

9th ISCA International Conference on Computers and Their Applications 1994

**Long Beach, California, USA
17-19 March 1994**

Editors:

D.C. Pheanis

ISBN: 978-1-61839-842-0

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (1994) by the International Society for Computers and Their Applications
All rights reserved. Reproduction in any form without the written consent of ISCA is prohibited.

Original ISBN: 1-880843-08-0 (Out of Print)
Reprint ISBN: 978-1-61839-842-0

Printed by Curran Associates, Inc. (2012)

For permission requests, please contact the International Society for Computers and Their Applications
at the address below.

International Society for Computers and Their Applications
975 Walnut Street, Suite 132
Cary, NC 27511-4216

Phone: (919) 467-5559
Fax: (919) 467-3430

isca@ipass.net

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

INTERNATIONAL SOCIETY FOR COMPUTERS AND THEIR APPLICATIONS

International Conference on
Computers and Their Applications
Long Beach, California USA March 17 - 19, 1994

TECHNICAL PAPER INDEX

Session I: Architectures

1. **Stepping Up to 32 bit Embedded Processing, the i960[®]**
Wally DuBois (Intel Corporation) 1
2. **A DSP56156 Wide Band Coder**
Mohamed El-Sharkawy and Hadi Mahdavi (Purdue University) 6
3. **Network Management Applications using SNMP**
Jerry Whelan and Jiang B. Liu (Bradley University) 12
4. **Rearrangeability on the Permutation Networks**
B. Park and K. Watson (Texas A&M University) 17
5. **A Self-Timed Massively Parallel Architecture with Elastic Control Flow**
R. S. Hogg, D. W. Lloyd, and W. I. Hughes (Sheffield Hallam University) 22
6. **Near Real-Time Simulation of Peripheral Devices**
Marvin C. Woodfill and William T. Neumann (Arizona State University) 28

Session II: Databases

1. **Compilation of Non-Linear Recursive Formulas in Deductive Database using Graph Model**
Cyril S. Ku (Bellcore), Heung-Dae Kim (Northeastern Illinois University) and Cheong Youn
(Chungnam National University) 33
2. **A New Scheme to Handle Transitive Closure Recursive Queries in Non-Horn Deductive Databases**
Heung D. Kim (Northeastern Illinois University) 38
3. **Using Domain Knowledge in Knowledge Discovery in Databases**
M. Mehdi Owrang O., Kayvon Sadeghi and Hemalatha Raghunathan (The American University) 43
4. **A Natural Language Environment for Database Management Systems**
Tarek A. El-Sadany and Adel S. Elmaghraby (University of Louisville) 48
5. **Dynamic Sagas**
Weihai Yu (University of Tromso) 53

Session III: Robotics

1. Interactive Stereo Vision for Telerobotics Y. C. Shiu (Wright State University) and S. Koide, H. Andou (Ishikawajima-Harima Heavy Industries Co., Ltd.)	58
2. Adaptive Sensor Integration for Mobile Robots in Partially Known Environments Cheng-Chih Lin and R. Lal Tummala (Michigan State University)	62
3. A New Approach to Control of Time-Varying Robotic Systems Mark G. Matthews (US Army Belvoir RD&E Center) and Charles C. Nguyen (The Catholic University of America)	67
4. Convergence Rate Analysis of Recursive Least Squares Identification Jeffrey Windsor and Gordon K. Lee (North Carolina State University)	74

Session IV: Artificial Intelligence

1. Fingerprint Image Compression by a Clustering Learning Network W. Chang, H. S. Soliman and A. H. Sung (New Mexico Institute of Mining and Technology)	79
2. Use of a Neural Network Model to Develop Cost-Effective Testing Strategies D. L. Hudson (University of California, San Francisco), M. E. Cohen (University of California, San Francisco, California State University, Fresno) and M. F. Anderson (Veterans Affairs Medical Center, Fresno and University of California, San Francisco)	84
3. Computational Aspects of Chaos Theory M. E. Cohen (University of California, San Francisco and California State University, Fresno) and D. L. Hudson (University of California, San Francisco)	89
4. A General Method for Generating Intensional Answers in an Intelligent Information System Suk-Chung Yoon (Widener University) and Il-Yeol Song (Drexel University)	94
5. An Expert System for Nuclear Power Plant Off-Site Emergency Response Paul Loa (Institute of Nuclear Energy Research), David J. Cheng and John R. Clymer (California State University, Fullerton)	99
6. A Self-Learning Fuzzy Logic Controller with On-Line Scaling Factor Tuning Jun Lu, Warren Jasper and Gordon K. F. Lee (North Carolina State University)	105
7. Applied Fuzzy Controllers: Design and Tuning Carl G. Looney (University of Nevada, Reno)	110

Session V: Algorithms

1. Search Algorithm for the Modified Mesh Ajit Reddy (CUNY)	115
2. Fixed Cube Connected Cycle Embedding is NP-Complete Bin Cong, Ali Salehnia, Zari Alishiri (South Dakota State University)	120
3. Performance of Parallel Hashing Algorithms on the Connection Machine Zahira S. Khan (Bloomsburg University) and Eugene Kwatny (Temple University)	123
4. Referential Integrity in N-Ary Relationships Behrooz K. Seyed-Abbassi and Yap Siong Chua (University of North Florida)	128

5. The Evolution of Data Compression Techniques Lena Sham (Hong Kong Polytechnic)	135
6. A Data Modeling Framework for Data Flow Diagrams Carolyn Pe Rosiene and Reda A. Ammar (University of Connecticut)	140
7. On a Linear Size Expander Bound B. Park (Texas A&M University)	145
8. An Algorithm for Determining the Shortest Tree Connecting Steiner Nodes with No Direct Connections John Howe and Kia Makki (University of Nevada, Las Vegas)	150

Session VI: Software Engineering

1. The Burned Ant Syndrome: Overcoming Opposition to Software Measurement Mark E. Fogle (Inter-tel, Inc.)	156
2. Dynamic Command Grammars Paul-Marcel St-Onge (Inter-tel, Inc.)	162
3. Multi-version Speculative Concurrency Control with Delayed Commit Azer Bestavros (Boston University)	166
4. Load Balancing Prioritized Processes Willard Korfhage (Polytechnic University)	171

Session VII: Applications

1. Repetitive Manufacturing Using Feasible Cyclic Schedule Arthur Lin and Fuyau Lin (Santa Clara University)	176
2. "EMVIC": A Workstation Program for Analyzing Electromigration-Induced Failure of VLSI Interconnection Components A. K. Goel and M. M. Leipnitz (Michigan Technological University)	181
3. "SPBIGV": A Workstation Program for Analyzing Signal Propagation in Crossing Interconnections on the GaAs-Based VHSIC A. K. Goel and M. K. Mathur (Michigan Technological University)	186
4. An Algorithm for Determining a Maximum Flow in a Restricted Network Niki Pissinou (University of Southwestern Louisiana) and Kia Makki (University of Nevada, Las Vegas)	191
5. Recurrence Relations of Program Schema to Study Program Properties P. A. Venkatachalam (Universiti Sains Malaysia)	196