

The 2002 International Conference on Parallel Processing

The Renaissance Vancouver Hotel • Vancouver • Canada • August 18-21, 2002

Workshops

Workshop on Distributed Computing Architectures for Digital Libraries (DCADL) Sunday, August 18 (Port of Singapore)

8:00 – 8:15 Welcome remarks

8:15 – 9:45 Session

Session Chair: TBD

Toward a Scalable Architecture for Logistical Management of Active Content, *Micah Beck and Terry Moore*

Distributed Search in National Electronic Library for Health, *Patty Kostkova, Jane Mani-Saada and Julius R Weinberg*

Adaptive Networks of Smart Objects, *Johan Bollen and Michael L. Nelson*

9:45 – 10:00 Break

10:00 – 12:00 Session

Session Chair: TBD

Hebbian Algorithms for Digital Library Recommendation Systems, *Francis Heylighen and Johan Bollen*

Panel Session (joint with WTCP): Trusted Computing Issues in Digital Libraries

12:00 – 1:00 Lunch

1:00 – 3:00 Session

Session Chair: TBD

OAI-P2P: A Peer-to-Peer Network for Open Archives, *Benjamin Alhborn, Wolfgang Nejdil and Wolf Siberski*

Enhanced Kepler Framework for Self-Archiving, *Xiaoming Liu, Kurt Maly and Mohammad Zubair*

Using High Performance Systems to Build Collections for a Digital Library, *Donna Bergmark*

A Distributed Registry for OpenURL Metadata Schemas with an OAI-PMH Conformant Central Repository, *Herbert Van de Sompel and Donna Bergmark*

Workshop on Trusted Computing Paradigms (WTCP) Sunday, August 18 (Port of Vancouver)

8:00 – 9:00 Keynote Lecture

9:00 – 10:30 Session 1: Network Security

Session Chair: TBD

A Structural Framework for Modeling Multi-Stage Network Attacks, *K. Daley, University of Tulsa*

Multi-level Secure Multicast: The Rethinking of Secure Locks, *M. Eltoweissy, James Madison University*

Bi-directional Web Document Protection System for Serious E-commerce Applications, *K. De Zoysa, Stockholm University*

10:30 – 10:45 Break

10:45 – 12:00 Panel Session

12:00 – 1:00 Lunch

1:00 – 2:00 Session 2: Authentication

Session Chair: TBD

Active Certificates: A New Paradigm in Digital Certificate Management, *R. Mukkamala, Old Dominion University*

OPA: A One-time Password System, *J. Harris, James Madison University*

2:00 – 3:00 Tutorial: Critical Infrastructure Protection. *J. Hale, University of Tulsa*

Workshop on Optical Networks (WON) Sunday, August 18 (Port of Vancouver)

3:30 – 5:30 Session 1: Protection and Restoration

Session Chair: TBD

Dynamic Expansion of M:N Protection Groups in GMPLS Optical Networks, *David W. Griffith and Sukyoung Lee*

Hierarchical Restoration Scheme for Multiple Failures in GMPLS Networks, *Sukyoung Lee and David Griffith*

A Fast Lightpath Restoration Method Using Two Backup Paths in WDM Networks, *Lu Ruan and Haibo Luo*

Preserving Survivability During Logical Topology Reconfiguration in WDM Ring Networks, *Hwajung Lee, Hongsik Choi, Suresh Subramaniam, and Hyeong-Ah Choi*

6:00 – 6:30 Break

7:00 – 9:00 Session 2: Routing and Wavelength Assignment

Session Chair: TBD

On Improving Partial Information Routing with Segmented Path Protection, *Murari Sridharan, R. Srinivasan and Arun K. Somani*

A Study of Dynamic Routing and Wavelength Assignment with Imprecise State Information, *Jun Zhou and Xin Yuan*

On Monitoring Transparent Optical Networks, *Sava Stanic, Suresh Subramaniam, Hongsik Choi, Gokhan Sahin, and Hyeong-Ah Choi*

Finding Multiple Routing Paths in Wide-Area WDM Networks, *Weifa Liang and Xiaojun Shen*

Workshop on High Performance Scientific and Engineering Computing with Applications (HPSECA)
Sunday, August 18
(Port of New York and Harbourside Ballroom I)

8:00 – 9:00 Session 1: Keynote Speech (Port of New York)

*Session Chair: Yi Pan, Georgia State University, USA
Laurence Tianruo Yang, St. Francis Xavier University, Canada*

Performance Evaluation of Scalable Systems: What We Know and What We Do Not Know, *Xian-He Sun, Illinois Institute of Technology, USA*

9:00 – 9:15 Break

9:15 – 10:45 Session 2A: Synchronization and Fault Tolerance (Port of New York)

Session Chair: Minyi Guo, University of Aizu, Japan

Partially Decentralized Passive Replication Protocol for Deterministic Servers, *JinHo Ahn, SungGi Min and Chong-Sun Hwang, Korea University, Korea*

Specifying Synchronization in Distributed Shared Memory Programs, *Gurdip Singh, Kansas State University, USA*

9:15 – 10:45 Session 2B: Parallel and Distributed Algorithms (Harbourside Ballroom II)

Session Chair: Yi Pan, Georgia State University, USA

Performance Evaluation of Parallel Algorithms for Pricing Multidimensional Financial Derivatives, *Ruppa K. Thulasiram and Dmitri A. Bondarenko, University of Manitoba, Canada*

Parallel Algorithm for the Degree-Constrained Minimum Spanning Tree Problem Using Nearest-Neighbor Chain and Heap-Traversal Technique, *Li-Jen Mao and Sheau-Dong Lang, University of Central Florida, USA*

Parallel Differential Algorithms in Biotechnology, *Laurent Manyri, Andrei Doncescu, Gilles Roux and Boutaieb Dahhou, LAAS-CNRS, France*

10:45 – 11:00 Break

11:00 – 1:00 Session 3A: Load Balancing (Port of New York)

Session Chair: E.V.Krishnamurthy, Australian National University, Australia

Dynamic Load Balance Computation of Pulses Propagating in a Nonlinear Medium, *A. Bourgeade, Boniface Nkonga, MAB, France*

Hierarchical Partitioning Techniques for Structured Adaptive Mesh Refinement (SAMR) Applications, *Xiaolin Li, Sivapriya Ramanathan, and Manish Parashar, The State*

University of New Jersey, USA

Exploring Load Balancing in a Numerical SPMD Parallel Application, *Viviane Thome, Daniela Vianna, Roberto Costa, Alexandre Plastino, Otton Teixeira Universidade Federal Fluminense, Brazil*

A Static Workload Balance Scheduling Algorithm, *T. Tabirca, Sabin Tabirca, Len Freeman, Laurence Tianruo Yang, University of Manchester, UK*

11:00 – 1:00 Session 3B: Parallel and Distributed Applications (Harbourside Ballroom II)

Session Chair: Xian-He Sun, Illinois Institute of Technology, USA

Parallel Gain-Bandwidth Characteristics Calculations for Thin Avalanche Photodiodes on an SGI Origin 2000 Supercomputer, *Yi Pan, Constantinos S. Ierotheou, and Majeed M. Hayat, Georgia State University, USA*

A Composite Manufacturing Process Simulation Environment (COMPOSE) Utilizing Parallel Processing and Object-Oriented Techniques, *Brian J. Henz, Dale R. Shires and Ram V. Mohan, U. S. Army Research Laboratory, USA*

Parallel Generation of Base Relation Snapshots for Materialized View Maintenance in Data Warehouse, *Saeki S., Bhalla Subhash, Hasegawa M, University of Aizu, Japan*

An Evaluation of the Speedup of a Preliminary Distributed MPI-Implementation for Groundwater Simulation Dispersion System, *Mario Donato Marino, Senac College of Exact Sciences and Technology, Brazil*

1:00 – 2:15 Lunch

2:15 – 4:15 Session 4A: Numerical Algorithms (1) (Port of New York)

Session Chair: Lawrence E Garey, University of New Brunswick, Canada

Parallel Cholesky Factorization of a Block Tridiagonal Matrix, *Thuan D. Cao, Robert A. van de Geijn and John F. Hall, California Institute of Technology and University of Texas at Austin, USA*

An Improved Parallel Pre-Symmetrized Iterative Algorithm for a Class of Non-Symmetric Linear Systems, *Wenjun Li and Laurence Tianruo Yang, CSM-TICAM, University of Texas at Austin, USA*

An Efficient Parallel ADI Algorithm for Solving 3-D Convection Diffusion Equations with Neumann Boundary Conditions, *Honghai Zeng and Jianping Zhu, Mississippi State University and University of Akron, USA*

Parallel Image Processing Algorithms for Coincidence Doppler Broadening Spectra, *Michael Ng, King Fung Ho, Vincent Cheng, Chris Beling, Chat Ming Woo, University of Hong Kong, P. R. China*

2:15 – 4:15 Session 4B: Performance Optimization and Evaluation (Harbourside Ballroom II)

Session Chair: Gurdip Singh, Kansas State University, USA

Optimization Techniques for Parallel Codes of Irregular Scientific Computations, *Minyi Guo, W-L Chang, Yi Pan,*

University of Aizu, Japan and Georgia State University, USA

A Statistical Approach for the Analysis of the Relation Between Low-Level Performance Information, the Code, and the Environment, *Nayda Santiago, Diane T. Rover and Domingo Rodriguez, Michigan State University and Iowa State University, USA*

High Performance Air Pollution Simulation Using OpenMP
Marta Parada, Maria J. Martin, Ramon Doallo, University of A Coruna, Spain

Comparing Various Parallelizing Approaches for Tribology
V. Chaudhary, W. L. Hase, H. Jiang, L. Sun, and D. Thaker, Wayne State University, USA

4:15 – 4:30 Break

4:30 – 6:00 Session 5A: Cluster Computing (Port of New York)

Session Chair: Ruppa K. Thulasiram, University of Manitoba, Canada

Scalable Performance in Workstation Cluster: Choice of Program Paradigm, *V.K. Murthy and E. Krishnamurthy, Australian National University, Australia*

Software Pattern Design for Cluster Computing, *V.K. Murthy and E. Krishnamurthy, Australian National University, Australia*

4:30 – 6:00 Session 5B: Numerical Algorithms (2) (Harbourside Ballroom II)

Session Chair: Laurence Tianruo Yang, St. Francis Xavier University, Canada

Distributed High Performance Large Integer Arithmetic, *Lars Lundberg, Blekinge Institute of Technology, Sweden*

A Parallel Numerical Algorithm for Two Point Boundary - Value FIDEs Using a Projection Method, *Lawrence E Garey, University of New Brunswick, Canada*

Comparison of Parallel Preconditioners for the Computation of Interior Eigenvalues by a CG-type Method on a Parallel Computer, *Sangback Ma Ho-Jong, Jang Eunbae Kong Hanyang University, Chungnam National University, Korea*

Workshop on Ad-hoc Networks (WAHN)
Monday, August 19
(Harbourside Ballroom I)

11:00 – 1:50 Session 1: Media Access and Power Control

Session Chair: TBD

Round Robin with Look Ahead: A New Scheduling Algorithm for Bluetooth, *Daqing Wang, Gouri Nair, Balaji Sivaramakrishnan, Harishkumar Jayakumar and Arunabha Sen*

A Fast Handoff Scheme for IP over Bluetooth, *Sang-Hun Chung, Hyunsoo Yoon, and Jung-Wan Cho*

Quantitative Analysis of Transmission Power Control in Wireless Ad-hoc Networks, *Seung-Jong Park and Raghupathy Sivakumar*

(Lunch break 12:00 – 1:30)

Infrastructured Ad Hoc Networks, *Anders Lindgren and Olov Schelen*

1:50 – 3:10 Session 2: Routing

Session Chair: TBD

Robust Routing in Wireless Ad Hoc Networks, *Seungjoon Lee, Bohyung Han, and Minho Shin*

ARA - The Ant-Colony Based Routing Algorithm for MANETs, *Mesut Gunes, Udo Sorges, and Imed Bouazizi*

INORA - A Unified Signaling and Routing Mechanism for QoS Support in Mobile Ad Hoc Networks, *Dinesh Dharmaraju, Ayan Roy-Chowdhury, and Pedram Hovareshti*

Localized Group Membership Service for Ad Hoc Networks
Linda Briesemeister and Gunter Hommel

3:10 – 3:30 Break

1:50 – 3:10 Session 2: Analysis

Session Chair: TBD

A Statistical Study of Neighbor Node Properties in Ad hoc Network, *Hui Li and Dan Yu*

Statistical Analysis of Connectivity in Unidirectional Mobile Ad Hoc Networks, *Venugopalan Ramasubramanian and Daniel Mosse*

Link Stability and Route Lifetime in Ad-hoc Wireless Networks, *Geunhwi Lim, Kwangwook Shin, Seunghak Lee, Joong Soo Ma and H. Yoon*

A Comparative Study on the Effects of Spatial Diversity in Ad Hoc Networks using On-Demand Routing Protocols, *Sonia Furman and Rajive Bagrodia*

4:50 – 5:00 Break

5:00 – 6:20 Session 2: Applications

Session Chair: TBD

System Services for Implementing Ad-hoc Routing Protocols, *Vikas Kawadia, Yongguang Zhang, and Binita Gupta*

Real-World Experiences with an Interactive Ad Hoc Sensor Network, *Mark D. Yarvis, W. Steven Conner, Lakshman Krishnamurthy, Jasmeet Chhabra, Brent Elliott, and Alan Mainwaring*

Efficient Peer-to-Peer Data Dissemination in Mobile Ad-Hoc Networks, *Siddhartha K. Goel, Manish Singh, Dongyan Xu, and Baochun Li*

Grapes: Topology-based Hierarchical Virtual Network for Peer-to-Peer Lookup Services, *Kwangwook Shin, Seunghak Lee, Geunhwi Lim, Joong Soo Ma, and H. Yoon*

**Workshop on Scheduling and Resource Management for
Cluster Computing (SRMCC)
Tuesday, August 20
(Harbourside Ballroom I)**

10:30 – 12:00 Session 1

Session Chair: Hai Jin, Huazhong University of Science and Technology

A De-centralized Scheduling and Load Balancing Algorithm for Heterogeneous Grid Environments, *Manish Arora, Sajal K. Das, and Rupak Biswas*

Optimal Disk Allocation by Replication, *Ali Saman Tosun and Hakan Ferhatosmanoglu*

Characterization of Backfilling Strategies for Parallel Job Scheduling, *Srividya Srinivasan, Rajkumar Kettimuthu, Vijay Subramani and P. Sadayappan*

12:00 – 1:30 Lunch

1:30 – 3:00 Session 2

Session Chair: Sajal Das, University of Texas at Arlington

Optimal Dispatching and Scheduling for Both Periodic and Aperiodic Jobs in Cluster, *Hai Jin, Ligang He, and Zongfen Han*

A Task Duplication Based Scheduling Algorithm with Optimality Condition in Heterogeneous Systems, *Tae-Young Choe and Chan-Ik Park*

AppManager: A Powerful Application Management System for Clusters, *Limin Xiao, Qinghua Ye, Wen Gao, Yi Liang, Yin Jiang, Dan Meng and Ninghui Sun*

**Workshop on Compile/Runtime Techniques for Parallel
Computing (CRTPC)
Wednesday, August 21
(Harbourside Ballroom I)**

10:30 – 12:00 Session 1

Session Chair: Dr. P. Sadayappan, Ohio State University.

Data Distribution Schemes of Sparse Arrays on Distributed Memory Multicomputers, *Chun-Yuan Lin, Yeh-Ching Chung, and Jen-Shiuh Liu*

A Pipelined Execution of Tiled Nested Loops on SMPs with Computation and Communication Overlapping, *Maria Athanasaki, Aristidis Sotiropoulos, Georgios Tsoukalas, and Nectarios Koziris*

Near-optimal Loop Tiling by Means of Cache Miss Equations and Genetic Algorithms, *Jaume Abella, Antonio Gonzalez, Josep Llosa, and Xavier Vera*

12:00 - 1:30 Lunch

1:30 – 3:00 Session 2

Session Chair: Dr. Chua-Huang Huang, Feng Chia University.

MigThread: Thread Migration in DSM Systems, *Hai Jiang and Vipin Chaudhary*

SNOW : Software Systems for Process Migration in High-Performance, Heterogeneous Distributed Environments, *Kasidit Chanchio and Xian-He Sun*

Evaluation of Task Pools for the Implementation of Parallel Irregular Algorithms, *Matthias Korch and Thomas Rauber*

3:00 - 3:30 Break

3:30 – 5:00 Session 3

Session Chair: Dr. Vipin Chaudhary, Wayne State University and Cradle Technologies, Inc.

A Programming Methodology for Designing Block Recursive Algorithms on Various Computer Networks, *Min-Hsuan Fan, Chua-Huang Huang, and Yeh-Ching Chung*

3M Transformation Techniques for Block-Cyclic Data Reallocation of Sparse Matrices, *Ching-Hsien Hsu*

An Efficient Algorithm for Computing Communication Sets for Data Parallel Programs with Block-Cyclic Distribution, *Gwan-Hwan Hwang*