>	
Expression of a Set of Points' Structure within a Specific Geometrical Model	156
<i>J.-L. Mari, J. Sequeira</i>	
Effective Use of Procedural Shaders in Animated Scenes	164
<i>P. Kondratieva, V. Havran, H.-P. Seidel</i>	
Real-Time Tree Rendering	173
<i>I. Remolar, C. Rebollo, M. Chover, J. Ribelles</i>	
A Brush Stroke Generation Using Magnetic Field Model for Painterly Rendering	181
<i>L.S. Yeon, Y.H. Soon, Y.K. Hyun</i>	

Reuse of Paths in Final Gathering Step with Moving Light Sources 189
M. Sbert, F. Castro

Real Time Tree Sketching 197
C. Campos, R. Quirós, J. Huerta, E. Camahort, R. Vivó, J. Lluch

Facial Expression Recognition Based on Dimension Model Using Sparse Coding 205
Y.-s. Shin

An Application to the Treatment of Geophysical Images through Orthogonal Projections 213
S. Romero, F. Moreno

A Derivative-Free Tracking Algorithm for Implicit Curves with Singularities 221
J.F.M. Morgado, A.J.P. Gomes

Framework for Simulating the Human Behavior for Intelligent Virtual Agents. Part I: Framework Architecture 229
F. Luengo, A. Iglesias

Framework for Simulating the Human Behavior for Intelligent Virtual Agents. Part II: Behavioral System 237
F. Luengo, A. Iglesias

Point-Based Modeling from a Single Image 245
P.-P. Vázquez, J. Marco, M. Sbert

Introducing Physical Boundaries in Virtual Environments 252
P. Herrero, A. de Antonio

Thin Client Access to a Visualization Environment 258
I. Fudos, I. Kyriazis

Interactive Visualization of Relativistic Effects with the Hardware Acceleration 264
R. Mantiuk, K. Murawko-Wisniewska, D. Zdrojewska

Workshop on Computer Algebra Systems and Applications (CASA 2004)

Design of Interactive Environment for Numerically Intensive Parallel Linear Algebra Calculations 270
P. Luszczek, J. Dongarra

Computer Algebra for Real-Time Dynamics of Robots with Large Numbers of Joints	278
<i>R. Bansevicius, A. Cepulkauskas, R. Kulvietiene, G. Kulvietis</i>	
Development of SyNRAC—Formula Description and New Functions.	286
<i>H. Yanami, H. Anai</i>	
DisCAS: A Distributed-Parallel Computer Algebra System	295
<i>Y. Wu, G. Yang, W. Zheng, D. Lin</i>	
A Mathematica Package for Solving and Displaying Inequalities	303
<i>R. Ipanaqué, A. Iglesias</i>	
Choleski-Banachiewicz Approach to Systems with Non-positive Definite Matrices with MATHEMATICA®	311
<i>R.A. Walentyński</i>	
A Closed Form Solution of the Run-Time of a Sliding Bead along a Freely Hanging Slinky	319
<i>H. Sarafian</i>	
Analytical Theory of Motion of a Mars Orbiter	327
<i>J.F. San Juan, S. Serrano, A. Abad</i>	
Computing Theta-Stable Parabolic Subalgebras Using LiE	335
<i>A.G. Noël</i>	
Graphical and Computational Representation of Groups	343
<i>A. Bretto, L. Gillibert</i>	
First Order ODEs: Mathematica and Symbolic-Numerical Methods.	351
<i>C. D'Apice, G. Gargiulo, M. Rosanna</i>	
Evaluation of the Fundamental Physical Constants in <i>Mathematica</i>	358
<i>A.S. Siver</i>	
Symbolic Polynomial Interpolation Using Mathematica	364
<i>A. Yazici, I. Altas, T. Ergenc</i>	
Constant Weight Codes with Package CodingTheory.m in Mathematica.	370
<i>I. Gashkov</i>	
Graph Coloring with webMathematica	376
<i>Ü. Ufuktepe, G. Bacak, T. Beseri</i>	
Construction of Solutions for Nonintegrable Systems with the Help of the Painlevé Test	382
<i>S.Y. Vernov</i>	

Computer Algebra Manipulations in Astronomy 388
T. Ivanova

**Workshop on New Numerical Methods for DEs:
 Applications to Linear Algebra, Control
 and Engineering**

Higher Order Quadrature on Sparse Grids 394
H.-J. Bungartz, S. Dirnstorfer

Application of Extrapolation Methods to Numerical Solution of
 Fredholm Integral Equations Related to Boundary Value Problems 402
A. Sidi

Extrapolation Techniques for Computing Accurate Solutions of
 Elliptic Problems with Singular Solutions 410
H. Koestler, U. Ruede

Vandermonde–Type Matrices in Two Step Collocation Methods for
 Special Second Order Ordinary Differential Equations 418
S. Martucci, B. Paternoster

Direct Optimization Using Gaussian Quadrature and Continuous
 Runge-Kutta Methods: Application to an Innovation Diffusion Model.... 426
F. Diele, C. Marangi, S. Ragni

The ReLPM Exponential Integrator for FE Discretizations of
 Advection-Diffusion Equations 434
L. Bergamaschi, M. Caliari, M. Vianello

Function Fitting Two–Step BDF Algorithms for ODEs 443
L.G. Icaru, B. Paternoster

Pseudospectral Iterated Method for Differential Equations with
 Delay Terms 451
J. Mead, B. Zubik-Kowal

A Hybrid Numerical Technique for the Solution of a Class of
 Implicit Matrix Differential Equation 459
N. Del Buono, L. Lopez

A Continuous Approach for the Computation of the Hyperbolic
 Singular Value Decomposition 467
T. Politi

Workshop on Parallel Monte Carlo Algorithms for Diverse Applications in a Distributed Setting

Using P-GRADE for Monte Carlo Computations in a Distributed Environment 475
V.N. Alexandrov, A. Thandavan, P. Kacsuk

Calculating Activation Energies in Diffusion Processes Using a Monte Carlo Approach in a Grid Environment 483
M. Calleja, M.T. Dove

Using Parallel Monte Carlo Methods in Large-Scale Air Pollution Modelling 491
V.N. Alexandrov, Z. Zlatev

Parallel Importance Separation for Multiple Integrals and Integral Equations 499
S. Ivanovska, A. Karavanova

Investigation of the Sensitivity of the Monte Carlo Solution for the Barker-Ferry Equation with Sequential and Parallel Pseudo-Random Number Generators 507
T.V. Gurov, P.A. Whitlock

Design and Distributed Computer Simulation of Thin $p^+ - i - n^+$ Avalanche Photodiodes Using Monte Carlo Model 515
M. Yakutovich

Convergence Proof for a Monte Carlo Method for Combinatorial Optimization Problems 523
S. Fidanova

Monte Carlo Algorithm for Maneuvering Target Tracking and Classification 531
D. Angelova, L. Mihaylova, T. Semerdjiev

Workshop on Modelling and Simulation of Multi-physics Multi-scale Systems

Coupling a Lattice Boltzmann and a Finite Difference Scheme 540
P. Albuquerque, D. Alemani, B. Chopard, P. Leone

Accuracy versus Performance in Lattice Boltzmann BGK Simulations of Systolic Flows 548
A.M. Artoli, L. Abrahamyan, A.G. Hoekstra

Mesoscopic Modelling of Droplets on Topologically Patterned Substrates	556
<i>A. Dupuis, J.M. Yeomans</i>	
Soot Particle Deposition within Porous Structures Using a Method of Moments – Lattice Boltzmann Approach	564
<i>B.F.W. Gschaider, C.C. Honeger, C.E.P. Redl</i>	
Numerical Bifurcation Analysis of Lattice Boltzmann Models: A Reaction-Diffusion Example	572
<i>P. Van Leemput, K. Lust</i>	
Particle Models of Discharge Plasmas in Molecular Gases	580
<i>S. Longo, M. Capitelli, P. Diomede</i>	
Fully Kinetic Particle-in-Cell Simulation of a Hall Thruster	588
<i>F. Taccogna, S. Longo, M. Capitelli, R. Schneider</i>	
Standard of Molecular Dynamics Modeling and Simulation of Relaxation in Dense Media	596
<i>A.Y. Kuksin, I.V. Morozov, G.E. Norman, V.V. Stegailov</i>	
Implicit and Explicit Higher Order Time Integration Schemes for Fluid-Structure Interaction Computations	604
<i>A. van Zuijlen, H. Bijl</i>	
Accounting for Nonlinear Aspects in Multiphysics Problems: Application to Poroelectricity	612
<i>D. Néron, P. Ladevèze, D. Dureisseix, B.A. Schrefler</i>	
Computational Modelling of Multi-field Ionic Continuum Systems	621
<i>J. Michopoulos</i>	
Formation of Dwarf Galaxies in Reionized Universe with Heterogeneous Multi-computer System	629
<i>T. Boku, H. Susa, K. Onuma, M. Umemura, M. Sato, D. Takahashi</i>	
A Multi-scale Numerical Study of the Flow, Heat, and Mass Transfer in Protective Clothing	637
<i>M.P. Sobera, C.R. Kleijn, P. Brasser, H.E.A. Van den Akker</i>	
Thermomechanical Waves in SMA Patches under Small Mechanical Loadings	645
<i>L. Wang, R.V.N. Melnik</i>	
Direct and Homogeneous Numerical Approaches to Multiphase Flows and Applications	653
<i>R. Samulyak, T. Lu, Y. Prykarpatsky</i>	

Molecular Dynamics and Monte Carlo Simulations for Heat Transfer
in Micro and Nano-channels 661
*A.J.H. Frijns, S.V. Nedeá, A.J. Markvoort, A.A. van Steenhoven,
P.A.J. Hilbers*

Improved Semi-Lagrangian Stabilizing Correction Scheme for
Shallow Water Equations 667
A. Bouchteín, L. Bouchteín

Bose-Einstein Condensation Studied by the Real-Time Monte Carlo
Simulation in the Frame of Java Applet 673
M. Gall, R. Kutner, A. Majerowski, D. Żebrowski

Workshop on Gene, Genome, and Population Evolution

Life History Traits and Genome Structure: Aerobiosis and G+C
Content in Bacteria 679
J.R. Lobry

Differential Gene Survival under Asymmetric Directional
Mutational Pressure 687
*P. Mackiewicz, M. Dudkiewicz, M. Kowalczyk, D. Mackiewicz,
J. Banaszak, N. Polak, K. Smolarczyk, A. Nowicka,
M.R. Dudek, S. Cebrat*

How Gene Survival Depends on Their Length 694
*N. Polak, J. Banaszak, P. Mackiewicz, M. Dudkiewicz, M. Kowalczyk,
D. Mackiewicz, K. Smolarczyk, A. Nowicka, M.R. Dudek,
S. Cebrat*

Super-tree Approach for Studying the Phylogeny of Prokaryotes:
New Results on Completely Sequenced Genomes 700
A. Calteau, V. Daubin, G. Perrière

Genetic Paralog Analysis and Simulations 709
S. Cebrat, J.P. Radomski, D. Stauffer

Evolutionary Perspectives on Protein Thermodynamics 718
R.A. Goldstein

The Partition Function Variant of Sankoff’s Algorithm 728
I.L. Hofacker, P.F. Stadler

Simulation of Molecular Evolution Using Population Dynamics
Modelling 736
S.V. Semovski

Lotka-Volterra Model of Macro-Evolution on Dynamical Networks	742
<i>F. Coppez, M. Droz, A. Lipowski</i>	
Simulation of a Horizontal and Vertical Disease Spread in Population	750
<i>M. Magdoń-Maksymowicz</i>	
Evolution of Population with Interaction between Neighbours	758
<i>M. Magdoń-Maksymowicz, A.Z. Maksymowicz</i>	
The Role of Dominant Mutations in the Population Expansion	765
<i>S. Cebrat, A. Pękałski</i>	

Workshop on Computational Methods in Finance and Insurance

On the Efficiency of Simplified Weak Taylor Schemes for Monte Carlo Simulation in Finance	771
<i>N. Bruti Liberati, E. Platen</i>	
Time-Scale Transformations: Effects on VaR Models	779
<i>F. Lamantia, S. Ortobelli, S. Rachev</i>	
Environment and Financial Markets	787
<i>W. Szatczschneider, M. Jeanblanc, T. Kwiatkowska</i>	
Pricing of Some Exotic Options with <i>NIG</i> -Lévy Input	795
<i>S. Rasmus, S. Asmussen, M. Wiktorsson</i>	
Construction of Quasi Optimal Portfolio for Stochastic Models of Financial Market	803
<i>A. Janicki, J. Zwieryz</i>	
Euler Scheme for One-Dimensional SDEs with Time Dependent Reflecting Barriers	811
<i>L. Słomiński, T. Wojciechowski</i>	
On Approximation of Average Expectation Prices for Path Dependent Options in Fractional Models	819
<i>B. Ziemkiewicz</i>	
Confidence Intervals for the Autocorrelations of the Squares of GARCH Sequences	827
<i>P. Kokoszka, G. Teyssière, A. Zhang</i>	
Performance Measures in an Evolutionary Stock Trading Expert System	835
<i>P. Lipiński, J.J. Korczak</i>	

Stocks' Trading System Based on the Particle Swarm Optimization Algorithm	843
<i>J. Nenortaite, R. Simutis</i>	
Parisian Options – The Implied Barrier Concept	851
<i>J. Anderluh, H. van der Weide</i>	
Modeling Electricity Prices with Regime Switching Models	859
<i>M. Bierbrauer, S. Trück, R. Weron</i>	
Modeling the Risk Process in the XploRe Computing Environment	868
<i>K. Burnecki, R. Weron</i>	

Workshop on Computational Economics and Finance

A Dynamic Stochastic Programming Model for Bond Portfolio Management	876
<i>L. Yu, S. Wang, Y. Wu, K.K. Lai</i>	
Communication Leading to Nash Equilibrium without Acyclic Condition (– S4-Knowledge Model Case –)	884
<i>T. Matsuhisa</i>	
Support Vector Machines Approach to Credit Assessment	892
<i>J. Li, J. Liu, W. Xu, Y. Shi</i>	
Measuring Scorecard Performance	900
<i>Z. Yang, Y. Wang, Y. Bai, X. Zhang</i>	
Parallelism of Association Rules Mining and Its Application in Insurance Operations	907
<i>J. Tian, L. Zhu, S. Zhang, G. Huang</i>	
No Speculation under Expectations in Awareness	915
<i>K. Horie, T. Matsuhisa</i>	
A Method on Solving Multiobjective Conditional Value-at-Risk	923
<i>M. Jiang, Q. Hu, Z. Meng</i>	
Cross-Validation and Ensemble Analyses on Multiple-Criteria Linear Programming Classification for Credit Cardholder Behavior	931
<i>Y. Peng, G. Kou, Z. Chen, Y. Shi</i>	

Workshop on GeoComputation

A Cache Mechanism for Component-Based WebGIS	940
<i>Y. Luo, X. Wang, Z. Xu</i>	

A Data Structure for Efficient Transmission of Generalised Vector Maps	948
<i>M. Zhou, M. Bertolotto</i>	
Feasibility Study of Geo-spatial Analysis Using Grid Computing	956
<i>Y. Hu, Y. Xue, J. Wang, X. Sun, G. Cai, J. Tang, Y. Luo, S. Zhong, Y. Wang, A. Zhang</i>	
An Optimum Vehicular Path Solution with Multi-heuristics	964
<i>F. Lu, Y. Guan</i>	
An Extended Locking Method for Geographical Database with Spatial Rules	972
<i>C. Cheng, P. Shen, M. Zhang, F. Lu</i>	
Preliminary Study on Unsupervised Classification of Remotely Sensed Images on the Grid	981
<i>J. Wang, X. Sun, Y. Xue, Y. Hu, Y. Luo, Y. Wang, S. Zhong, A. Zhang, J. Tang, G. Cai</i>	
Experience of Remote Sensing Information Modelling with Grid Computing	989
<i>G. Cai, Y. Xue, J. Tang, J. Wang, Y. Wang, Y. Luo, Y. Hu, S. Zhong, X. Sun</i>	
Load Analysis and Load Control in Geo-agents	997
<i>Y. Luo, X. Wang, Z. Xu</i>	

Workshop on Simulation and Modeling of 3D Integrated Circuits

Challenges in Transmission Line Modeling at Multi-gigabit Data Rates	1004
<i>V. Heyfitch</i>	
MPI-Based Parallelized Model Order Reduction Algorithm	1012
<i>I. Balk, S. Zorin</i>	
3D-VLSI Design Tool	1017
<i>R. Bollapragada</i>	
Analytical Solutions of the Diffusive Heat Equation as the Application for Multi-cellular Device Modeling – A Numerical Aspect . . .	1021
<i>Z. Lisik, J. Wozny, M. Langer, N. Rinaldi</i>	
Layout Based 3D Thermal Simulations of Integrated Circuits Components	1029
<i>K. Slusarczyk, M. Kaminski, A. Napieralski</i>	

Simulation of Electrical and Optical Interconnections
for Future VLSI ICs 1037
G. Tosik, Z. Lisik, M. Langer, F. Gaffiot, I. O’Conor

Balanced Binary Search Trees Based Approach
for Sparse Matrix Representation 1045
I. Balk, I. Pavlovsky, A. Ushakov, I. Landman

Principles of Rectangular Mesh Generation in Computational Physics ... 1049
*V. Ermolaev, E. Odintsov, A. Sobachkin, A. Kharitonovich,
M. Bevzushenko, S. Zorin*

**Workshop on Computational Modeling and Simulation on
Biomechanical Engineering**

Inter-finger Connection Matrices 1056
*V.M. Zatsiorsky, M.L. Latash, F. Danion, F. Gao, Z.-M. Li,
R.W. Gregory, S. Li*

Biomechanics of Bone Cement Augmentation with Compression Hip
Screw System for the Treatment of Intertrochanteric Fractures 1065
S.J. Lee, B.J. Kim, S.Y. Kwon, G.R. Tack

Comparison of Knee Cruciate Ligaments Models Using Kinematics
from a Living Subject during Chair Rising-Sitting 1073
R. Stagni, S. Fantozzi, M. Davinelli, M. Lannocca

Computer and Robotic Model of External Fixation System for
Fracture Treatment 1081
Y.H. Kim, S.-G. Lee

Robust Path Design of Biomechanical Systems Using the Concept
of Allowable Load Set 1088
J.H. Chang, J.H. Kim, B.M. Kwak

A New Modeling Method for Objects with Branching Problem Using
Non-uniform B-Spline 1095
*H.S. Kim, Y.H. Kim, Y.H. Choe, S.-M. Kim, T.-S. Cho,
J.H. Mun*

Motion Design of Two-Legged Locomotion Process of a Man 1103
S. Novikava, K. Miatliuk, K. Jaworek

Adaptive Microcalcification Detection in Computer Aided Diagnosis 1110
H.-K. Kang, S.-M. Kim, N.N. Thanh, Y.M. Ro, W.-H. Kim

Workshop on Information Technologies Enhancing Health Care Delivery

The Impact of Information Technology on Quality of Healthcare Services	1118
<i>M. Duplaga</i>	
Computer Generated Patient Plans Based on Patterns of Care	1126
<i>O.M. Winnem</i>	
On Direct Comparing of Medical Guidelines with Electronic Health Record	1133
<i>J. Zvárová, A. Veselý, P. Hanzlíček, J. Špidlen, D. Buchtela</i>	
Managing Information Models for E-health via Planned Evolutionary Pathways	1140
<i>H. Duwe</i>	
An Attributable Role-Based Access Control for Healthcare	1148
<i>D. Schwartzmann</i>	
Aspects of a Massively Distributed Stable Component Space	1156
<i>K. Schmaranz, D. Schwartzmann</i>	
Demonstrating Wireless IPv6 Access to a Federated Health Record Server	1165
<i>D. Kalra, D. Ingram, A. Austin, V. Griffith, D. Lloyd, D. Patterson, P. Kirstein, P. Conversin, W. Fritsche</i>	
Collaborative Teleradiology	1172
<i>K. Zieliński, J. Cata, L. Czekierda, S. Zieliński</i>	

Workshop on Computing in Science and Engineering Academic Programs

Some Remarks on CSE Education in Germany	1180
<i>H.-J. Bungartz</i>	
The Computational Science and Engineering (CS&E) Program at Purdue University	1188
<i>T. Downar, T. Kozłowski</i>	
Adapting the CSE Program at ETH Zurich to the Bologna Process	1196
<i>R. Jeltsch, K. Nipp</i>	

Computational Engineering and Science Program at the University
of Utah 1202
C. DeTar, A.L. Fogelson, C.R. Johnson, C.A. Sikorski, T. Truong

A Comparison of C, MATLAB, and Python as Teaching Languages
in Engineering 1210
H. Fangohr

Teaching Computational Science Using VPython and Virtual Reality 1218
S. Roberts, H. Gardner, S. Press, L. Stals

Student Exercises on Fossil Fuels, Global Warming, and Gaia 1226
B.W. Rust

Teaching Scientific Computing 1234
B.A. Shadwick

Creating a Sustainable High-Performance Scientific Computing Course . . . 1242
E.R. Jessup, H.M. Tufo

CSE without Math? A First Course in Modeling and Simulation 1249
W. Wiechert

Author Index 1257

Table of Contents – Part I

Track on Parallel and Distributed Computing

Optimization of Collective Reduction Operations	1
<i>R. Rabenseifner</i>	
Predicting MPI Buffer Addresses	10
<i>F. Freitag, M. Ferreras, T. Cortes, J. Labarta</i>	
An Efficient Load-Sharing and Fault-Tolerance Algorithm in Internet-Based Clustering Systems	18
<i>I.-B. Choi, J.-D. Lee</i>	
Dynamic Parallel Job Scheduling in Multi-cluster Computing Systems	27
<i>J.H. Abawajy</i>	
Hunting for Bindings in Distributed Object-Oriented Systems	35
<i>M. Ślawińska</i>	
Design and Implementation of the Cooperative Cache for PVFS	43
<i>I.-C. Hwang, H. Kim, H. Jung, D.-H. Kim, H. Ghim, S.-R. Maeng, J.-W. Cho</i>	

Track on Grid Computing

Towards OGSA Compatibility in Alternative Metacomputing Frameworks	51
<i>G. Stuer, V. Sunderam, J. Broeckhove</i>	
DartGrid: Semantic-Based Database Grid	59
<i>Z. Wu, H. Chen, Changhuang, G. Zheng, J. Xu</i>	
A 3-tier Grid Architecture and Interactive Applications Framework for Community Grids	67
<i>O. Ardaiz, K. Sanjeevan, R. Sanguesa</i>	
Incorporation of Middleware and Grid Technologies to Enhance Usability in Computational Chemistry Applications	75
<i>J.P. Greenberg, S. Mock, M. Katz, G. Bruno, F. Sacerdoti, P. Papadopoulos, K.K. Baldrige</i>	

An Open Grid Service Environment for Large-Scale Computational Finance Modeling Systems	83
<i>C. Wiesinger, D. Giczi, R. Hochreiter</i>	
The Migrating Desktop as a GUI Framework for the “Applications on Demand” Concept	91
<i>M. Kupczyk, R. Lichwała, N. Meyer, B. Palak, M. Płóciennik, M. Stroiński, P. Wolniewicz</i>	
Interactive Visualization for the UNICORE Grid Environment	99
<i>P. Bała, K. Benedyczak, A. Nowiński, K.S. Nowiński, J. Wypychowski</i>	
Efficiency of the GSI Secured Network Transmission	107
<i>B. Baliś, M. Bubak, W. Rząsa, T. Szepieniec</i>	
An Idle Compute Cycle Prediction Service for Computational Grids	116
<i>S. Hwang, E.-J. Im, K. Jeong, H. Park</i>	
Infrastructure for Grid-Based Virtual Organizations	124
<i>L. Hluchy, O. Habala, V.D. Tran, B. Simo, J. Aсталos, M. Dobrucky</i>	
Air Pollution Modeling in the CrossGrid Project	132
<i>J.C. Mourriño, M.J. Martín, P. González, R. Doallo</i>	
The Genetic Algorithms Population Pluglet for the H2O Metacomputing System	140
<i>T. Ampula, D. Kurzyniec, V. Sunderam, H. Witek</i>	
Applying Grid Computing to the Parameter Sweep of a Group Difference Pseudopotential	148
<i>W. Sudholt, K.K. Baldrige, D. Abramson, C. Enticott, S. Garic</i>	
A Grid Enabled Parallel Hybrid Genetic Algorithm for SPN	156
<i>G.L. Presti, G.L. Re, P. Storniolo, A. Urso</i>	
An Atmospheric Sciences Workflow and Its Implementation with Web Services	164
<i>D. Abramson, J. Kommineni, J.L. McGregor, J. Katzfey</i>	
Twins: 2-hop Structured Overlay with High Scalability	174
<i>J. Hu, H. Dong, W. Zheng, D. Wang, M. Li</i>	
Dispatching Mechanism of an Agent-Based Distributed Event System	184
<i>O.K. Sahingoz, N. Erdogan</i>	
An Adaptive Communication Mechanism for Highly Mobile Agents	192
<i>J. Ahn</i>	

Track on Models and Algorithms

Knapsack Model and Algorithm for HW/SW Partitioning Problem	200
<i>A. Ray, W. Jigang, S. Thambipillai</i>	
A Simulated Annealing Algorithm for the Circles Packing Problem	206
<i>D. Zhang, W. Huang</i>	
Parallel Genetic Algorithm for Graph Coloring Problem	215
<i>Z. Kokosiński, M. Kotodziej, K. Kwarciany</i>	
Characterization of Efficiently Parallel Solvable Problems on a Class of Decomposable Graphs	223
<i>S.-Y. Hsieh</i>	
The Computational Complexity of Orientation Search in Cryo-Electron Microscopy	231
<i>T. Mielikäinen, J. Ravantti, E. Ukkonen</i>	

Track on Data Mining and Data Bases

Advanced High Performance Algorithms for Data Processing	239
<i>A.V. Bogdanov, A.V. Boukhanovsky</i>	
Ontology-Based Partitioning of Data Steam for Web Mining: A Case Study of Web Logs	247
<i>J.J. Jung</i>	
Single Trial Discrimination between Right and Left Hand Movement-Related EEG Activity	255
<i>S. Cho, J.A. Kim, D.-U. Hwang, S.K. Han</i>	
WINGS: A Parallel Indexer for Web Contents	263
<i>F. Silvestri, S. Orlando, R. Perego</i>	
A Database Server for Predicting Protein-Protein Interactions	271
<i>K. Han, B. Park</i>	
PairAnalyzer: Extracting and Visualizing RNA Structure Elements Formed by Base Pairing	279
<i>D. Lim, K. Han</i>	
A Parallel Crawling Schema Using Dynamic Partition	287
<i>S. Dong, X. Lu, L. Zhang</i>	

Hybrid Collaborative Filtering and Content-Based Filtering for Improved Recommender System	295
<i>K.-Y. Jung, D.-H. Park, J.-H. Lee</i>	
Object-Oriented Database Mining: Use of Object Oriented Concepts for Improving Data Classification Technique	303
<i>K. Waiyamai, C. Songsiri, T. Rakthanmanon</i>	
Data-Mining Based Skin-Color Modeling Using the ECL Skin-Color Images Database	310
<i>M. Hammami, D. Tsishkou, L. Chen</i>	
Maximum Likelihood Based Quantum Set Separation	318
<i>S. Imre, F. Balázs</i>	
Chunking-Coordinated-Synthetic Approaches to Large-Scale Kernel Machines	326
<i>F.J. González-Castaño, R.R. Meyer</i>	
Computational Identification of -1 Frameshift Signals	334
<i>S. Moon, Y. Byun, K. Han</i>	

Track on Networking

Mobility Management Scheme for Reducing Location Traffic Cost in Mobile Networks	342
<i>B.-M. Min, J.-G. Jee, H.S. Oh</i>	
Performance Analysis of Active Queue Management Schemes for IP Network	349
<i>J. Koo, S. Ahn, J. Chung</i>	
A Real-Time Total Order Multicast Protocol	357
<i>K. Erciyes, A. Şahan</i>	
A Rule-Based Intrusion Alert Correlation System for Integrated Security Management	365
<i>S.-H. Lee, H.-H. Lee, B.-N. Noh</i>	
Stable Neighbor Based Adaptive Replica Allocation in Mobile Ad Hoc Networks	373
<i>Z. Jing, S. Jinshu, Y. Kan, W. Yijie</i>	
Mobile-Based Synchronization Model for Presentation of Multimedia Objects	381
<i>K.-W. Lee, H.-S. Cho, K.-H. Lee</i>	

Synchronization Scheme of Multimedia Streams in Mobile Handoff Control	389
<i>G.-S. Lee</i>	

Poster Papers

The Development of a Language for Specifying Structure of a Distributed and Parallel Application	397
<i>R. Dew, P. Horan, A. Goscinski</i>	
Communication Primitives for Minimally Synchronous Parallel ML	401
<i>F. Loulergue</i>	
Dependence Analysis of Concurrent Programs Based on Reachability Graph and Its Applications	405
<i>X. Qi, B. Xu</i>	
Applying Loop Tiling and Unrolling to a Sparse Kernel Code	409
<i>E. Herruzo, G. Bandera, O. Plata</i>	
A Combined Method for Texture Analysis and Its Application	413
<i>Y. Zhang, R. Wang</i>	
Reliability of Cluster System with a Lot of Software Instances	417
<i>M. Szymczyk, P. Szymczyk</i>	
A Structural Complexity Measure for UML Class Diagrams	421
<i>B. Xu, D. Kang, J. Lu</i>	
Parallelizing Flood Models with MPI: Approaches and Experiences	425
<i>V.D. Tran, L. Hluchy</i>	
Using Parallelism in Experimenting and Fine Tuning of Parameters for Metaheuristics	429
<i>M. Blesa, F. Xhafa</i>	
DEVMA: Developing Virtual Environments with Awareness Models	433
<i>P. Herrero, A. de Antonio</i>	
A Two-Leveled Mobile Agent System for E-commerce with Constraint-Based Filtering	437
<i>O.K. Sahingoz, N. Erdogan</i>	
ABSDM: Agent Based Service Discovery Mechanism in Internet	441
<i>S. Li, C. Xu, Z. Wu, Y. Pan, X. Li</i>	

Meta Scheduling Framework for Workflow Service on the Grids	445
<i>S. Hwang, J. Choi, H. Park</i>	
Resources Virtualization in Fault-Tolerance and Migration Issues	449
<i>G. Jankowski, R. Mikolajczak, R. Januszewski, N. Meyer, M. Stroiński</i>	
On the Availability of Information Dispersal Scheme for Distributed Storage Systems	453
<i>S.K. Song, H.Y. Youn, G.-L. Park, K.S. Tae</i>	
Virtual Storage System for the Grid Environment	458
<i>D. Nikolow, R. Stota, J. Kitowski, L. Skital</i>	
Performance Measurement Model in the G-PM Tool	462
<i>R. Wismüller, M. Bubak, W. Funika, T. Arodź, M. Kurdziel</i>	
Paramedir: A Tool for Programmable Performance Analysis	466
<i>G. Jost, J. Labarta, J. Gimenez</i>	
Semantic Browser: an Intelligent Client for Dart-Grid	470
<i>Y. Mao, Z. Wu, H. Chen</i>	
On Identity-Based Cryptography and GRID Computing	474
<i>H.W. Lim, M.J.B. Robshaw</i>	
The Cambridge CFD Grid Portal for Large-Scale Distributed CFD Applications	478
<i>X. Yang, M. Hayes, K. Jenkins, S. Cant</i>	
Grid Computing Based Simulations of the Electrical Activity of the Heart	482
<i>J.M. Alonso, V. Hernández, G. Moltó</i>	
Artificial Neural Networks and the Grid	486
<i>E. Schikuta, T. Weishäupl</i>	
Towards a Grid-Aware Computer Algebra System	490
<i>D. Petcu, D. Dubu, M. Paprzycki</i>	
Grid Computing and Component-Based Software Engineering in Computer Supported Collaborative Learning	495
<i>M.L. Bote-Lorenzo, J.I. Asensio-Pérez, G. Vega-Gorgojo, L.M. Vaquero-González, E. Gómez-Sánchez, Y.A. Dimitriadis</i>	
An NAT-Based Communication Relay Scheme for Private-IP-Enabled MPI over Grid Environments	499
<i>S. Choi, K. Park, S. Han, S. Park, O. Kwon, Y. Kim, H. Park</i>	

A Knowledge Fusion Framework in the Grid Environment	503
<i>J. Gou, J. Yang, H. Qi</i>	
A Research of Grid Manufacturing and Its Application in Custom Artificial Joint	507
<i>L. Chen, H. Deng, Q. Deng, Z. Wu</i>	
Toward a Virtual Grid Service of High Availability	511
<i>X. Zhi, W. Tong</i>	
The Measurement Architecture of the Virtual Traffic Laboratory	515
<i>A. Visser, J. Zoetebier, H. Yakali, B. Hertzberger</i>	
Adaptive QoS Framework for Multiview 3D Streaming	519
<i>J.R. Kim, Y. Won, Y. Iwadate</i>	
CORBA-Based Open Platform for Processes Monitoring. An Application to a Complex Electromechanical Process	523
<i>K. Cantillo, R.E. Haber, J.E. Jiménez, Á. Alique, R. Galán</i>	
An Approach to Web-Oriented Discrete Event Simulation Modeling	527
<i>E. Ochmańska</i>	
Query Execution Algorithm in Web Environment with Limited Availability of Statistics	532
<i>J. Jezierski, T. Morzy</i>	
Using Adaptive Priority Controls for Service Differentiation in QoS-Enabled Web Servers	537
<i>M.M. Teixeira, M.J. Santana, R.H. Carlucci Santana</i>	
On the Evaluation of x86 Web Servers Using Simics: Limitations and Trade-Offs	541
<i>F.J. Villa, M.E. Acacio, J.M. García</i>	
MADEW: Modelling a Constraint Awareness Model to Web-Based Learning Environments	545
<i>P. Herrero, A. de Antonio</i>	
An EC Services System Using Evolutionary Algorithm	549
<i>W.D. Lin</i>	
A Fast and Efficient Method for Processing Web Documents	553
<i>D. Szegó</i>	
Online Internet Monitoring System of Sea Regions	557
<i>M. Piotrowski, H. Krawczyk</i>	

Modeling a 3G Power Control Algorithm in the MAC Layer
for Multimedia Support 561
*U. Pineda, C. Vargas, J. Acosta-Eliás, J.M. Luna, G. Pérez,
E. Stevens*

Network Probabilistic Connectivity: Exact Calculation
with Use of Chains 565
O.K. Rodionova, A.S. Rodionov, H. Choo

A Study of Anycast Application for Efficiency Improvement
of Multicast Trees 569
K.-J. Lee, W.-H. Choi, J.-S. Kim

Performance Analysis of IP-Based Multimedia Communication
Networks to Support Video Traffic 573
A.F. Yaroslavtsev, T.-J. Lee, M.Y. Chung, H. Choo

Limited Deflection Routing with QoS-Support 577
H. Kim, S. Lee, J. Song

Advanced Multicasting for DVBMT Solution 582
M. Kim, Y.-C. Bang, H. Choo

Server Mobility Using Domain Name System
in Mobile IPv6 Networks 586
H. Sung, S. Han

Resource Reservation and Allocation Method for Next Generation
Mobile Communication Systems 590
J. Lee, S.-P. Cho, C. Kang

Improved Location Scheme Using Circle Location Register
in Mobile Networks 594
D.C. Lee, H. Kim, I.-S. Hwang

An Energy Efficient Broadcasting for Mobile Devices
Using a Cache Scheme 598
K.-H. Han, J.-H. Kim, Y.-B. Ko, W.-S. Yoon

On Balancing Delay and Cost for Routing Paths 602
M. Kim, Y.-C. Bang, H. Choo

Performance of Optical Burst Switching in Time Division
Multiplexed Wavelength-Routing Networks 607
T.-W. Um, Y. Kwon, J.K. Choi

On Algorithm for All-Pairs Most Reliable Quickest Paths 611
Y.-C. Bang, I. Hong, H. Choo

Performance Evaluation of the Fast Consistency Algorithms
in Large Decentralized Systems 615
J. Acosta-Elías, L. Navarro-Moldes

Building a Formal Framework for Mobile Ad Hoc Computing 619
L. Yan, J. Ni

Efficient Immunization Algorithm for Peer-to-Peer Networks 623
H. Chen, H. Jin, J. Sun, Z. Han

A Secure Process-Service Model 627
S. Deng, Z. Wu, Z. Yu, L. Huang

Multi-level Protection Building for Virus Protection Infrastructure 631
S.-C. Noh, D.C. Lee, K.J. Kim

Parallelization of the IDEA Algorithm 635
V. Beletskyy, D. Burak

A New Authorization Model for Workflow Management System
Using the RPI-RBAC Model 639
S. Lee, Y. Kim, B. Noh, H. Lee

Reducing the State Space of RC4 Stream Cipher 644
V. Tomašević, S. Bojanić

A Pair-Wise Key Agreement Scheme in Ad Hoc Networks 648
W. Cha, G. Wang, G. Cho

Visual Analysis of the Multidimensional Meteorological Data 652
G. Dzemyda

Using Branch-Grafted R-trees for Spatial Data Mining 657
P. Dubey, Z. Chen, Y. Shi

Using Runtime Measurements and Historical Traces
for Acquiring Knowledge in Parallel Applications 661
L.J. Senger, M.J. Santana, R.H.C. Santana

Words as Rules: Feature Selection in Text Categorization 666
*E. Montañés, E.F. Combarro, I. Díaz, J. Ranilla,
J.R. Quevedo*

Proper Noun Learning from Unannotated Corpora
for Information Extraction 670
S.-S. Kang

Proposition of Boosting Algorithm for Probabilistic
Decision Support System 675
M. Wozniak

Efficient Algorithm for Linear Pattern Separation 679
C. Tadonki, J.-P. Vial

Improved Face Detection Algorithm in Mobile Environment 683
S.-B. Rhee, Y.-H. Lee

Real-Time Face Recognition by the PCA
(Principal Component Analysis) with Color Images 687
J.O. Kim, S.J. Seo, C.H. Chung

Consistency of Global Checkpoints Based on Characteristics
of Communication Events in Multimedia Applications 691
M. Ono, H. Higaki

Combining the Radon, Markov, and Stieltjes Transforms
for Object Reconstruction 695
A. Cuyt, B. Verdonk

Author Index 699

Table of Contents – Part II

Track on Numerical Algorithms

Hierarchical Matrix-Matrix Multiplication Based on Multiprocessor Tasks	1
<i>S. Hunold, T. Rauber, G. Rünger</i>	
Improving Geographical Locality of Data for Shared Memory Implementations of PDE Solvers	9
<i>H. Löf, M. Nordén, S. Holmgren</i>	
Cache Oblivious Matrix Transposition: Simulation and Experiment	17
<i>D. Tsifakis, A.P. Rendell, P.E. Strazdins</i>	
An Intelligent Hybrid Algorithm for Solving Non-linear Polynomial Systems	26
<i>J. Xue, Y. Li, Y. Feng, L. Yang, Z. Liu</i>	
A Jacobi–Davidson Method for Nonlinear Eigenproblems	34
<i>H. Voss</i>	
Numerical Continuation of Branch Points of Limit Cycles in MATCONT	42
<i>A. Dhooge, W. Govaerts, Y.A. Kuznetsov</i>	
Online Algorithm for Time Series Prediction Based on Support Vector Machine Philosophy	50
<i>J.M. Górriz, C.G. Puntonet, M. Salmerón</i>	
Improved A-P Iterative Algorithm in Spline Subspaces	58
<i>J. Xian, S.P. Luo, W. Lin</i>	
Solving Differential Equations in Developmental Models of Multicellular Structures Expressed Using L-systems	65
<i>P. Federl, P. Prusinkiewicz</i>	
On a Family of A-stable Collocation Methods with High Derivatives	73
<i>G.Y. Kulikov, A.I. Merkulov, E.Y. Khrustaleva</i>	
Local Sampling Problems	81
<i>S.-Y. Yang, W. Lin</i>	

Recent Advances in Semi-Lagrangian Modelling of Flow
through the Strait of Gibraltar 89
M. Seaid, M. El-Amrani, A. Machmoum

Efficiency Study of the “Black-Box” Component Decomposition
Preconditioning for Discrete Stress Analysis Problems 97
M.D. Mihajlović, S. Mijalković

Direct Solver Based on FFT and SEL for Diffraction Problems
with Distribution 105
H. Koshigoe

Non-negative Matrix Factorization for Filtering Chinese Document 113
J. Lu, B. Xu, J. Jiang, D. Kang

On Highly Secure and Available Data Storage Systems 121
S.J. Choi, H.Y. Youn, H.S. Lee

Track on Finite Element Method

A Numerical Adaptive Algorithm for the Obstacle Problem 130
F.A. Pérez, J.M. Cascón, L. Ferragut

Finite Element Model of Fracture Formation on Growing Surfaces 138
P. Federl, P. Prusinkiewicz

An Adaptive, 3-Dimensional, Hexahedral Finite Element
Implementation for Distributed Memory 146
J. Hippold, A. Meyer, G. Rünger

A Modular Design for Parallel Adaptive Finite Element
Computational Kernels 155
K. Banaś

Load Balancing Issues for a Multiple Front Method 163
C. Denis, J.P. Boufflet, P. Breïtkopf, M. Vayssade, B. Glut

Multiresolutional Techniques in Finite Element Method Solution
of Eigenvalue Problem 171
M. Kamiński

Track on Neural Networks

Self-Organizing Multi-layer Fuzzy Polynomial Neural Networks
Based on Genetic Optimization 179
S.-K. Oh, W. Pedrycz, H.-K. Kim, J.-B. Lee

Information Granulation-Based Multi-layer Hybrid Fuzzy Neural
 Networks: Analysis and Design 188
B.-J. Park, S.-K. Oh, W. Pedrycz, T.-C. Ahn

Efficient Learning of Contextual Mappings
 by Context-Dependent Neural Nets..... 196
P. Ciskowski

An Unsupervised Neural Model to Analyse Thermal Properties
 of Construction Materials 204
E. Corchado, P. Burgos, M. Rodríguez, V. Tricio

Intrusion Detection Based on Feature Transform
 Using Neural Network 212
W. Kim, S.-C. Oh, K. Yoon

Track on Applications

Accelerating Wildland Fire Prediction on Cluster Systems 220
B. Abdalhaq, A. Cortés, T. Margalef, E. Luque

High Precision Simulation of Near Earth Satellite Orbits
 for SAR-Applications 228
M. Kalkuhl, K. Nöh, O. Loffeld, W. Wiechert

Hybrid Approach to Reliability and Functional Analysis
 of Discrete Transport System 236
T. Walkowiak, J. Mazurkiewicz

Mathematical Model of Gas Transport in Anisotropic Porous
 Electrode of the PEM Fuel Cell 244
E. Kurgan, P. Schmidt

Numerical Simulation of Anisotropic Shielding
 of Weak Magnetic Fields 252
E. Kurgan

Functionalization of Single-Wall Carbon Nanotubes:
 An Assessment of Computational Methods 260
B. Akdim, T. Kar, X. Duan, R. Pachter

Improved Sampling for Biological Molecules
 Using Shadow Hybrid Monte Carlo 268
S.S. Hampton, J.A. Izaguirre

A New Monte Carlo Approach for Conservation Laws
 and Relaxation Systems 276
L. Pareschi, M. Seaid

A Parallel Implementation of Gillespie’s Direct Method	284
<i>A.M. Ridwan, A. Krishnan, P. Dhar</i>	
Simulation of Deformable Objects Using Sliding Mode Control with Application to Cloth Animation	292
<i>F. Rum, B.W. Gordon</i>	
Constraint-Based Contact Analysis between Deformable Objects	300
<i>M. Hong, M.-H. Choi, C. Lee</i>	
Prediction of Binding Sites in Protein-Nucleic Acid Complexes	309
<i>N. Han, K. Han</i>	
Prediction of Protein Functions Using Protein Interaction Data	317
<i>H. Jung, K. Han</i>	
Interactions of Magainin-2 Amide with Membrane Lipids	325
<i>K. Murzyn, T. Róg, M. Pasenkiewicz-Gierula</i>	
Dynamics of Granular Heaplets: A Phenomenological Model	332
<i>Y.K. Goh, R.L. Jacobs</i>	
Modelling of Shear Zones in Granular Materials within Hypoplasticity	340
<i>J. Tejchman</i>	
Effective Algorithm for Detection of a Collision between Spherical Particles	348
<i>J.S. Leszczynski, M. Ciesielski</i>	
Vorticity Particle Method for Simulation of 3D Flow	356
<i>H. Kudela, P. Regucki</i>	
Crack Analysis in Single Plate Stressing of Particle Compounds	364
<i>M. Khanal, W. Schubert, J. Tomas</i>	
A Uniform and Reduced Mathematical Model for Sucker Rod Pumping	372
<i>L. Liu, C. Tong, J. Wang, R. Liu</i>	
Distributed Computation of Optical Flow	380
<i>A.G. Dopico, M.V. Correia, J.A. Santos, L.M. Nunes</i>	
Analytical Test on Effectiveness of MCDF Operations	388
<i>J. Kong, B. Zhang, W. Guo</i>	
An Efficient Perspective Projection Using VolumePro TM	396
<i>S. Lim, B.-S. Shin</i>	

Reconstruction of 3D Curvilinear Wireframe Model from 2D Orthographic Views	404
<i>A. Zhang, Y. Xue, X. Sun, Y. Hu, Y. Luo, Y. Wang, S. Zhong, J. Wang, J. Tang, G. Cai</i>	
Surface Curvature Estimation for Edge Spinning Algorithm	412
<i>M. Cermak, V. Skala</i>	
Visualization of Very Large Oceanography Time-Varying Volume Datasets	419
<i>S. Park, C. Bajaj, I. Ihm</i>	
Sphere-Spin-Image: A Viewpoint-Invariant Surface Representation for 3D Face Recognition	427
<i>Y. Wang, G. Pan, Z. Wu, S. Han</i>	
Design and Implementation of Integrated Assembly Object Model for Intelligent Virtual Assembly Planning	435
<i>J. Fan, Y. Ye, J.-M. Cai</i>	
Adaptive Model Based Parameter Estimation, Based on Sparse Data and Frequency Derivatives	443
<i>D. Deschrijver, T. Dhaene, J. Broeckhove</i>	
Towards Efficient Parallel Image Processing on Cluster Grids Using GIMP	451
<i>P. Czarnul, A. Cierieszko, M. Frączak</i>	
Benchmarking Parallel Three Dimensional FFT Kernels with ZENTURIO	459
<i>R. Prodan, A. Bonelli, A. Adelman, T. Fahringer, C. Überhuber</i>	
The Proof and Illustration of the Central Limit Theorem by Brownian Numerical Experiments in Real Time within the Java Applet	467
<i>M. Gall, R. Kutner, W. Wesela</i>	
An Extended Coherence Protocol for Recoverable DSM Systems with Causal Consistency	475
<i>J. Brzezinski, M. Szychowiak</i>	
2D and 3D Representations of Solution Spaces for CO Problems	483
<i>E. Nowicki, C. Smutnicki</i>	
Effective Detector Set Generation and Evolution for Artificial Immune System	491
<i>C. Kim, W. Kim, M. Hong</i>	

Artificial Immune System against Viral Attack	499
<i>H. Lee, W. Kim, M. Hong</i>	
Proposal of the Programming Rules for VHDL Designs	507
<i>J. Borgosz, B. Cyganek</i>	
A Weight Adaptation Method for Fuzzy Cognitive Maps to a Process Control Problem	515
<i>E. Papageorgiou, P. Groumpos</i>	
A Method Based on Fuzzy Logic Technique for Smoothing in 2D	523
<i>A. Çinar</i>	
Proportional-Integral-Derivative Controllers Tuning for Unstable and Integral Processes Using Genetic Algorithms	532
<i>M.A. Paz-Ramos, J. Torres-Jimenez, E. Quintero-Marmol-Marquez</i>	
Enabling Systems Biology: A Scientific Problem-Solving Environment . . .	540
<i>M. Singhal, E.G. Stephan, K.R. Klicker, L.L. Trease, G. Chin Jr., D.K. Gracio, D.A. Payne</i>	

Poster Papers

Depth Recovery with an Area Based Version of the Stereo Matching Method with Scale-Space Tensor Representation of Local Neighborhoods	548
<i>B. Cyganek</i>	
Symbolic Calculation for Frölicher-Nijenhuis \mathbb{R} -Algebra for Exploring in Electromagnetic Field Theory	552
<i>J. de Cruz Guzmán, Z. Oziewicz</i>	
Spherical Orthogonal Polynomials and Symbolic-Numeric Gaussian Cubature Formulas	557
<i>A. Cuyt, B. Benouahmane, B. Verdonk</i>	
The Berlekamp-Massey Algorithm. A Sight from Theory of Pade Approximants and Orthogonal Polynomials	561
<i>S.B. Gashkov, I.B. Gashkov</i>	
An Advanced Version of the Local-Global Step Size Control for Runge-Kutta Methods Applied to Index 1 Differential-Algebraic Systems	565
<i>G.Y. Kulikov</i>	
INTEGRATOR: A Computational Tool to Solve Ordinary Differential Equations with Global Error Control	570
<i>G.Y. Kulikov, S.K. Shindin</i>	

Reconstruction of Signal from Samples of Its Integral
in Spline Subspaces 574
J. Xian, Y. Li, W. Lin

The Vectorized and Parallelized Solving of Markovian Models
for Optical Networks 578
B. Bylina, J. Bylina

A Parallel Splitting up Algorithm for the Determination
of an Unknown Coefficient in Multi Dimensional Parabolic Problem 582
D.S. Daoud, D. Subasi

A-Posteriori Error Analysis of a Mixed Method for Linear
Parabolic Problem 586
M.I. Asensio, J.M. Cascón, L. Ferragut

Analysis of Parallel Numerical Libraries to Solve the 3D Electron
Continuity Equation..... 590
N. Seoane, A.J. García-Loureiro

Parallel Solution of Cascaded ODE Systems
Applied to ¹³C-Labeling Experiments..... 594
K. Nöh, W. Wiechert

A *k*-way Graph Partitioning Algorithm Based on Clustering
by Eigenvector..... 598
T.-Y. Choe, C.-I. Park

Network of Networks 602
J. de Cruz Guzmán, Z. Oziewicz

MSL: An Efficient Adaptive In-Place Radix Sort Algorithm 606
F. El-Aker, A. Al-Badarneh

Parallel Chip Firing Game Associated
with *n*-cube Edges Orientations 610
R. Ndoundam, C. Tadonki, M. Tchuenta

A Fast Multifrontal Solver for Non-linear Multi-physics Problems 614
A. Bertoldo, M. Bianco, G. Pucci

Modelling of Interaction between Surface Waves and Mud Layer 618
L. Balas

Computational Modelling of Pulsating Biological Flow 622
X.S. Yang, R.W. Lewis, H. Zhang

Effect of Heterogeneity on Formation of Shear Zones
in Granular Bodies 626
J. Tejchman

Effect of Structural Disorder on the Electronic Density
of States in One-Dimensional Chain of Atoms 630
M. Wołoszyn, B.J. Spisak

The Estimation of the Mathematical Exactness of System Dynamics
Method on the Base of Some Economic System 634
E. Kasperska, D. Słota

Size of the Stable Population in the Penna Bit-String Model
of Biological Aging 638
K. Malarz, M. Sitarz, P. Gronek, A. Dydejczyk

Velocity Field Modelling for Pollutant Plume Using 3-D Adaptive
Finite Element Method 642
*G. Montero, R. Montenegro, J.M. Escobar, E. Rodríguez,
J.M. González-Yuste*

Organization of the Mesh Structure 646
T. Jurczyk, B. Głut

Kernel Maximum Likelihood Hebbian Learning 650
J. Koetsier, E. Corchado, D. MacDonald, J. Corchado, C. Fyfe

Discovery of Chemical Transformations
with the Use of Machine Learning 654
G. Fic, G. Nowak

Extraction of Document Descriptive Terms
with a Linguistic-Based Machine Learning Approach 658
*J. Fernández, E. Montañés, I. Díaz, J. Ranilla,
E.F. Combarro*

Application of Brain Emotional Learning Based Intelligent
Controller (BELBIC) to Active Queue Management 662
M. Jalili-Kharaajoo

A Hybrid Algorithm Based on PSO and SA and Its Application
for Two-Dimensional Non-guillotine Cutting Stock Problem 666
J.Q. Jiang, Y.C. Liang, X.H. Shi, H.P. Lee

Evolving TSP Heuristics Using Multi Expression Programming 670
M. Oltean, D. Dumitrescu

Improving the Performance of Evolutionary Algorithms
for the Multiobjective 0/1 Knapsack Problem Using ε -Dominance 674
C. Groşan, M. Oltean

Genetic Evolution Approach for Target Movement Prediction 678
S. Baik, J. Bala, A. Hadjarian, P. Pachowicz

Adaptive Transfer Functions in Radial Basis Function (RBF) Networks	682
<i>G.A. Hoffmann</i>	
Disturbance Rejection Control of Thermal Power Plant Using Immune Algorithm	687
<i>D.H. Kim, J.H. Cho</i>	
The Design Methodology of Fuzzy Controller Based on Information Granulation (IG)-Based Optimization Approach	691
<i>S.-K. Oh, S.-B. Roh, D.-Y. Lee</i>	
PID Controller Tuning of a Boiler Control System Using Immune Algorithm Typed Neural Network	695
<i>D.H. Kim</i>	
A Framework to Investigate and Evaluate Genetic Clustering Algorithms for Automatic Modularization of Software Systems	699
<i>S. Parsa, O. Bushehrian</i>	
An Artificial Immune Algorithms Apply to Pre-processing Signals	703
<i>M. Świącicki, W. Wajs, P. Wais</i>	
Identification and Control Using Direction Basis Function Neural Network	708
<i>M. Jalili-Kharaajoo</i>	
A New Dynamic Structure Neural Network for Control of Nonlinear Systems	713
<i>M. Jalili-Kharaajoo</i>	
Proposing a New Learning Algorithm to Improve Fault Tolerance of Neural Networks	717
<i>M. Jalili-Kharaajoo</i>	
Nonlinear Parametric Model Identification and Model Based Control of <i>S. cerevisiae</i> Production	722
<i>B. Akay</i>	
The Notion of Community in United States Computational Science Education Initiatives	726
<i>M.E. Searcy, J.T. Richie</i>	
Author Index	731

Table of Contents – Part III

Workshop on Programming Grids and Metasystems

High-Performance Parallel and Distributed Scientific Computing with the Common Component Architecture	1
<i>D.E. Bernholdt</i>	
Multiparadigm Model Oriented to Development of Grid Systems	2
<i>J.L.V. Barbosa, C.A. da Costa, A.C. Yamin, C.F.R. Geyer</i>	
The Effect of the 2 nd Generation Clusters: Changes in the Parallel Programming Paradigms	10
<i>J. Porras, P. Huttunen, J. Ikonen</i>	
JavaSymphony, a Programming Model for the Grid	18
<i>A. Jugravu, T. Fahringer</i>	
Adaptation of Legacy Software to Grid Services	26
<i>B. Baliś, M. Bubak, M. Węgiel</i>	
Grid Service Registry for Workflow Composition Framework	34
<i>M. Bubak, T. Gubała, M. Kapalka, M. Malawski, K. Rycerz</i>	
A-GWL: Abstract Grid Workflow Language	42
<i>T. Fahringer, S. Pllana, A. Villazon</i>	
Design of Departmental Metacomputing ML	50
<i>F. Gava</i>	
A Grid-Enabled Scene Rendering Application	54
<i>M. Caballer, V. Hernández, J.E. Román</i>	
Rule-Based Visualization in a Computational Steering Collaboratory	58
<i>L. Jiang, H. Liu, M. Parashar, D. Silver</i>	
Placement of File Replicas in Data Grid Environments	66
<i>J.H. Abawajy</i>	
Generating Reliable Conformance Test Suites for Parallel and Distributed Languages, Libraries, and APIs	74
<i>L. Garstecki</i>	
A Concept of Replicated Remote Method Invocation	82
<i>J. Brzezinski, C. Sobaniec</i>	

Workshop on First International Workshop on Active and Programmable Grids Architectures and Components

Discovery of Web Services with a P2P Network	90
<i>F. Forster, H. De Meer</i>	
Achieving Load Balancing in Structured Peer-to-Peer Grids	98
<i>C. Pairet, P. García, A.F.G. Skarmeta, R. Mondéjar</i>	
A Conceptual Model for Grid-Adaptivity of HPC Applications and Its Logical Implementation Using Components Technology	106
<i>A. Machì, S. Lombardo</i>	
Global Discovery Service for JMX Architecture	114
<i>J. Midura, K. Balos, K. Zielinski</i>	
Towards a Grid Applicable Parallel Architecture Machine	119
<i>K. Skala, Z. Sojat</i>	
A XKMS-Based Security Framework for Mobile Grid into the XML Web Services	124
<i>N. Park, K. Moon, J. Jang, S. Sohn</i>	
A Proposal of Policy-Based System Architecture for Grid Services Management	133
<i>E. Magaña, E. Salamanca, J. Serrat</i>	
Self-Management GRID Services – A Programmable Network Approach	141
<i>L. Cheng, A. Galis, A. Savanović, B.J. Blažič, J. Bešter</i>	
Application-Specific Hints in Reconfigurable Grid Scheduling Algorithms	149
<i>B. Volckaert, P. Thysebaert, F. De Turck, B. Dhoedt, P. Demeester</i>	
Self-Configuration of Grid Nodes Using a Policy-Based Management Architecture	158
<i>F.J. García, Ó. Cánovas, G. Martínez, A.F.G. Skarmeta</i>	
Context-Aware GRID Services: Issues and Approaches	166
<i>K. Jean, A. Galis, A. Tan</i>	
Security Issues in Virtual Grid Environments	174
<i>J.L. Muñoz, J. Pegueroles, J. Forné, O. Esparza, M. Soriano</i>	
Implementation and Evaluation of Integrity Protection Facilities for Active Grids	179
<i>A. Savanović, D. Gabrijelčič, B.J. Blažič, J. Bešter</i>	

A Convergence Architecture for GRID Computing and Programmable Networks 187
C. Bachmeir, P. Tabery, D. Marinov, G. Nachev, J. Eberspächer

Programmable Grids Framework Enabling QoS in an OGSA Context 195
J. Soldatos, L. Polymenakos, G. Kormentzas

Active and Logistical Networking for Grid Computing:
 The E-toile Architecture 202
*A. Bassi, M. Beck, F. Chanussot, J.-P. Gelas, R. Harakaly,
 L. Lefèvre, T. Moore, J. Plank, P. Primet*

Distributed Resource Discovery in Wide Area Grid Environments 210
T.N. Ellahi, M.T. Kechadi

Trusted Group Membership Service for JXTA 218
L. Kawulok, K. Zielinski, M. Jaeschke

Workshop on Next Generation Computing

An Implementation of Budget-Based Resource Reservation for Real-Time Linux 226
C.S. Liu, N.C. Perng, T.W. Kuo

Similarity Retrieval Based on SOM-Based R*-Tree 234
K.H. Choi, M.H. Shin, S.H. Bae, C.H. Kwon, I.H. Ra

Extending the Power of Server Based Computing 242
H.L. Yu, W.M. Zhen, M.M. Shen

Specifying Policies for Service Negotiations of Response Time 250
T.K. Kim, O.H. Byeon, K.J. Chun, T.M. Chung

Determination and Combination of Quantitative Weight Value from Multiple Preference Information 258
J.H. Yoo, B.G. Lee, H.S. Han

Forwarding Based Data Parallel Handoff for Real-Time QoS in Mobile IPv6 Networks 266
H.Y. Jeong, J. Lim, J.D. Park, H. Choo

Mobile Agent-Based Load Monitoring System for the Safety Web Server Environment 274
H.J. Park, K.J. Jyung, S.S. Kim

A Study on TCP Buffer Management Algorithm for Improvement of Network Performance in Grid Environment 281
Y. Jeong, M. Noh, H.K. Lee, Y. Mun

Workshop on Practical Aspects of High-Level Parallel Programming (PAPP 2004)

Evaluating the Performance of Skeleton-Based High Level Parallel Programs	289
<i>A. Benoit, M. Cole, S. Gilmore, J. Hillston</i>	
Towards a Generalised Runtime Environment for Parallel Haskell	297
<i>J. Berthold</i>	
Extending Camelot with Mutable State and Concurrency	306
<i>S. Gilmore</i>	
EVE, an Object Oriented SIMD Library	314
<i>J. Falcou, J. Sérot</i>	
Petri Nets as Executable Specifications of High-Level Timed Parallel Systems	322
<i>F. Pommereau</i>	
Parallel I/O in Bulk-Synchronous Parallel ML	331
<i>F. Gava</i>	

Workshop on Parallel Input/Output Management Techniques (PIOMT04)

File Replacement Algorithm for Storage Resource Managers in Data Grids	339
<i>J.H. Abawajy</i>	
Optimizations Based on Hints in a Parallel File System	347
<i>M.S. Pérez, A. Sánchez, V. Robles, J.M. Peña, F. Pérez</i>	
Using DMA Aligned Buffer to Improve Software RAID Performance	355
<i>Z. Shi, J. Zhang, X. Zhou</i>	
mNFS: Multicast-Based NFS Cluster	363
<i>W.-G. Lee, C.-I. Park, D.-W. Kim</i>	
Balanced RM2: An Improved Data Placement Scheme for Tolerating Double Disk Failures in Disk Arrays	371
<i>D.-W. Kim, S.-H. Lee, C.-I. Park</i>	
Diagonal Replication on Grid for Efficient Access of Data in Distributed Database Systems	379
<i>M. Mat Deris, N. Bakar, M. Rabiei, H.M. Suzuri</i>	

Workshop on OpenMP for Large Scale Applications

Performance Comparison between OpenMP and MPI on IA64 Architecture	388
<i>L. Qi, M. Shen, Y. Chen, J. Li</i>	
Defining Synthesizable OpenMP Directives and Clauses	398
<i>P. Dziurzanski, V. Beletskyy</i>	
Efficient Translation of OpenMP to Distributed Memory	408
<i>L. Huang, B. Chapman, Z. Liu, R. Kendall</i>	
ORC-OpenMP: An OpenMP Compiler Based on ORC	414
<i>Y. Chen, J. Li, S. Wang, D. Wang</i>	

Workshop on Tools for Program Development and Analysis in Computational Science

Performance Analysis, Data Sharing, and Tools Integration in Grids: New Approach Based on Ontology	424
<i>H.-L. Truong, T. Fahringer</i>	
Accurate Cache and TLB Characterization Using Hardware Counters	432
<i>J. Dongarra, S. Moore, P. Mucci, K. Seymour, H. You</i>	
A Tool Suite for Simulation Based Analysis of Memory Access Behavior	440
<i>J. Weidendorfer, M. Kowarschik, C. Trinitis</i>	
Platform-Independent Cache Optimization by Pinpointing Low-Locality Reuse	448
<i>K. Beyls, E.H. D'Hollander</i>	
Teuta: Tool Support for Performance Modeling of Distributed and Parallel Applications	456
<i>T. Fahringer, S. Pillana, J. Testori</i>	
MPI Application Development Using the Analysis Tool MARMOT	464
<i>B. Krammer, M.S. Müller, M.M. Resch</i>	
Monitoring System for Distributed Java Applications	472
<i>W. Funika, M. Bubak, M. Smetek</i>	
Automatic Parallel-Discrete Event Simulation	480
<i>M. Marín</i>	

Workshop on Modern Technologies for Web-Based Adaptive Systems

Creation of Information Profiles in Distributed Databases
as a n -Person Game 488
J.L. Kulikowski

Domain Knowledge Modelling for Intelligent Instructional Systems 497
E. Pecheanu, L. Dumitriu, C. Segal

Hybrid Adaptation of Web-Based Systems User Interfaces 505
J. Sobecki

Collaborative Web Browsing Based on Ontology Learning
from Bookmarks 513
J.J. Jung, Y.-H. Yu, G.-S. Jo

Information Retrieval Using Bayesian Networks 521
L. Neuman, J. Kozlowski, A. Zgrzywa

An Application of the DEDS Control Synthesis Method 529
F. Čapkovič

Using Consistency Measures and Attribute Dependencies for Solving
Conflicts in Adaptive Systems 537
M. Malowiecki, N.T. Nguyen, M. Zgrzywa

Logical Methods for Representing Meaning of Natural Language Texts ... 545
T. Batura, F. Murzin

Software Self-Adaptability by Means of Artificial Evolution 552
M. Nowostawski, M. Purvis, A. Gecow

Professor:e – An IMS Standard Based Adaptive E-learning Platform 560
C. Segal, L. Dumitriu

Workshop on Agent Day 2004 – Intelligent Agents in Computing Systems

Towards Measure of Semantic Correlation between Messages
in Multiagent System 567
A. Pieczyńska-Kuchtiak, R. Katarzyniak

Modelling Intelligent Virtual Agent Skills with Human-Like Senses 575
P. Herrero, A. de Antonio

Reuse of Organisational Experience Harnessing Software Agents 583
*K. Krawczyk, M. Majewska, M. Dziewierz, R. Słota, Z. Balogh,
 J. Kitowski, S. Lambert*

The Construction and Analysis of Agent Fault-Tolerance Model
 Based on π -Calculus 591
Y. Jiang, Z. Xia, Y. Zhong, S. Zhang

REMARK – Reusable Agent-Based Experience Management and
 Recommender Framework 599
Z. Balogh, M. Laclavik, L. Hluchy, I. Budinska, K. Krawczyk

Behavior Based Detection of Unfavorable Resources 607
K. Cetnarowicz, G. Rojek

Policy Modeling in Four Agent Economy 615
A. Woźniak

Multi-agent System for Irregular Parallel Genetic Computations 623
J. Momot, K. Kosacki, M. Grochowski, P. Uhruski, R. Schaefer

Strategy Extraction for Mobile Embedded Control Systems Apply
 the Multi-agent Technology 631
V. Srovnal, B. Horák, R. Bernatík, V. Snášel

Multi-agent Environment for Dynamic Transport
 Planning and Scheduling 638
J. Kozlak, J.-C. Créput, V. Hilaire, A. Koukam

Agent-Based Models and Platforms for Parallel
 Evolutionary Algorithms 646
M. Kisiel-Dorohinicki

A Co-evolutionary Multi-agent System for Multi-modal
 Function Optimization 654
R. Dreżewski

Workshop on Dynamic Data Driven Applications Systems

Dynamic Data Driven Applications Systems:
 A New Paradigm for Application Simulations and Measurements 662
F. Darema

Distributed Collaborative Adaptive Sensing for Hazardous Weather
 Detection, Tracking, and Predicting 670
*J. Brotzge, V. Chandresakar, K. Droegemeier, J. Kurose,
 D. McLaughlin, B. Philips, M. Preston, S. Sekelsky*

Rule-Based Support Vector Machine Classifiers Applied
to Tornado Prediction 678
T.B. Trafalis, B. Santosa, M.B. Richman

Adaptive Coupled Physical and Biogeochemical Ocean Predictions:
A Conceptual Basis 685
*P.F.J. Lermusiaux, C. Evangelinos, R. Tian, P.J. Haley,
J.J. McCarthy, N.M. Patrikalakis, A.R. Robinson, H. Schmidt*

Dynamic-Data-Driven Real-Time Computational
Mechanics Environment 693
J. Michopoulos, C. Farhat, E. Houstis

A Note on Data-Driven Contaminant Simulation 701
*C.C. Douglas, C.E. Shannon, Y. Efendiev, R. Ewing, V. Ginting,
R. Lazarov, M.J. Cole, G. Jones, C.R. Johnson, J. Simpson*

Computational Aspects of Data Assimilation for Aerosol Dynamics 709
*A. Sandu, W. Liao, G.R. Carmichael, D. Henze, J.H. Seinfeld,
T. Chai, D. Daescu*

A Framework for Online Inversion-Based 3D Site Characterization 717
*V. Akçelik, J. Bielik, G. Biros, I. Epanomeritakis, O. Ghattas,
L.F. Kallivokas, E.J. Kim*

A Note on Dynamic Data Driven Wildfire Modeling 725
*J. Mandel, M. Chen, L.P. Franca, C. Johns, A. Puhalskii,
J.L. Coen, C.C. Douglas, R. Kremens, A. Vodacek, W. Zhao*

Agent-Based Simulation of Data-Driven Fire Propagation Dynamics 732
J. Michopoulos, P. Tsompanopoulou, E. Houstis, A. Joshi

Model Reduction of Large-Scale Dynamical Systems 740
*A. Antoulas, D. Sorensen, K.A. Gallivan, P. Van Dooren,
A. Grama, C. Hoffmann, A. Sameh*

Data Driven Design Optimization Methodology
Development and Application 748
H. Zhao, D. Knight, E. Taskinoglu, V. Jovanovic

A Dynamic Data Driven Computational Infrastructure
for Reliable Computer Simulations 756
*J.T. Oden, J.C. Browne, I. Babuška, C. Bajaj, L.F. Demkowicz,
L. Gray, J. Bass, Y. Feng, S. Prudhomme, F. Nobile, R. Tempone*

Improvements to Response-Surface Based Vehicle Design Using
a Feature-Centric Approach 764
D. Thompson, S. Parthasarathy, R. Machiraju, S. Lawrence

An Experiment for the Virtual Traffic Laboratory:
 Calibrating Speed Dependency on Heavy Traffic
 (A Demonstration of a Study in a Data Driven Traffic Analysis) 771
A. Visser, J. Zoetebier, H. Yakali, B. Hertzberger

SAMAS: Scalable Architecture for Multi-resolution
 Agent-Based Simulation 779
A. Chaturvedi, J. Chi, S. Mehta, D. Dolk

Simulation Coercion Applied to Multiagent DDDAS 789
Y. Loitière, D. Brogan, P. Reynolds

O'SOAP – A Web Services Framework for DDDAS Applications 797
K. Pingali, P. Stodghill

Application of Grid-Enabled Technologies for Solving Optimization
 Problems in Data-Driven Reservoir Studies 805
*M. Parashar, H. Klie, U. Catalyurek, T. Kurc, V. Matossian,
 J. Saltz, M.F. Wheeler*

Image-Based Stress Recognition Using a Model-Based
 Dynamic Face Tracking System 813
D. Metaxas, S. Venkataraman, C. Vogler

Developing a Data Driven System for Computational Neuroscience 822
R. Snider, Y. Zhu

Karhunen–Loeve Representation of Periodic Second-Order
 Autoregressive Processes 827
D. Lucor, C.-H. Su, G.E. Karniadakis

**Workshop on HLA-Based Distributed Simulation
on the Grid**

Using Web Services to Integrate Heterogeneous Simulations
in a Grid Environment 835
*J.M. Pullen, R. Brunton, D. Brutzman, D. Drake, M. Hieb,
K.L. Morse, A. Tolk*

Support for Effective and Fault Tolerant Execution of HLA-Based
Applications in the OGSA Framework 848
K. Rycerz, M. Bubak, M. Malawski, P.M.A. Sloot

Federate Migration in HLA-Based Simulation 856
Z. Yuan, W. Cai, M.Y.H. Low, S.J. Turner

FT-RSS: A Flexible Framework for Fault Tolerant HLA Federations 865
J. Lüthi, S. Großmann

Design and Implementation of GPDS 873
T.-D. Lee, S.-H. Yoo, C.-S. Jeong

HLA_AGENT: Distributed Simulation of Agent-Based
Systems with HLA 881
M. Lees, B. Logan, T. Oguara, G. Theodoropoulos

FedGrid: An HLA Approach to Federating Grids..... 889
S. Vuong, X. Cai, J. Li, S. Pramanik, D. Suttles, R. Chen

**Workshop on Interactive Visualisation and
Interaction Technologies**

Do Colors Affect Our Recognition Memory for Haptic Rough Surfaces? .. 897
Z. Luo, A. Imamiya

Enhancing Human Computer Interaction in Networked Hapto-Acoustic
Virtual Reality Environments on the CeNTIE Network 905
T. Adriaansen, A. Krumm-Heller, C. Gunn

Collaborative Integration of Speech and 3D Gesture
for Map-Based Applications 913
A. Corradini

Mobile Augmented Reality Support for Architects Based
on Feature Tracking Techniques..... 921
M. Bang Nielsen, G. Kramp, K. Grønbæk

User Interface Design for a Navigation and Communication System
in the Automotive World 929
O. Preißner

Target Selection in Augmented Reality Worlds..... 936
J. Sands, S.W. Lawson, D. Benyon

Towards Believable Behavior Generation for Embodied
Conversational Agents 946
*A. Corradini, M. Fredriksson, M. Mehta, J. Königsmann,
N.O. Bernsen, L. Johannesson*

A Performance Analysis of Movement Patterns 954
C. Sas, G. O'Hare, R. Reilly

On the Motivation and Attractiveness Scope of the Virtual Reality
User Interface of an Educational Game 962
M. Virvou, G. Katsionis, K. Manos

A Client-Server Engine for Parallel Computation
of High-Resolution Planes 970
D.P. Gavidia, E.V. Zudilova, P.M.A. Sloot

A Framework for 3D Polysensometric Comparative Visualization 978
J.I. Khan, X. Xu, Y. Ma

An Incremental Editor for Dynamic Hierarchical Drawing of Trees 986
D. Workman, M. Bernard, S. Pothoven

Using Indexed-Sequential Geometric Glyphs
to Explore Visual Patterns 996
J. Morey, K. Sedig

Studying the Acceptance or Rejection of Newcomers
in Virtual Environments 1004
P. Herrero, A. de Antonio, J. Segovia

Open Standard Based Visualization of Complex Internet
Computing Systems 1008
S.S. Yang, J.I. Khan

General Conception of the Virtual Laboratory 1013
*M. Lawenda, N. Meyer, T. Rajtar, M. Okoń, D. Stokłosa,
M. Stroiński, L. Popenda, Z. Gdaniec, R.W. Adamiak*

Individual Differences in Virtual Environments 1017
C. Sas

Ecological Strategies and Knowledge Mapping 1025
J. Bidarra, A. Dias

Need for a Prescriptive Taxonomy of Interaction
for Mathematical Cognitive Tools 1030
K. Sedig

**Workshop on Computational Modeling of Transport
on Networks**

Evolution of the Internet Map and Load Distribution 1038
K.-I. Goh, B. Kahng, D. Kim

Complex Network of Earthquakes 1046
S. Abe, N. Suzuki

Universal Features of Network Topology 1054
K. Austin, G.J. Rodgers

Network Brownian Motion: A New Method to Measure Vertex-Vertex Proximity and to Identify Communities and Subcommunities 1062
H. Zhou, R. Lipowsky

Contagion Flow through Banking Networks 1070
M. Boss, M. Summer, S. Thurner

Local Search with Congestion in Complex Communication Networks 1078
A. Arenas, L. Danon, A. Díaz-Guilera, R. Guimerà

Guided Search and Distribution of Information Flow on Complex Graphs 1086
B. Tadić

Network Topology in Immune System Shape Space 1094
J. Burns, H.J. Ruskin

An Evolutionary Approach to Pickup and Delivery Problem with Time Windows 1102
J.-C. Créput, A. Koukam, J. Kozlak, J. Lukasiak

Automatic Extraction of Hierarchical Urban Networks: A Micro-Spatial Approach 1109
R. Carvalho, M. Batty

Workshop on Modeling and Simulation in Supercomputing and Telecommunications

Design and Implementation of the Web-Based PSE *GridGate* 1117
K. Kang, Y. Kang, K. Cho

Performance Evaluation of ENUM Directory Service Design 1124
H.K. Lee, Y. Mun

A Single Thread Discrete Event Simulation Toolkit for Java: STSimJ 1131
W. Chen, D. Wang, W. Zheng

Routing and Wavelength Assignments in Optical WDM Networks with Maximum Quantity of Edge Disjoint Paths 1138
H. Choo, V.V. Shakhov

Parallelism for Nested Loops with Non-uniform and Flow Dependences 1146
S.-J. Jeong

Comparison Based Diagnostics as a Probabilistic Deduction Problem 1153
B. Polgár

Dynamic Threshold for Monitor Systems
on Grid Service Environments 1162
E.N. Huh

Multiuser CDMA Parameters Estimation by Particle Filter
with Resampling Schemes 1170
J.-S. Kim, D.-R. Shin, W.-G. Chung

Workshop on QoS Routing

Routing, Wavelength Assignment in Optical Networks Using
an Efficient and Fair EDP Algorithm 1178
P. Manohar, V. Sridhar

Route Optimization Technique to Support Multicast
in Mobile Networks 1185
K. Park, S. Han, B.-g. Joo, K. Kim, J. Hong

PRED: Prediction-Enabled RED 1193
M.G. Chung, E.N. Huh

An Efficient Aggregation and Routing Algorithm Using
Multi-hop Clustering in Sensor Networks 1201
B.-H. Lee, H.-W. Yoon, T.-J. Lee, M.Y. Chung

Explicit Routing for Traffic Engineering in Labeled Optical
Burst-Switched WDM Networks 1209
*J. Zhang, H.-J. Lee, S. Wang, X. Qiu, K. Zhu, Y. Huang,
D. Datta, Y.-C. Kim, B. Mukherjee*

A Mutual Authentication and Route Optimization Method
between MN and CN Using AAA in Mobile IPv6 1217
M. Kim, H.K. Lee, Y. Mun

Studies on a Class of AWG-Based Node Architectures for Optical
Burst-Switched Networks 1224
*Y. Huang, D. Datta, X. Qiu, J. Zhang, H.-K. Park, Y.-C. Kim,
J.P. Heritage, B. Mukherjee*

Self-Organizing Sensor Networks 1233
D. Bein, A.K. Datta

Workshop on Evolvable Hardware

The Application of GLS Algorithm to 2 Dimension Irregular-Shape
Cutting Problem 1241
L. Budzyńska, P. Kominek

Biologically-Inspired:
A Rule-Based Self-Reconfiguration of a Virtex Chip 1249
G. Tufte, P.C. Haddow

Designing Digital Circuits for the Knapsack Problem 1257
M. Oltean, C. Groşan, M. Oltean

Improvements in FSM Evolutions from Partial
Input/Output Sequences 1265
S.G. Araújo, A. Mesquita, A.C.P. Pedroza

Intrinsic Evolution of Analog Circuits on a Programmable Analog
Multiplexer Array 1273
*J.F.M. Amaral, J.L.M. Amaral, C.C. Santini, M.A.C. Pacheco,
R. Tanscheit, M.H. Swarcman*

Encoding Multiple Solutions in a Linear Genetic
Programming Chromosome 1281
M. Oltean, C. Groşan, M. Oltean

Evolutionary State Assignment for Synchronous Finite State Machines . . . 1289
N. Nedjah, L. de Macedo Mourelle

Author Index 1297



<http://www.springer.com/978-3-540-22129-6>

Computational Science — ICCS 2004
4th International Conference, Kraków, Poland, June 6-9,
2004, Proceedings, Part IV

Bubak, M.; Albada, G.D. van; Sloot, P.M.A.; Dongarra, J.
(Eds.)

2004, CXXXII, 1278 p. In 2 volumes, not available
separately., Softcover

ISBN: 978-3-540-22129-6