

**6th International Workshop on Distributed Computing
(IWDC 2004)**

27-30 December, 2004

Indian Statistical Institute, Kolkata

Advance Technical Program

December 27, 2004

Tutorial

9:30 AM - 12:30 PM	<u>TUTORIAL 1</u> Session Chair: Susmita Sur-Kolay, ISI Title: Resilient Mesh Networks Speaker: Biswanath Mukherjee , UC Davis	<u>TUTORIAL 2</u> Session Chair: J Dattagupta, ISI Title: Advances and Challenges in Wireless and Sensor Networks Speaker: Archan Misra , IBM T J Watson Research Center
12:30 PM - 1:30 PM	Lunch	
1:30 PM - 4:30 PM	<u>TUTORIAL 3</u> Session Chair: Pradip K. Das, JU Title: Pervasive Computing and Communications Speaker: Mohan Kumar , University of Texas at Arlington	<u>TUTORIAL 4</u> Session Chair: Sajal K. Das, UTA Title: Role of Mobile Agents in Networking and Distributed Computing Applications Speaker: Jiannong Cao , Hong Kong Polytechnic University, Hong Kong

December 28, 2004

8:45 AM - 9:15 AM	Opening Remarks by the General and Program Chairs
9:15 AM - 10:15 AM	<u>KEYNOTE TALK I</u> Session Chair: Amar Mukherjee, UCF Title: The next chapter in networking research – evolutionary or revolutionary? Speaker: Guru Parulkar , Program Director, NSF
10:15 AM - 10:30 AM	Break

TECHNICAL SESSION I

10:30 AM - 12:30 PM

Session IA Distributed Algorithms

Session Chair: Subir Bandyopadhyaya, Univ. of Windsor

Regular Papers

- Performance of fair distributed mutual exclusion algorithms : *Kandarp Jani, Ajay D. Kshemkalyani, Univ. of Illinois, Chicago, USA*
- A Framework for automatic identification of the best checkpoint and recovery protocol : *Himadri Sekhar Paul, Arobinda Gupta, Amit Sharma, IIT, Kharagpur, India*
- Distributed computation for swapping a failing edge : *Linda Pagli, Giuseppe Prencipe, Tranos Zuva, Univ. of Pisa, Italy*

Short Papers

- Flexible cycle synchronization algorithm in parallel and distributed simulation : *Wang Xuehui, Zhang Lei, Huang Kedi, Nat. Univ. of Defense Tech, China*
- Rule mining for dynamic databases : *A. Das, D. K. Bhattacharyya, Tezpur Univ., India*

Session IB

High Performance Computing

Session Chair: Jiannong Cao, Hong Kong Polytech.

- Apple: A Novel P2P based e-Learning Environment: **Invited Talk** by *H. Jin, Huazhong University of Science and Technology, China*

Regular Papers

- Heuristic-based scheduling to maximize throughput of data-intensive grid applications : *Souvik Ray, Zhao Zhang, Iowa State Univ. USA*

Short Papers

- Failure recovery in grid database systems : *Sushant Goel, Hema Sharda, David Taniar, Royal Melbourne Inst. of Tech., Australia*
- On Design of Cluster and Grid Computing Environment Toolkit for Bioinformatics Applications : *Chao-Tung Yang, Yu-Lun Kuo, Kuan-Ching Li, Jean-Luc Gaudiot, Tunghai Univ, Taiwan*
- Study of scheduling strategies in a dynamic data grid environment : *Dheepak R.A., Shakeb Ali, Shubhashis Sengupta, Anirban Chakrabarti, Infosys Tech. Ltd., Bangalore, India*
- Virtual molecular computing – emulating DNA molecules : *Sanjay Goswami, Susmita Sur-Kolay, Indian Statistical Institute, Kolkata, India*

12:30 PM - 1:30 PM

Lunch

TECHNICAL SESSION II

1:30 PM - 3:45 PM

II A : Distributed Systems

Session Chair: Michael Raynal, INRIA, France

Regular Papers

- Complexity of compositional model checking of computation tree logic on simple structures: *Krishnendu Chatterjee, Pallab Dasgupta, P. P. Chakrabarti, IIT, Kharagpur, India*
- A multi-agent framework based on communication and concurrency : *Jamshid B. Mohasefi, S. Arun-kumar, IIT Delhi, India*
- Statistical analysis of a P2P query graph based on degrees and their time-evolution : *Jean-Loup Guillaume, Matthieu Latapy, Stevens Le-Blond, Univ. of Paris, France*

Short Papers

- t-UNITY – A formal framework for modeling and reasoning about timing constraints in real-time systems : *Sumit Kumar Basu, Honeywell Tech. Lab, Bangalore, India*
- Finding pareto-optimal set of distributed vectors with minimum disclosure : *Satish K. Sehgal, Asim K. Pal, IIM, Calcutta, India*
- Lean-DFS: A distributed filesystem for resource starved clients: *Shyam Antony, Gautam Barua, IIT Guwahati, India*

II B : Wireless Networks

Session Chair: Kalyan Basu, Univ. of Texas, Arlington

Regular Papers

- A fair medium access protocol using adaptive flow-rate control through cooperative negotiation among contending flows in ad hoc wireless network with directional antenna : *Dola Saha, Siuli Roy, Somprakash Bandyopadhyay, Tetsuro Ueda, Shinsuke Tanaka, IIM, Calcutta, India*
- Analytical-numerical study of Mobile IPv6 and hierarchical Mobile IPv6 : *Myung-Kyu Yi and Chong-Sun Hwang, Korea Univ., Korea*

Short Papers

- An Adaptive Transmission Power Control Protocol for Mobile Ad hoc Networks: *Kyung-jun Kim, Nam-koo Ha, Ki-jun Han, Kyungpook Nat. Univ., Korea*
- A Macro-Mobility Scheme for Reduction in Handover Delay and Signaling Traffic in MIPv6 : *Basav Roychoudhury, Dilip K. Saikia, Tezpur Univ., India*
- QoS support in TLMM: three level mobility model for IP-based networks : *Mohaya Chakraborty, Iti Saha Misra, Debasish Saha, Amitava Mukherjee, Jadavpur Univ., India*
- Path stability based adaptation of MANET routing protocols : *Sandeep Choudhary, M.M. Gore, O.P. Vyas, IIIT, Allahabad, India*

3:45 PM - 4:00 PM

Break

A. K. CHOUDHURY MEMORIAL LECTURE

Session Chair: B. P. Sinha, ISI, Kolkata

4:00 PM - 5:00 PM

Title: **Computational Biology : the New Frontier of Computer Science**

Speaker: **Amar Mukherjee, UCF, Orlando**

5:00 PM - 6:00 PM

Poster presentations / IWDC Business Meeting

6:00 PM - 7:30 PM

Cultural Program
Indian Classical Music on
Trinity of Guitars
by
Pandit Debashish Bhattacharya

December 29, 2004

TECHNICAL SESSION III

9:00 AM - 11:00 AM

III A : Information Security

Session Chair: Bimal Roy, ISI

Regular Papers

- Cryptanalysis of 'wavelet tree quantization' watermarking scheme : *Tanmoy Kanti Das, Subhamoy Maitra, Indian Statistical Inst., Kolkata, India*
- A multisignature scheme for implementing safe delivery rule in group communication systems : *S Rahul, R. C. Hansdah, IISc., Bangalore, India*
- Agent-Based Distributed Intrusion Alert System : *Arjita Ghosh, Sandip Sen, Univ. of Tulsa, USA*

Short Papers

- SCIDS: A Soft Computing Intrusion Detection System : *Ajith Abraham, Ravi Jain, Sugata Sanyal, Sang Yong Han, TIFR, India*
- Effect of Data Encryption on Wireless Adhoc Network Performance : *Vijay K. Garg, R. K. Ghosh, IIT Kanpur, India*

III B : Network Protocols

Session Chair: Ajoy D. Kshemkalyani,
Univ. of Illinois, Chicago, USA.

Regular Papers

- On-Board RSVP: An Extension of RSVP to Support Real-Time Services in On-Board IP Networks : *Muhammad Ali Malik, Salil S. Kanhere, Mahbub Hassan, Boualem Benatallah, Univ. of New South Wales, Sydney, Australia*
- A Secure PIM-SM Multicast Routing Protocol : *Junqi Zhang, Vijay Varadharajan, Yi Mu, Macquarie Univ, Australia*
- Restoration of Virtual Private Networks with QoS Guarantees in the Pipe Model : *Chittaranjan Hota, Sanjay Kumar Jha, G. Raghurama, BITS Pilani, India*
- User Level, Reliable, and Reconfigurable Transport Layer Protocol : *Tan Wang, Ajit Singh, Univ. of Waterloo, Canada*

11:00 AM -11:15 AM

Break

KEYNOTE TALK II

Session Chair: Sukumar Ghosh, Univ. of Iowa

11:15 AM -12:15 PM

Title: **The notion of veto number for distributed agreement problems**

Speaker: **Michel Raynal, INRIA, France**

INDUSTRIAL TRACK I

Session Chair: Aditya Bagchi, ISI

12:15 AM -12:45 PM

Title: **High Performance Computing - Technologies & Trends**

Speaker: **Faisal M. Paul, HP India.**

12:45 PM - 1:45 PM

Lunch

TECHNICAL SESSION IV

1:45 PM - 3:15 PM

IV A : Reliability and Testing

Session Chair: Bhargab B. Bhattacharya, ISI

Regular Papers

- Reliability of VLSI Linear Arrays with Redundant Links : Soumen Maity, Amiya Nayak, Bimal Roy, Indian Statistical Inst., Kolkata, India
- A Technique to Ensure Reliability in a WDM Optical Backbone Network with Contemporary Link Failures : Swarup Mandal, Sougata Bera, Debashis Saha, IIM, Calcutta, India

Short Papers

- Formal proof of impossibility of reliability in crashing protocols : K. Gopinath, Anil K. Pugalia, K. V. M. Naidu, IISc., Bangalore, India
- Altera Max Plus II Development Environment in Fault Simulation and Test Implementation of Embedded Cores-Based Sequential Circuits : Sunil R. Das, Chuan Jin, Liwu Jin, Mansour H. Assaf, Emil M. Petriu, Mehmet Sahinoglu, Univ. of Ottawa, Canada

IV B : Networks : Topology and Routing

Session Chair: Soma Chaudhuri, Iowa State University

Regular Papers

- A Distributed Contention Resolution Scheme to Reduce Blocking Probability in Optical Burst Switching Networks : Ashok K. Turuk, Rajeev Kumar, IIT Kharagpur, India

Short Papers

- Polynomial Interpolation on OTIS-Mesh Optoelectronic Computers : Prasanta K. Jana, ISM, Dhanbad, India
- A New Network Topology with Multiple Three-dimensional Meshes : Nahid Afroz, Bhabani P. Sinha, Rabiul Islam, Subir Bandyopadhyay, Univ. of Windsor, Canada
- Adaptive Fault Tolerant Routing in Star Graph : Rajib K. Das, Tezpur Univ., India
- Routing and Wavelength Assignment in Wavelength Division Multiplexing Networks : Ajit Pal, Umesh Patel, IIT Kharagpur, India

3:15 PM - 3:30 PM

Break

PANEL DISCUSSION

3:30 PM - 4:30 PM

Topic: Food Distribution and Distributed Computing : Feeding the Poor

Panelists: N. Vittal, Bhure Lal, K. Ramamritham, Kalyan Basu, R.K. Arora

Panel Moderator: Bishnu D. Pradhan, IIT Bombay

BANQUET SPEECH

6:30 PM - 7:30 PM

Title: Innovation through Distribution

Speaker: Shri N. Vittal, Ex-chairman, Telecom Commission, Govt. of India

7:30 PM - 9:00 PM

Banquet Dinner

December 30, 2004

MOBILE COMPUTING TRACK

TECHNICAL SESSION V

9:00 AM - 10:30 AM

Mobile Computing I

Session Chair: Gautam Chakrabarty, Iwate Prefectural Univ., Japan

Regular Papers

- Designing the MDVM-Stub and memory estimator: Susmit Bagchi, Mads Nygaard, IDI, NTNU, Norway
- Improved algorithm for minimum cost range assignment problem for linear radio networks : Gautam K. Das, Sasthi C. Ghosh, Subhas C. Nandy, Indian Statistical Inst., Kolkata, India
- Optimal schemes for channel assignment problem in wireless networks modeled as 2D grid : B. S. Panda, Mahesh Kumar, S. K. Das, IIT Delhi, India

10:30 PM - 10:45 AM

Break

INDUSTRIAL TRACK II

10:45 AM -11:05 PM

Session Chair: Aditya Bagchi, ISI

Title: **Business Computing in the on-Demand Era**

Speaker: **Sugata Ghosal, IBM India.**

TECHNICAL SESSION VI

11:05 AM - 12:50 PM

Ad hoc networks

Session Chair: Somprakash Bandyopadhyaya, IIM, Calcutta

Regular Papers

- Mobility Tolerant Broadcast in Mobile Ad Hoc Networks : *Pradip K. Srimani, Bhabani P. Sinha, Univ. of Clemson, USA*
- Distributed Mobility Tracking for Ad Hoc Networks Based on an Autoregressive Model : *Zainab R. Zaidi, Brian L. Mark, George Mason Univ., USA*
- Broadcast and Gossiping Algorithms for Mobile Ad hoc Networks based on Breadth-first Traversal : *Koushik Sinha, Pradip K Srimani, Univ. of Arizona, USA*

Short Papers

- RINGS: Lookup Service for Peer-to-Peer Systems in Mobile Ad-hoc Networks : *Kalpesh Patel, Sridhar Iyer, Krishna Paul, IIT Bombay, India*

12:50 PM - 2:00 PM

Lunch

TECHNICAL SESSION VII

2:00 PM - 3:15 PM

Mobile Computing II

Session Chair: Mainak Chatterjee, UCF

Regular Papers

- Performance Analysis of Location Caching with Fixed Local Anchor in Wireless Networks : *Ki-Sik Kong, Chong-Sun Hwang, Korea Univ., Seoul, Korea*

Short Papers

- On the Optimization Trade-offs of Expanding Ring Search : *Jahan Hassan, Sanjay Jha, Univ. of New South Wales, Sydney, Australia*
- Dynamic Location Management with Personalized Location Area for Future PCS Networks : *Jun Zheng, Emma Regentova, Pradip K. Srimani, Univ. of Clemson, USA*
- Improvement of paging cost by updating using paging delay divergence : *Daisuke Senzaki, Goutam Chakraborty, M. Matsuhara, H. Mabuchi, Iwate Prefectural Univ., Japan*

3:15 PM - 3:30 PM

Break

TECHNICAL SESSION VIII

3:30 PM - 4:30 PM

Sensor Networks

Session Chair: Pradip K. Srimani, Univ. of Clemson

Regular Papers

- Distributed power control in sensor network : A game theoretic approach : *Shamik Sengupta, Mainak Chatterjee, Univ. of Central Florida, USA*

Short Papers

- A k-connected energy-saving topology control algorithm for wireless sensor networks : *Zhang Lei, Wang Xuehui, Dou Wenhua, National Univ. of Defense Tech., China*
- Locating Objects in a Sensor Grid : *Buddhadeb Sau, Krishnendu Mukhopadhyaya, Jadavpur Univ., India*

4:30 PM - 4:45 PM

Closing Remarks