21st International Conference on
Computers and Their Applications in Industry and Engineering
(CAINE-2008)

PROGRAM

November 12 - 14, 2008

Sheraton Moana Surfrider
Honolulu, Hawaii   USA

Sponsored by

International Society for
Computers and Their Applications

975 Walnut Street, Suite 132
Cary, NC   27511-4216
Phone: (919) 467-5559; Fax: (919) 467-3430; E-mail: isca@ipass.net
21st International Conference on
Computers and Their Applications
In Industry and Engineering
(CAINE-2008)

SPONSOR
International Society for Computers and Their Applications (ISCA)

Conference Chair
Gordon Lee
San Diego State University

Program Chair
Frederick C. Harris, Jr.
University of Nevada, Reno

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Shin-Jer Yang, Soochow U., Taiwan, R. O. C.
Beifang Yi, Salem State, USA
**Wednesday, November 12, 2008**

PLEASE NOTE: Registration, Meeting Rooms, and Conference Luncheon will be held at the MOANA SURFRIDER, 3RD FLOOR, located directly across the street from the SHERATON PRINCESS KAIULANI HOTEL.

* Denotes ‘Finalist for Best Paper Award’

7:45 a.m. - 4:00 p.m.  **REGISTRATION** – Coffee / Tea / Pastries  
(Ballroom Lobby area, 3rd Floor)

8:45 a.m. - 9:00 a.m.  **WELCOME**
Dr. Gordon Lee, San Diego State U. (Conference Chair)  
Dr. Frederick C. Harris, Jr., U. of Nevada, Reno (Program Chair)

9:00 a.m. – 10:00 a.m.  **PLENARY SPEAKER**

**Dr. T. C. Ting**  
University of Connecticut

“Harnessing Dynamic Data and Knowledge For Augmenting Human Intellectual Capabilities”

Location: Ballroom I, 3rd Floor

10:00 a.m. – 10:20 a.m.  **COFFEE BREAK**

**SESSION 1A:**

BIOINFORMATICS  
Wednesday, November 12, 10:20 a.m. – 12:00 p.m., Ballroom 1, 3rd Floor  
Session Chair: Dr. Lana Garmire, University of California at San Diego

1. **Influenza A Virus (H3N2) Genomic Sequence Difference Measures Based on Word Absence and Expression Levels**  
Adrienne Breland, Sara Nasser, Karen Schlauch, and Frederick C. Harris Jr.  
(University of Nevada Reno, USA)

2. **Automatic Macroarray Analysis - Tool and Methods**  
Antônio dos Anjos, Hamid Shahbazkia, Rita M. T. Ascenso (Universidade do Algarve, Portugal), and Naima Kaabouch (University of North Dakota, USA)

3. **Parallel Assembler for Fuzzy Genome Sequence Assembly**  
Sara Nasser, Adrienne Breland, and Frederick C. Harris Jr. (University of Nevada Reno, USA)

4. **Peak-Finding Refinement in the Chip-SEQ Experiment**  
Lana X. Garmire (University of California at San Diego, USA), David G. Garmire (University of Hawaii at Monoa, USDA), Chris Benner, Pang Ko, Christopher K. Glass, and Shankar Subramaniam (University of California at San Diego, USA)
SESSION 1B:  
**DATA MINING**  
Wednesday, November 12, 10:20 a.m. – 12:20 p.m., Ballroom II, 3rd Floor  
Session Chair: Dr. Abdul Wahab, Nanyang Technological University  

1. Hierarchical Clustering of Features on Categorical Data of Biomedical Applications  
Yi Lu (Prairie View A&M University, USA) and Lily R. Liang (University of the District of Columbia, USA)  

2. Single Field Grammar-based Feature Creation with Discovery Items  
B. D. Gaston (Anautics, Inc., USA)  

3. Web Service for Association Rule Mining Using XML Message Passing  
Gongzhu Hu and Shaozhen Ding (Central Michigan University, USA)  

4. Speech Emotion Verification and Profiling  
Norhaslinda Kamaruddin and Abdul Wahab (Nanyang Technological University, Singapore)  

5. Privacy Preservation in Data Mining using Additive Noise  
Tamer S. Fares (Modern Academy in Maadi, Egypt), Awad H. Khalil (The American University in Cairo, Egypt), and Mohamed B. Senousy (Sadat Academy for Management Sciences, Egypt)  

12:00 a.m. – 2:00 p.m.  
**LUNCH BREAK**  
(on your own)  

SESSION 2A:  
**MEDICAL APPLICATIONS**  
Wednesday, November 12, 2:00 p.m. – 3:15 p.m., Ballroom I, 3rd Floor  
Session Chair: Dr. Honoriu Vălean, Technical University of Cluj-Napoca  

1. Emotional State Discrimination by One EEG Channel  
Reza Khosrowabadi and Abdul Wahab (Nanyang Technological University, Singapore)  

2. Simulation of Disease Spread Based on the SIR Model  
Tina Johnson and Terry Griffin (Midwestern State University, USA)  

3. Map Based Simulation of Pandemic Influenza Virus Spreading  
Honoriu Vălean (Technical University of Cluj-Napoca, Romania), Vasile Prejmerean (Babes-Bolyai University, Romania), Adina Pop (Technical University of Cluj-Napoca, Romania), and Ovidiu Ghiran (S.C. IPA S.A., Romania)  

SESSION 2B:  
**WEB APPLICATIONS**  
Wednesday, November 12, 2:00 p.m. – 3:15 p.m., Ballroom II, 3rd Floor  
Session Chair: Dr. F. Bodendorf, University of Erlangen-Nuremberg  

1. Unleashing Organizational Possibilities for the Academic Education Using ICT  
Sabina Jeschke (University of Stuttgart, Germany), Robert Luce, Olivier F. Pfeiffer, and Erhard Zorn (Technische Universität Berlin, Germany)  

2. The Service-Oriented SLA Management System Development in the VPN Service  
Hyun-Chul Kang, Il-Gu Jung, Eun-Jin Ko, and Ho-Young Song (Electronics and Telecommunications Research Institute, Korea)  

3. E-Coordination in Healthcare Networks by Customized Services  
F. Bodendorf and G. Schicker (University of Erlangen-Nuremberg, Germany)  

3:15 p.m. – 3:30 p.m.  
**COFFEE BREAK**
SESSION 3A: DISTRIBUTED APPLICATIONS
Wednesday, November 12, 3:30 p.m. – 4:45 p.m., Ballroom I, 3rd Floor
Session Chair: Dr. L. Deruelle, Université du Littora (Pending)

1. A Tool for Design and Verification of Distributed Manufacturing Process Based on Meta-Modelling and Graph Grammars: Application to a Production Line
   Amel Meliouh (University of Biskra, Algeria), Elhillali Kerkouche (University of Oum El Bouaghi, Algeria), and Aïlaou Chaoui (University Mentouri, Algeria)

2. Distributed Database Systems’s Task Allocation Model
   Suman Lata (Indian Council of Agriculture Research, India)

3. An Eclipse Platform for Analysis and Manipulation of Distributed Multi-Language Software
   L. Deruelle and H. Basson (Université du Littoral, France)

SESSION 3B: ARCHITECTURE and NETWORKING
Wednesday, November 12, 3:30 p.m. – 4:45 p.m., Ballroom II, 3rd Floor
Session Chair: Dr. Chia-Pin R. Liu, Jackson State University

1. 2-D Separable Transforms on a Matrix Processor ★
   Ahmed S. Zekri and Stanislav G. Sedukhin (The University of Aizu, Japan)

2. New Architecture and Protocols for Global-Scale Machine Communities
   V. Krylov, N. Mikhaylov, and D. Ponomarev (MERA Labs, Russia)

3. A Novel Synthesis for Dynamic CMOS Circuits
   Chia-Pin R. Liu (Jackson State University, USA)
Thursday, November 13, 2008

8:00 a.m.  REGISTRATION – Coffee / Tea / Pastries

**SENSOR NETWORKS**
Thursday, November 13, 9:00 a.m. – 10:15 a.m., Ballroom I, 3rd Floor
Session Chair: Dr. Deok Hee Nam, Wilberforce University

1. **Towards Multiservice Sensor Networks**
   Rabie A. Ramadan (Al-Azhar University, Egypt) and Bilal I. AlQudah (Southern Methodist University, USA)

2. **Sensor Replacement Based Energy Mapping**
   Rabie A. Ramadan, Ahmed Y. Khedr (Al-Azhar University in Cairo, Egypt) and Bilal I. AlQudah (Southern Methodist University, USA)

3. **A New Algorithm for RFID Wireless Sensor Network**
   Deok Hee Nam (Wilberforce University, USA)

**MATCHING / CLASSIFICATION I**
Thursday, November 13, 9:00 a.m. – 10:15 a.m., Ballroom II, 3rd Floor
Session Chair: Dr. Jeffrey Hood, Midwestern State University

1. **An Annotation Approach for the Matching of Process Variables and Operational Business Data Models**
   Sylvia Radeschütz and Bernhard Mitschang (University of Stuttgart, Germany)

2. **A Recursive Hyperspheric Classification Algorithm**
   Salyer B. Reed, Carl G. Looney, and Sergiu M. Dascalu (University of Nevada Reno, USA)

3. **Matching 2D Fragments of Objects**
   G. Stringfellow, R. Simpson, H. Bui, Y. Peng, and J. Hood (Midwestern State University, USA)

10:15 a.m. – 10:30 a.m.  COFFEE BREAK

**NEURAL NETWORKS**
Thursday, November 13, 10:30 a.m. – 11:45 a.m., Ballroom I, 3rd Floor
Session Chair: Dr. Gordon K. Lee, San Diego State University

1. **Human Cognitive State Estimation using Artificial Neural Network**
   Rajesh Singla, Hari Singh (National Institute of Technology, India) and Balraj Gupta (Rattan Hospital, India)

2. **Predicting Software Reliability with Neural Network Ensembles**
   Jun Zheng (New Mexico Institute of Mining and Technology, USA)

3. **Selection of the Generalized Adaptive Neural Network Fuzzy Inference Controller Parameters using Evolutionary Simulated Annealing**
   Gordon K. Lee (San Diego State University, USA) and Edward Grant (North Carolina State University, USA)
MATCHING / CLASSIFICATION II
Thursday, November 13, 10:30 a.m. – 12:10 p.m, Ballroom II, 3rd Floor
Session Chair: Dr. John Weiss, South Dakota School of Mines and Technology

1. Using Exploit Similarities for Concise Representation of Attack Scenarios
   Wei Li (Nova Southeastern University, USA)

   Imad Rahal and Joseph Degiovanni (College of Saint Benedict and Saint John's
   University, USA)

3. Deparametrization of a Discrete Convex Corner Detection Algorithm
   J. A. Staples and J. B. Hood (Midwestern State University, USA)

4. Real-Time Feature Detection Using the Hough Transform
   John M. Weiss (South Dakota School of Mines and Technology, USA)

12:15 p.m. – 1:45 p.m.       CONFERENCE LUNCHEON
                               and
                                BEST PAPER AWARD CEREMONY

LOCATION: The Parlor, 3rd Floor

TRANSPORTATION APPLICATIONS
Thursday, November 13, 2:00 p.m. – 3:40 p.m, Ballroom I, 3rd Floor
Session Chair: Dr. Frederick C. Harris, Jr., University of Nevada, Reno

1. A Dynamic Multi-contextual GPU-based Particle System using Vector Fields
   for Particle Propagation
   Michael J. Smith, Roger V. Hoang, Matthew R. Sgambati (University of Nevada Reno,
   USA and Desert Research Institute, USA), Sergiu M. Dascalu (University of Nevada
   Reno, USA), and Frederick C. Harris, Jr. (University of Nevada Reno and Desert
   Research Institute, USA)

2. High-Speed, Real-Time, Ultrasonic Anomaly Surface Profiling for Rail Inspection
   Applications
   Howard Sholl, Reda Ammar and Saleh Ibrahim (University of Connecticut, USA)

3. CMAC for Driver Behavior Profiling based on Real-Time Driving Data
   W. Abdul, N. Kamaruddin and M. Khalid (Nanyang Technological University, Singapore)

4. An Inexpensive Terrain Awareness and Warning System for Small Aircraft
   Kim P. Martin, Dwight D. Egbert, and Fred C. Harris, Jr. (University of Nevada Reno,
   USA)
SESSION 6B: COMPUTING AND INFORMATION TECHNOLOGY
Thursday, November 13, 2:00 p.m. – 3:40 p.m, Ballroom II, 3rd Floor
Session Chair: Dr. Narayan Debnath, Winona State University

1. Active Database Architecture for XML Documents
   V. Krylov (MERA Labs, Russia), D. Ponomarev (MERA Group, Russia), A. Logvinov and A. Ponomarenko (MERA Labs, Russia)

2. The UTPB Computer Lab Training System
   Ilhyun Lee and Haesun Lee (The University of Texas of the Permian Basin, USA)

3. Effectiveness of ICT and E-Governance in Enhancing Human Development
   Baisakhi Chakraborty (National Institute of Technology, India) and Narayan Debnath (Winona State University, USA)

4. Citizen Centric Modelling of E-Government
   Baisakhi Chakraborty (National Institute of Technology, India) and Narayan Debnath (Winona State University, USA)

Thursday, November 13, 4:00 p.m. – 4:45 p.m. Ballroom I

PANEL DISCUSSION

“The Impact of Computing on the World Economy”

Moderator: Dr. Frederick C. Harris, Jr., University of Nevada, Reno

Panelists: Stuart Rubin, T. C. Ting, Gordon Lee, Gongzhu Hu and Billy Gaston

CREATION (POLYNESIAN) DINNER/SHOW FOR THOSE THAT HAVE SIGNED UP.

PLEASE purchase your ticket(s) (Cash or Credit Card) AFTER 4:00 P.M. today (Thursday) on the 2nd Floor of the SHERATON PRINCESS KAIULANI HOTEL. We will meet on the 2nd floor to the right of the ticket booth at 5:45 p.m. – we have a special reserved seating arrangement and our group will be escorted to the dining area. The DINNER starts at 6:00 p.m. The SHOW starts at 7:20 p.m. and ends about 8:20 p.m.
8:00 a.m.  REGISTRATION – Coffee / Tea / Pastries

9:00 a.m. – 10:00 a.m.  PLENARY SPEAKER

Dr. Stuart Rubin
SPAWAR – Systems Center

“Modeling Human Cognition Using a Knowledge Amplification by Structured Randomization Architecture”

Location:  Ballroom I, 3rd Floor

10:00 a.m. – 10:15 a.m.  COFFEE BREAK

SESSION 7A:

MOBILE APPLICATIONS
Friday, November 14, 10:15 a.m. – 12:00 p.m., Ballroom I, 3rd Floor
Session Chair:  Dr. Ahmed Salem, Hood College

1. Selection and Implementation of an EAP Authentication Protocol for Hand-held Devices
   Chirag Parikh (Grand Valley State University, USA) and Parimal Patel (Xilinx Inc., USA)

2. A Combinatorial Algorithm for Real-Time CPU Activity and Energy Measurement in Mobile Processors
   Naeem Z. Azeemi and Mehmood Pervaiz (COMSATS Institute of Information Technology, Pakistan)

3. Using Standard Deviation in Signal Strength Detection to Determine Jamming in Wireless Networks
   Kristopher W. Reese, Ahmed Salem, and George Dimitoglou (Hood College, USA)

4. On the Performance of Audio Watermarking Based on Low-Frequency Amplitude Modification
   M. S. Pinho and K. M. O. Nunes (Instituto Tecnologico de Aeronautica, Brazil)
1. **Scripted Artificially Intelligent Basic Online Tactical Simulation**
   Jesse D. Phillips, Roger V. Hoang, Joseph D. Mahsman, Matthew R. Sgambati (University of Nevada Reno and Desert Research Institute, USA), Xiaolu Zhang, Sergiu M. Dascalu (University of Nevada Reno, USA), and Frederick C. Harris, Jr. (University of Nevada Reno and Desert Research Institute, USA)

2. **Integrated Accessibility Models of User Interfaces for IT and Automation Systems**
   Peter Göhner, Simon Kunz, Sabina Jeschke, Helmut Vieritz (University of Stuttgart, Germany), and Olivier Pfeiffer (Technische Universität Berlin, Germany)

3. **Three-dimensional Angle-constrained Manipulation for Cubic B-spline with Cusp**
   Chia-Lien Hung and Jing-Jing Fang (National Cheng Kung University, Taiwan)

   Isai Michel Lombera, Jayeshkumar Patel (San Diego State University, USA), Stuart Rubin (SPAWAR - Systems Center, USA), Shu-Ching Chen (Florida International University, USA) and Gordon Lee (San Diego State University, USA)

5. **Musical Pattern Recognizer: An Application to South Indian Classical Music**
   M. S. Sinith, Arathy R. Nair, Parvathi Nair S., Sxurya Priya R. (Amrita Vishwa Vidyapeetham, India)