

2010 IEEE International Conference on Networking, Sensing and Control

Final Program



Chicago, USA, April 10–12, 2010



**IEEE****2010 IEEE International Conference on Networking,
Sensing and Control****Sponsored by IEEE Systems, Man, and Cybernetics Society**

April 10–12, 2010, Chicago, USA

<http://www.ezconf.net/icnsc10/>**ORGANIZING COMMITTEE**

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Advisory Chair:	MengChu Zhou, New Jersey Institute of Technology, USA



2010 IEEE International Conference on Networking, Sensing and Control

Sponsored by IEEE Systems, Man, and Cybernetics Society
April 10–12, 2010, Chicago, USA

GREETINGS FROM THE GENERAL CHAIR

On behalf of the Organizing Committee, we would like to welcome you to the 2010 IEEE International Conference on Networking, Sensing and Control. The conference theme this year highlights technologies and applications for wireless sensory networks in many different areas such as homeland security, agriculture, energy management, intelligent transportation systems and traffic engineering, logistics, warehouse management, disaster management, healthcare delivery, defense, smart buildings, and manufacturing to name a few. This conference will provide a remarkable opportunity for the academic and industrial community to address new challenges, share solutions, and discuss future research opportunities within the area of wireless sensory networks.

The conference will feature two excellent plenary talks given by Sajal Das from the National Science Foundation, presenting “From Wireless Networking to Smart Computing: Challenges and Solutions,” as well as Dan Schonfeld, from the University of Illinois at Chicago, presenting “Distributed Multi-Camera Networks: Graphical Models, Tensor Representation, and Plenoptic Functions.” In addition there will be Ph.D. consortium, student competition sessions, and invited/special sessions with contributions from academia, industry, and government agencies.

I would like to take the time to thank all members of the Organizing Committee, International Program Committee, and volunteers for their great efforts in preparation and commitment to making this conference a success. I would also like to recognize the University of Illinois at Chicago as one of the sponsors this year. The University of Illinois at Chicago is recognized for its academic excellence with undergraduate and graduate programs across many colleges. We are the only public research university providing engineering education in the City of Chicago. Within the College of Engineering at UIC our motto is to provide “Exceptional Engineering in the Heart of Chicago!” We understand the need for engineers and for technological advances, and are proud to be a sponsor of this event.

I hope you find the conference advantageous and stimulating, and you enjoy all the wonderful experiences that the city of Chicago has to offer.



Peter C. Nelson
General Chair

A handwritten signature in blue ink that reads "Peter Nelson".

IEEE ICNSC 2010 INTERNATIONAL PROGRAM COMMITTEE

Abdelhameed, Magdy
Anjali, Tricha
Cai, Lin
Chatzimisios, Periklis
Chen, Haifeng
Chen, Shu-Ching
Chen, YangQuan
Cheng, Long
Cheng, Yu
Choi, Ken
Costa, Jose
DasGupta, Bhaskar
De Schutter, Bart
Deng, Mingcong
Duan, Haibin
Erdogmus, Deniz
Fang, Tong
Fu, Siyao
Ghasemi Afshar, Puya
Gilli, Marco
Guan, Zhi-Hong
Hanisch, Hans-Michael
He, David
Hong, Samuelson
Hou, Zeng-Guang
Hou, Zhongsheng
Hu, Guangdi
Hu, Hesuan
Hu, Jianghai
Hu, Xiaolin
Hu, Zhaoguang
Huang, De-Shuang
Huang, Yi-Sheng
Jafari, Mohsen

Jarrahi, Mona
Javaherian, Hossein
Jiang, Ping
Kang, Qi
Kiavash, Negar
Kim, Joohee
Kroumov, Valeri T.
Kulkarni, Sandeep
Kumara, Soundar
Kumarawadu, Sisil
Langendorfer, Peter
Ledesma, Sergio
Li, Jingshan
Li, Lingxi
Liu, Guohai
Liu, Lichuan
Liu, Zhigang
Lu, Chao
Lu, Jinhu
Lukszo, Zofia
Luo, Tiejian
Ma, Tiedong
Meng, Dan
Miao, Qinghai
Mohseni, Hooman
Negenborn, Rudy R.
Ni, Min
Oruklu, Erdal
Pan, Pan
Patino, Dan
Pei, Hai-Long
Piazza, Francesco
Qiao, Fengxiang
Rao, Wenjing

Ren, Kui
Rosca, Justinian
Schuler, Francesca
Shiau, Jiun-Yan
Sodagar, Amir
Sukhatme, Gaurav S.
Tan, Fuxiao
Tan, Yonghong
Tian, Ming
Trajcevski, Goce
Tuninetti, Daniela
Wang, Enrong
Wang, Jiacun
Wang, Xiaofan
Watanabe, Keigo
Wei, Qinglai
Wen, Xiaoqing
Wu, Jian
Wu, Naiqi
Wu, Zuobao
Xu, Yang
Yang, Simon
Yang, Zongxiao
Yi, Jianqiang
Yue, Hong
Zakrzewska, Danuta
Zhai, Guisheng
Zhang, Chi
Zheng, Wei Xing
Zhou, Chi
Zhou, Chuan
Zhu, Haibin
Zhu, Zhichun
Zou, Anmin

CONFERENCE HIGHLIGHTS

A total of 248 papers were submitted to the 2010 IEEE ICNSC from different parts of the world. Each paper was reviewed by two or three reviewers. The final program includes 137 papers. There are two plenary talks, two special sessions, ten lecture sessions, and two doctoral consortium sessions. Each lecture and special session consists of eleven to twelve papers. Papers were assigned with the purpose of forming coherent sessions. There were a total of 22 proposals from 15 countries submitted to the Ph.D. Consortium organized by the Conference Program Committee. The final program includes 10 proposals that will be presented during the conference.

HOTEL RESERVATIONS

Detailed information about hotel reservations is available at

<http://www.ezconf.net/icnsc10/hotel.html>

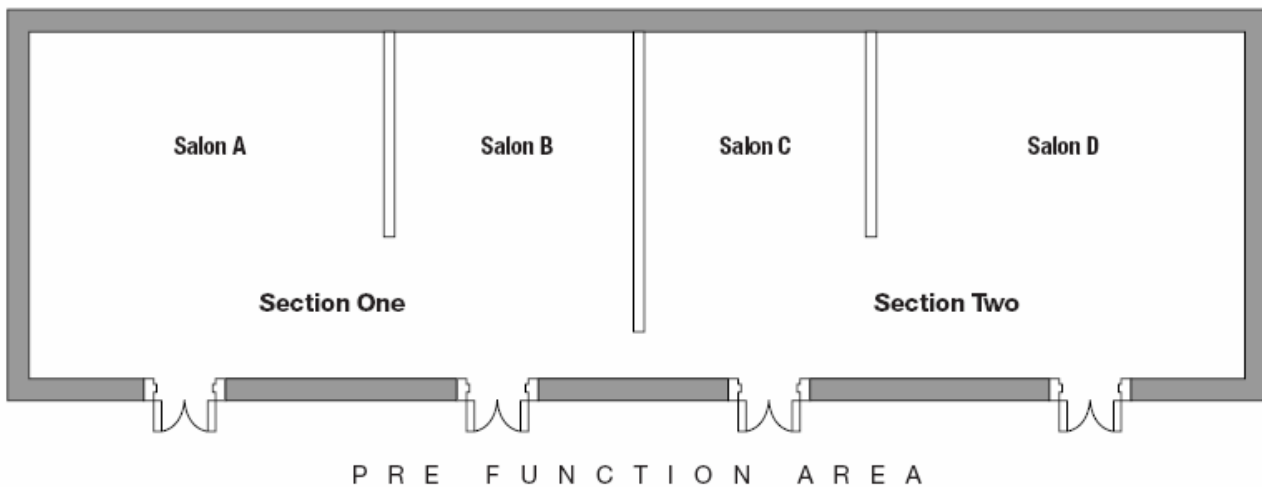
CONFERENCE LOCATION

The conference will be held at:

The Crown Plaza Chicago Metro Hotel
733 West Madison, Chicago, IL 60661, USA
Toll Free: 1-800-972-2494
Fax: 1-312-602-2199

Floor Map of 1st level

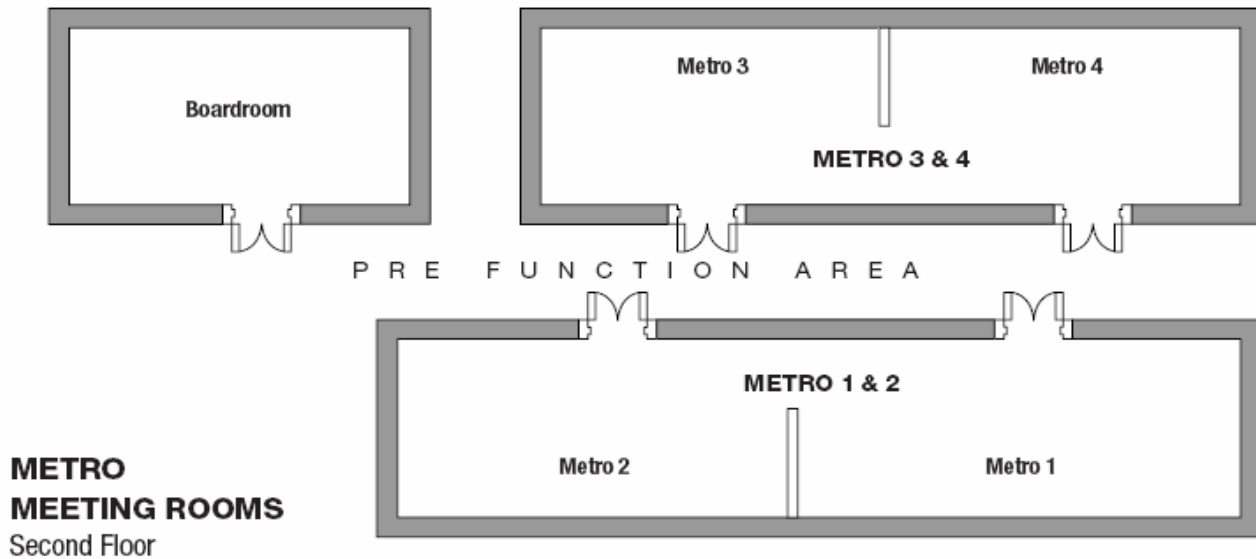
IEEE 2010 ICNSC Conference 4/10/10 – 4/12/10



**METRO
BALLROOM**
First Floor

Floor Map of 2nd level

IEEE 2010 ICNSC Conference 4/10/10 – 4/12/10



Room assignments may change prior to a scheduled session. Each day of the conference, event names and room assignments will be posted in the hotel lobby in the case there is a change. Attendees should follow the program for event times, and confirm room locations in the hotel lobby prior to arriving to the sessions.

CONFERENCE REGISTRATION

The conference registration service will be open during the following time slots:

14:00 – 17:00, Saturday, April 10, 2010

8:30 – 17:00, Sunday, April 11, 2010

8:30 – 12:00, Monday, April 12, 2010

SOCIAL EVENTS

Welcome reception: 18:00 – 20:00, Saturday, April 10, 2010*

Conference banquet: 19:00 – 21:00, Monday, April 12, 2010

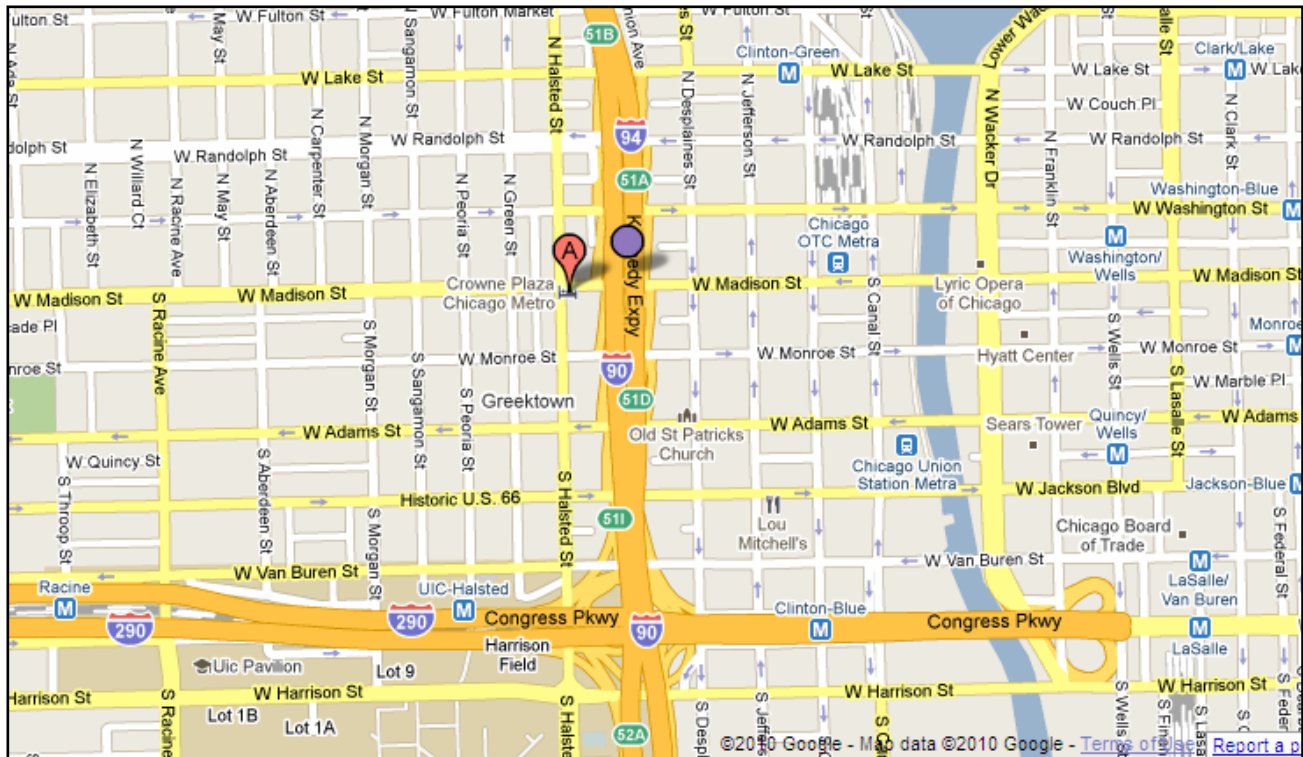
* There will be a reception at 6pm on April 10th. Please gather together around 5:45 - 6:00pm in the hotel lobby area for the ICNSC 2010 reception.

TRANSPORTATION

- Union Station Train Station (Amtrak) - 0.5 miles • O'Hare International Airport (ORD) - 17 miles
- Midway International Airport (MDW) - 10 miles

DRIVING DIRECTIONS

- **From the North.** Follow signs for I-94 E/US-41 S to Chicago. Continue to follow I-94 E. Take exit 51D for Madison St, then turn right at W Madison St. Arrive at the Crowne Plaza Chicago Metro Hotel, 733 W Madison St, Chicago, IL 60661.
- **From the West.** Follow 190E. Then merge onto I-90E (Kennedy Expressway) until you reach the Chicago Loop. Take exit 51D for Madison St, then turn right at W Madison St. Arrive at the Crowne Plaza Chicago Metro Hotel, 733 W Madison St, Chicago, IL 60661.
- **From the South.** From the I-90 W/Toll Rd to Chicago, take exit 51D for Madison St. Turn left at W Madison St. Arrive at the Crowne Plaza Chicago Metro Hotel, 733 W Madison St, Chicago, IL 60661.



HISTORY OF IEEE ICNSC

2004 IEEE International Conference on Networking, Sensing and Control

GC: Tsu-Tian Lee; Co-GCs: MengChu Zhou and Hideki Hashimoto

PC: D. T. Lee; Co-PCs: W. A. Gruver, R. Hsing, S. Kamijo, and H. P. Huang

Venue: Taipei, Taiwan

Date: March 21–23, 2004.

2005 IEEE International Conference on Networking, Sensing and Control

GC: Fei-Yue Wang

Co-PCs: MengChu Zhou, Christoforos Hadjicosits, and MuDer Jeng

Venue: Tucson, Arizona

Date: March 19–22, 2005.

2006 IEEE International Conference on Networking, Sensing and Control

GC: MengChu Zhou; Co-GCs: Chi-Hsu (Cash) Wang

PC: Derong Liu; Co-PCs: Zofia Lukszo and Clay Okino

Venue: Ft. Lauderdale, Florida

Date: April 23–25, 2006.

2007 IEEE International Conference on Networking, Sensing and Control

GC: Guoping Liu; Co-GCs: David Rees, Zofia Lukszo

PC: Hongnian Yu; Co-PCs: George Irwin, Sandro Zampieri and Shuanghua Yang

Venue: London, UK

Date: April 15–17, 2007.

2008 IEEE International Conference on Networking, Sensing and Control

GC: Derong Liu; Co-GC: Tianyou Chai

PC: Jiacun Wang; Co-PCs: S. Masoud Sadjadi and Xuemin Chen

Venue: Sanya, China

Date: April 6–8, 2008.

2009 IEEE International Conference on Networking, Sensing and Control

GC: Akira Inoue; Co-GCs: Hong Wang, Hongnian Yu, Hideki Hashimoto

PC: Mingcong Deng; Co-PCs: Shuanghua Yang, Chun-Yi Su

Venue: Okayama City, Japan

Date: March 26–29, 2009.

2010 IEEE International Conference on Networking, Sensing and Control

GC: Peter Nelson;

PC: Houshang Darabi; Co-PCs: Zofia Lukszo, Huaguang Zhang

Venue: Chicago, USA

Date: April 10–12, 2010.

ABOUT CHICAGO

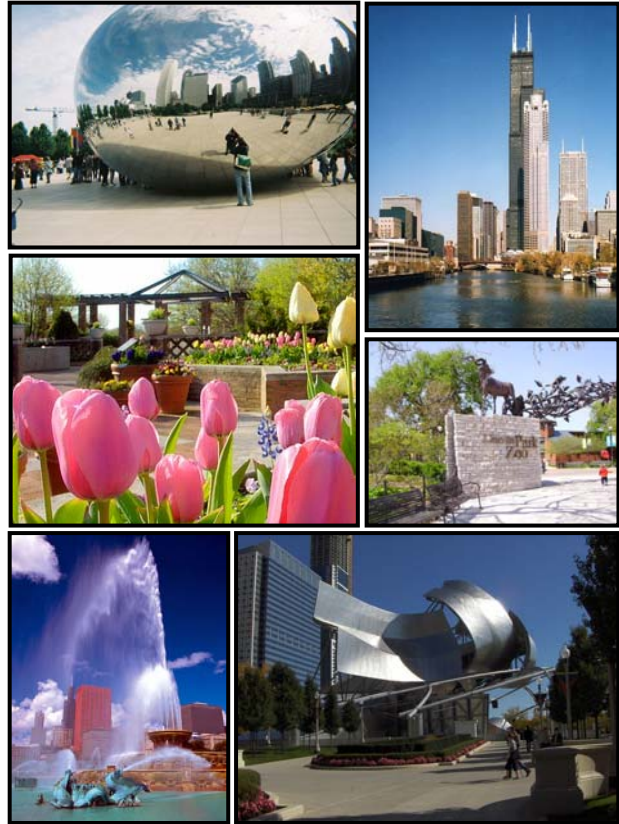
Incorporated as a city in 1837, Chicago has grown to become the third largest city in the United States, with a population of over 2.8 million residents. One of its most well known aliases includes the name “Second City”, used to describe the rebirth of the city after the devastating Great Chicago Fire of 1871, in addition to being the second largest city in the nation at the time.

Built from the ashes, Chicago stands as a city that is now known as a major hub for transportation, telecommunications, and industry. It is also known for its diversity in cultures, industries, architecture, entertainment and recreational activities, landscapes, and institutions of higher education among many

other things. Chicago is located on the shores of Lake Michigan with over 26 miles of lakefront bordering its eastern side.

There is much to experience in Chicago, with a great place to start being a visit to the Willis Tower Skydeck. It is the tallest building in North America with the Skydeck providing a 360 degree view of the city of Chicago along with three other states including Indiana, Michigan and Wisconsin. If interested in nature or recreational activities, Chicago has over 552 parks, 10 bird and wildlife gardens, world-class conservatories, and the Lincoln Park Zoo which is one of the only major free zoos remaining in the United States. Millennium Park is a 24.5 acre park that accentuates structures and work of architecture fused with art producing exquisite outdoor venues and attractions. Take the time to visit the Jay Pritzker Pavilion where live outdoor concerts take place, the interactive Crown Fountain that includes two glass towers with pictures of scenery or local residents on the face of the glass and water pouring from them into a black granite reflecting pool, or the Cloud Gate, also known as “The Bean”, to see a distorted view of the skyline or yourself as you walk around and beneath the sculpture.

There are over 7,300 restaurants, 200 art galleries and theaters, shopping on the “Magnificent Mile”, and several historical sites and cultural institutions (such as the Chicago Cultural Center) throughout the city. On any given day there are an abundance of things to experience. Take the time to enjoy what the “City of Wind” has to offer, and welcome to Chicago.



PLENARY SPEAKERS

PLENARY SPEAKER

Sajal Das, National Science Foundation, USA



Dr. Sajal K. Das is a University Distinguished Scholar Professor of Computer Science and Engineering and the Founding Director of the Center for Research in Wireless Mobility and Networking (CRewMaN) at the University of Texas at Arlington (UTA). He is currently a Program Director at the US National Science Foundation (NSF) in the Division of Computer Networks and Systems. He is also a Visiting Professor at the Indian Institute of Technology (IIT) at Kanpur, Fudan University in Shanghai, and a Visiting Scientist at the Institute of Infocomm Research (I2R), Singapore.

His current research interests include wireless sensor networks, mobile and pervasive computing, smart environments, pervasive security, mobile grid computing, applied graph theory and game theory. He has published over 400 research papers and over 35 book chapters in these areas. He holds 6 US patents in wireless networks and mobile Internet, and coauthored two books "Smart Environments: Technology, Protocols, and Applications" (Wiley, 2005) and "Mobile Agents in Distributed Computing and Networking" (Wiley, 2010).

Dr. Das is a recipient of the IEEE Computer Society Technical Achievement Award (2009) for pioneering work in sensor networks, IEEE Region 5 Outstanding Engineering Educator Award (2009), and IEEE Engineer of the Year Award (2007). He also received several Best Paper Awards at conferences including ACM MobiCom'99, IEEE PerCom'06 and EWSN'08. At UTA, he is a recipient of Lockheed Martin Teaching Excellence Award (2009), Academy of Distinguished Scholars Award (2006), University Award for Distinguished Record of Research (2005), College of Engineering Research Excellence Award (2003), and Outstanding Computer Science Senior Faculty Award (2001 and 2003).

Dr. Das serves as the Founding Editor-in-Chief of Elsevier's Pervasive and Mobile Computing (PMC) journal. He is also an Associate Editor of IEEE Transactions on Mobile Computing, ACM/Springer Wireless Networks, IEEE Transactions on Parallel and Distributed Systems, Journal of Parallel and Distributed Computing, and Journal of Peer-to-Peer Networking. He is the founder of IEEE PerCom and WoWMoM conferences. He has served as General and Technical Program Chair as well as TPC member of numerous IEEE and ACM conferences.

PLENARY SPEAKER

Dan Schonfeld, University of Illinois at Chicago, USA



Dr. Schonfeld received the B.S. degree in Electrical Engineering and Computer Science from the University of California, Berkeley, California, and the M.S. and Ph.D. degrees in Electrical and Computer Engineering from The Johns Hopkins University, Baltimore, Maryland, in 1986, 1988, and 1990, respectively.

In August 1990, he joined the Department of Electrical Engineering and Computer Science at the University of Illinois, Chicago, Illinois, where he is currently a Professor in the Departments of Electrical and Computer Engineering, Computer Science, and Bioengineering. He is also serving as Director of the University-Industry Engineering Research Center (UIERC), formerly the Manufacturing Research Center (MRC). He is also Co-Director of the Multimedia Communications Laboratory (MCL) and member of the Signal and Image Research Laboratory (SIRL).

Dr. Schonfeld has authored over 170 technical papers in various journals and conferences. He was co-author (with Junlan Yang) of a paper that won the Best Student Paper Award in the IEEE International Conference on Image Processing 2007. He was also co-author (with Wei Qu) of a paper that won the Best Student Paper Award in the IEEE International Conference on Image Processing 2006. He was also co-author (with Nidhal Bouaynaya) of a paper that won the Best Student Paper Award in Visual Communication and Image Processing 2006. Dr. Schonfeld has been elevated to the rank of IEEE Fellow “for contributions to image and video analysis.”

He is currently serving as Deputy Editor-in-Chief of the IEEE Transactions on Circuits and Systems for Video Technology and Special Sections Area Editor for the IEEE Signal Processing Magazine. He has served as Associate Editor of the IEEE Transactions on Image Processing on Image and Video Storage, Retrieval and Analysis, Associate Editor of the IEEE Transactions on Circuits and Systems for Video Technology on Video Analysis, Associate Editor of the IEEE Transactions on Signal Processing on Multidimensional Signal Processing and Multimedia Signal Processing, and Associate Editor of the IEEE Transactions on Image Processing on Nonlinear Filtering. He has also served on the editorial board of various journal publications. He has also served as guest editor for numerous special issues in various journal publications.

Dr. Schonfeld has served as Technical Chair of the IEEE Workshop on Genomic Signal Processing and Statistics (GENSIPS) 2009. He has also served as Chair of the Workshop on Video Mining 2008. He has also served as Chair of the SPIE Conference on Visual Communication and Image Processing (VCIP) 2007. He was a member of the organizing

committees of the IEEE International Conference on Image Processing (ICIP) 1998 and 2012, IEEE/SPIE International Conference on Visual Communications and Image Processing (VCIP) 2010, and IEEE Workshop on Nonlinear Signal and Image Processing (NSIP) 1997. He was also organizer of the Thematic Symposium on Multimedia Search and Retrieval at the IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2009.

He was plenary speaker at the INPT/ASME International Conference on Communications, Signals, and Systems (ICCSS), Rabat Morocco, in 1995 and 2001. He was also plenary speaker at the IEEE International Conference on Advanced Video and Signal Based Surveillance (AVSS), Genoa, Italy, in 2009. He was also plenary speaker at the IEEE/IET International Conference on Audio, Language and Image Processing (ICALIP), Shanghai, China, in 2010.

Dr. Schonfeld is currently serving as Representative of Regions 1-6 in the Chapters Committee of the IEEE Signal Processing Society. He is also serving as Chairman of the Chicago Chapter of the IEEE Signal Processing Society. He is also serving on the IEEE Multimedia Communications Technical Committee and the IEEE Image, Video, and Multidimensional Signal Processing (IVMSP) Technical Committee, formerly the IEEE Image and Multidimensional Signal Processing (IMDSP) Technical Committee.

Dr. Schonfeld has served as President of Multimedia Systems Corporation (MSC) and provided services as a consultant and expert witness for over 30 companies. He has also served on the ANSI/UL Standards Technical Panel in the area of multimedia systems.

His current research interests are in multi-dimensional signal processing; image and video analysis; computer vision; and genomic signal processing.



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CONFERENCE PROGRAM AT A GLANCE

Saturday, April 10, 2010

14:00 – 17:00: Registration
18:00 – 20:00: Welcome Reception

Sunday, April 11, 2010

10:00 – 11:00: Plenary Speech 1 (Room: Salon C/D)
Title: From Wireless Networking to Smart Computing: Challenges and Solutions
Speaker: Sajal Das, National Science Foundation, USA
Chair: Peter Nelson; Co-Chair: Derong Liu
11:00 – 11:30: Coffee Break
11:30 – 12:30: Plenary Speech 2 (Room: Salon C/D)
Title: Distributed Multi-Camera Networks: Graphical Models, Tensor Representation, and Plenoptic Functions
Speaker: Dan Schonfeld, University of Illinois at Chicago, USA
Chair: Houshang Darabi; Co-Chair: MengChu Zhou
12:30 – 14:00: Lunch Break
14:00 – 15:30: Parallel Sessions
Room: Metro 1
SA01 Special Session: Next Generation Infrastructures
Room: Metro 2
SA02 Sensors Applications
Room: Metro 3 and 4
SA03 Doctoral Consortium

15:30 – 16:00: Coffee Break	
16:00 – 17:30: Parallel Sessions	
Room: Metro 1	Room: Metro 2
SE01 Special Session: Competitive Wireless Sensor Networks: Recent Advances	SE02 Manufacturing Control and Networks
Room: Metro 3 and 4	
SE03 Doctoral Consortium	

Monday, April 12, 2010

9:00 – 10:30: Parallel Sessions	
Room: Metro 1	Room: Metro 2
MM01 Dynamic Programming Applications in Network and Control	MM02 Mobile Agents and Robots
10:30 – 11:00: Coffee Break	
11:00 – 12:30: Parallel Sessions	
Room: Metro 1	Room: Metro 2
MN01 Neural Network Applications	MN02 Networked Control Systems
12:30 – 14:00: Lunch Break	
14:00 – 15:30: Parallel Sessions	
Room: Metro 1	Room: Metro 2
MA01 Wireless Sensor Networks	MA02 Vehicle Routing and Transportation Management

15:30 – 16:00: Coffee Break

16:00 – 17:30: Parallel Sessions

Room: Metro 1

Room: Metro 2

ME01
Energy and Environment

ME02
Network Management

19:00 – 21:00: Banquet

CONFERENCE PROGRAM

PL01 Salon C/D
From Wireless Networking to Smart Computing: Challenges and Solutions From 2010-04-11 10:00:00 To 2010-04-11 11:00:00
By Sajal Das, National Science Foundation, USA

Session Chair: Peter Nelson *University of Illinois at Chicago, USA*

Session Co-Chair: Derong Liu *University of Illinois at Chicago, USA*

PL02 Salon C/D
Distributed Multi-Camera Networks: Graphical Models, Tensor Representation, and Plenoptic Functions From 2010-04-11 11:30:00 To 2010-04-11 12:30:00
By Dan Schonfeld, University of Illinois at Chicago, USA

Session Chair: Houshang Darabi *University of Illinois at Chicago, USA*

Session Co-Chair: MengChu Zhou *New Jersey Institute of Technology, USA*

SA01 Metro 1
Special Session: Next Generation Infrastructures From 2010-04-11 14:00:00 To 2010-04-11 15:30:00

Session Chair: Zofia Lukszo *Delft University of Technology, The Netherlands*

Session Co-Chair: Lichuan Liu *Northern Illinois University, USA*

Automatic Speed-Bias Correction with Flow-Density Relationships
Yufei Yuan; Hans Van Lint; Thomas Schreiter; Serge Hoogendoorn; Jos Vrancken

An Efficient Model-Based Method for Coordinated Control of Urban Traffic Networks
Shu Lin; Bart De Schutter; Yugeng Xi; Hans Hellendoorn

Granular Value-Function Approximation for Road Network Traffic Control
Mohsen Davarynejad; Sobhan Davarynejad; Jos Vrancken; Jan Van Den Berg

A Distributed Simulator for Road Network Control
Yubin Wang; Jos Vrancken; Michel Dos Santos Soares

Architecture-Based Development of Road Traffic Management Systems
Michel Soares; Jos Vrancken; Yubin Wang

Improve the Positioning Accuracy for Wireless Sensor Nodes Based on TFDA and TFOA Using Data Fusion
Lichuan Liu; Manli E

Optimal Network Reconfiguration of Electrical Distribution Systems Using Real Coded Quantum Inspired Evolutionary Algorithm
Bhoomesh Radha; Harry Coomar Shumsher Rughooopath

A New Method Based on the Spatial Differencing Technique for DOA Estimation
Ruiyan Du

Joint Source-Channel Coding/Decoding by Combining RVLC and VLC for CCSDS IDC Coefficients
Guofang Tu; Juan Tu; Xiaomin Liu; Can Zhang; Shaoshuai Gao

Research on the Precision Processing Method for Softness Abrasive Two-phase Flow Based on LSM
Shiming Ji; Xiaoxing Weng; Dapeng Tan

A Novel EM-Based Map Channel Estimation for MIMO-OFDM Systems
Peng Xu; Jinkuan Wang; Feng Qi

SA02 Metro 2
Sensors Applications From 2010-04-11 14:00:00 To 2010-04-11 15:30:00

Session Chair: Hai-Long Pei *South China University of Technology, China*

Session Co-Chair: Omkar Tilak *Indiana University Purdue University Indianapolis, USA*

Split Torque Type Gearbox Fault Detection using Acoustic Emission and Vibration Sensors
David He; Roy Li; Eric Bechhoefer

Research on Fault Diagnosis Method of Blast Furnace Based on Clustering Combine SVMs Dynamic Pruned Binary Tree
Anna Wang; Yuntao Hou; Yue Zhao; Fengyun Zhao

Prognosis-enhanced Reconfiguration Control

Hai-long Pei; Douglas Brown; George Vachtsevanos

A Fast Detecting Algorithm for Surface Mount Devices Based on Complex Moment

Hongxia Gao; Qian Mai; Yueming Hu

Virtual Exercise Environment for Promoting Active Lifestyle for People with Lower Body Disabilities

Shaojie Zhang; Pat Banerjee; Cristian Luciano

Design of an Intelligent Control Scheme Based on Predictive Theory

Amir Hooshang Mazinan; Mehdi Fallah Kazemi

Subsensory Stimulation and Visual/Auditory Biofeedback for Balance Control in Amputees

Ming-yih Lee; Kok-soon Soon

A Novel Reinforcement Learning Framework for Sensor Subset Selection

Omkar Tilak; Snehasis Mukhopadhyay; Mihran Tuceryan; Rajeev Raje

Performance Modeling of an Opportunistic Spectrum Sharing Wireless Network with Unreliable Sensing

Shensheng Tang

A New Detecting Algorithm for Chip Based on B-spline Wavelet

Qian Mai; Hongxia Gao; Yueming Hu

Effective Camera Motion Analysis Approach

Shugao Ma; Weiqiang Wang

SA03

Doctoral Consortium 1

Metro 3&4
From 2010-04-11 14:00:00 To 2010-04-11 15:30:00

Session Chair: Haibo He

University of Rhode Island, USA

SE01

Special Session: Competitive Wireless Sensor Networks: Recent Advances

Metro 1
From 2010-04-11 16:00:00 To 2010-04-11 17:30:00

Session Chair: Siyao Fu

Central University of Nationalities, China

Session Co-Chair: Lichuan Liu

Northern Illinois University, USA

FM Jammer Excision by Using Time-Varying AR Filter in Spread Spectrum Communication Systems

Lichuan Liu

Cooperative Compressive SLAM in an Indoor Wireless Sensor Network

Xinkai Kuai

Simultaneous Localization and Mapping for Indoor Autonomous Mobile Robot

Xinkai Kuai

Other Approaches to Obtain the Fast and Piecewise-Linear Bilateral Filter in 3D Space

Kehu Yang; Siyao Fu; Yinggui Shi

Local vs Global: Indoor Multi-robot Simultaneous Localization and Mapping in Wireless Sensor Networks

Siyao Fu; Xinkai Kuai; Zengguang Hou; Guosheng Yang; Derong Liu; Rui Zheng

Cross-layer energy efficiency analysis and optimization in WSN

Qiuling Tang; Changyin Sun; Huan Wen; Ye Liang

Interacting Multiple Sensor Unscented Kalman Filter for Accelerating Object Tracking

Zhigang Liu; Jinkuan Wang; Wei Qu

A Multi-Objective Optimization Based QoS Routing Algorithm for Multi-Layered Satellite IP Networks

Fei Long; Zhian Yang; Fuchun Sun; Dianjun Wang

A Dynamic QoS Routing Mechanism based on Steiner Trees for LEO Satellite networks

Zhian Yang; Fei Long; Fuchun Sun; Dianjun Wang

Stable Training Method for Echo State Networks with Output Feedbacks

Qingsong Song; Zuren Feng; Mingli Lei

A Novel Approach to Solve the Sparsity Problem in Collaborative Filtering

Jia Zhou; Tiejian Luo

SE02

Metro 2

Manufacturing Control and Networks

From 2010-04-11 16:00:00 To 2010-04-11 17:30:00

Session Chair: Francesca Schuler

Motorola Inc., USA

Session Co-Chair: Zuobao Wu

Westinghouse Electric Company, USA

Supervisory Control and Data Collection Policies for a Distribution Center Modeled as a Discrete Event System

Francesca Schuler; Houshang Darabi

Decision Fusion in Distributed Multi Agent Process Supervisory System

Kaushik Ghosh; Sathish Natarajan; Rajagopalan Srinivasan

Fault-Tolerant Controller Design Using Petri Nets with Minimum Initial State Specifications

Yizhi Qu; Lingxi Li; Yaobin Chen; Yaping Dai

Simulation of Order-up-to Levels in a Complex Logistics with Uncertain Customer Demands

Weifeng Zhu; Qi Fei

Concurrent Product Design and Seismic Analysis for Fuel Handling Equipment

Zuobao Wu; Michael S. Wigstrom; Larry P. Schmidt

Multi-echelon Multi-item Dynamic Inventory Management via Decomposition and Coordination Algorithm

Yuli Zhang; Shiji Song; Cheng Wu; Wenjun Yin

Dialysis Adequacy Evaluation Model Based on Fuzzy AHP and Group Decision Making

Mei Zhang; Nan Wu; Yue-ming Hu

Study on Data Based Tourism Management Decision Support System

Wang Su; Zhou Yipeng; Du Junping; Sun Zengqi; Jia Yingming

One Improved Time Synchronization Based on Ant Colony Algorithm and TPSN Mechanism

Guangping Qi; Ping Song; Kejie Li; Chang Chen

A Hybrid Fuzzy Logic Controllers for Complex Environment

Nian Zhang; Kiwon Park

Digital Tourism Integrated Service System Realization

Tian Gao; Junping Du; Zengqi Sun; Yingmin Jia

Tourism Emergency Data Mining and Intelligent Prediction Based on Networking Autonomic System

Jie Liu; Junping Du; Zengqi Sun; Yingming Jia

SE03

Metro 3&4

Doctoral Consortium 2

From 2010-04-11 16:00:00 To 2010-04-11 17:30:00

Session Chair: Haibo He

University of Rhode Island, USA

MM01

Metro 1

Dynamic Programming Applications in Network and Control

From 2010-04-12 09:00:00 To 2010-04-12 10:30:00

Session Chair: Haibo He

University of Rhode Island, USA

Session Co-Chair: Dongbin Zhao

Chinese Academy of Sciences, China

Two-Time-Scale Online Actor-Critic Paradigm Driven by POMDP

Bo Liu; Haibo He; Daniel Repperger

Approximate Dynamic Programming based controller for a Production-Inventory System

Santiago Tosetti; Flavio Capraro; Daniel Patiño

A Traffic Signal Control Algorithm for Isolated Intersections Based on Adaptive Dynamic Programming

Yujie Dai; Dongbin Zhao

Near-Optimal Control Laws Based on Heuristic Dynamic Programming Iteration Algorithm

Ruizhuo Song; Dongsheng Yang; Huaguang Zhang

Stochastic Dynamic Programming Model of Adaptive Waveform Selection

Bin Wang; Jinkuan Wang; Xin Song; Ling Cai

Optimal Control for Sucrose Crystallization with Heuristic Dynamic Programming

Xiaofeng Lin; Heng Zhang; Huixia Liu; Chunning Song

An Iterative ADP Approach for Solving a Class of Nonlinear Zero-Sum Differential Games

Qinglai Wei; Derong Liu

A Hierarchical Learning Architecture with Multiple-Goal Representations based on Adaptive Dynamic Programming

Haibo He; Bo Liu

Efficient Provable Certificateless Blind Signature Scheme

Jianhong Zhang; Shengnan Gao

Froth Image Segmentation Based on Adaptive Ray Cluster

Guoying Zhang; Quanli Feng; Chunjie Mu; Yun Sha; Chen Yang

A Novel Method for Locating Surface Mounted Components based on Elliptical Fourier Descriptor

Zhou Wu; Hu Yueming; Gao Hongxia; Yuan Peng

MM02

Mobile Agents and Robots

Metro 2
From 2010-04-12 09:00:00 To 2010-04-12 10:30:00

Session Chair: Abdel ilah Alshbatat

Western Michigan University, USA

Session Co-Chair: Derong Liu

Chinese Academy of Sciences, China

Navigation of Mobile Robots in an Intelligent Environment with Wireless Visual Sensors

Ping Jiang; Y. Cheng ; Y. Ji ; Z. Feng ; J. Zhu ; X. Wang

Mobile Robot Tracking in Wireless Sensor Networks

Yoon Kah Leow; Ying Shang

Generating Minimax-Curvature and Shorter ζ 3-Spline Path Using Multi-Objective Variable-Length Genetic Algorithm

J.-h. Wei; Jing-sin Liu

Output Synchronization of Multiple Mobile Agents

Fuxiao Tan; Derong Liu; Xinping Guan

Cross Layer Design for Mobile Ad-Hoc Unmanned Aerial Vehicle Communication Networks

Abdel Ilah Alshbatat; Liang Dong

UAV Flight Trajectory Control Based on Information Fusion Control Method

Ziyang Zhen; Daobo Wang; Qi Kang

A Perspective of PSP Modeling Based on Control Theory

Yingying Zhu; Xianzhong Zhou; Jiacun Wang

Robust Stability of a Direct Current Motor Control System with Model Uncertainties

Shuiying Xie; Shengjun Wen; Mingcong Deng

The Sliding Model-following Control for Semi-active MR-Vehicle Suspension

Hui Song

Decreasing Live Virtual Machine Migration Down-Time Using a Memory Page Selection Based on Memory Change PDF

Fereydoun Farrahi Moghaddam; Mohamed Cheriet

An Evaluation of PSO-Type Swarm Robotic Search: Modeling Method and Controlling Properties

Zhiqi Liu; Songdong Xue; Jianchao Zeng; Jing Zhao; Guoyou Zhang

An Innovative Approach for the Wormhole Attack Detection and Prevention In Wireless Ad Hoc Networks

Marianne Azer; Sherif El-kasas; Magdy El-soudani

MN01

Neural Network Applications

Metro 1
From 2010-04-12 11:00:00 To 2010-04-12 12:30:00

Session Chair: Derong Liu

Chinese Academy of Sciences, China

Session Co-Chair: Peijin Wang

Yantai University, China

Design and Application of Soft Sensor Object in Water Treatment Plant

Peijin Wang

Multistability and Enlarged Basins of Attraction in Bidirectional Associative Memory Neural Networks

Yujiao Huang; Zhanshan Wang; Huaguang Zhang; Tie Zhang

Adaptive High-Order Hopfield-based Neural Network Tracking Controller for Uncertain Nonlinear Dynamical System

Chi-hsu Wang; Kun-neng Hung

Proximity Mobile Services: Neural Network Based Connection Admission Controller and other issues

Jon Tong Seng Quah; Luo Ren Lim

Wastewater Effluent Prediction Based on Fuzzy-Rough Sets RBF Neural Networks

Jin Liang; Fei Luo; Ren-hui Yu; Yu-ge Xu

Asymptotic mean square stability analysis for cellular neural networks with random delays

Zhihao Yang; Enwen Zhu; Yueheng Wang; Jinbo Liu

The Superstring Galaxy Associative Memory Model with Anticipant Fault-Tolerant Field on m-Value Information Space

Guowei Yang; Yonggui Kao; Yang Yang

Intelligent Modeling and Prediction of Nanostructural Behavior of Humidity Sensors

Muhittin Yilmaz; Jingbo Liu; Wei-da Hao

Improved Delay-Dependent Stabilization Conditions of Takagi-Sugeno Fuzzy Systems with State and Input Delays

Jian Feng; Dazhong Ma; Huaguang Zhang

Delay-Dividing Approach for Stability of Neutral System with Mixed Delays

Fang Qiu; Baotong Cui; Yan Ji

A Two-stage Approach to Estimate Parameters of Locally Distributed Source

Yinghua Han; Jinkuan Wang; Qiang Zhao; Bin Wang

An Approach for Locating Surface Mounted Devices Based on Phase Correlation

Zhou Wu; Hu Yueming; Gao Hongxia; Yuan Peng

MN02

Networked Control Systems

Metro 2

From 2010-04-12 11:00:00 To 2010-04-12 12:30:00

Session Chair: Zhuo Wang

University of Illinois at Chicago, USA

Session Co-Chair: Songyun Xie

Northwestern Polytechnical University, China

Applied Simulation to Evaluate the Quality of Control of Networked Control Systems

Eduardo Paciencia Godoy; Arthur Jose Vieira Porto; Ricardo Yassushi Inamasu

Formal Specification and Verification of Reconfigurable Protocol Stack for Networked Control System

Hui Chen; Chunjie Zhou; Xiongfang Huang; Yuanqing Qing

Robust H^∞ Guaranteed Cost Control for Networked Control Systems Based on T-S Model

Shu-xian Lun; Shen-quan Wang

Internet-based and Visual Feedback Networked Robot Arm Teleoperation System

Shuang Cong; Junnan Wang

Simulation for a Class of Networked Cascade Control Systems by PID Control

Congzhi Huang; Yan Bai; Xinli Li

Step Adaptive Controller for Networked MIMO Control Systems

Sofia Piltz; Mikael Björkbom; Lasse Eriksson; Heikki Koivo

Exploring Networked Softwares

Hongchun Wang; Keqing He; Bing Li

Operator based Model Output Following Control of Systems with Time-Varying Delays

Shuhui Bi; Mingcong Deng; Akira Inoue

Estimation and Rejection for Disturbances Using Composite Nonlinear Observer

Xinyu Wen; Lei Guo

Edge Detection Using Advanced Grey Prediction Model

Songyun Xie; Yubin Xie; Wei Yang; Ge Wang

Robust Constrained CMA Based on Quadratic Constraint

Xin Song; Jinkuan Wang; Yinghua Han; Bin Wang

MA01 Metro 1
Wireless Sensor Networks From 2010-04-12 14:00:00 To 2010-04-12 15:30:00

Session Chair: Ming Yu

New Jersey Institute of Technology, USA

Session Co-Chair: Sreekanth Mallireddy

University of Oklahoma, USA

[The Dynamic Coverage Control Strategy for Wireless Sensor Networks](#)

Wei Qu; Jinkuan Wang; Zhigang Liu

[Coverage in Wireless Sensor Networks Based on Individual Particle Optimization](#)

Seyyed Mohammad Amin Salehzadeh; Alireza Dirafzoon; Mohammad Bagher Menhaj; Ahmad Afshar

[A Data Analysis and Visualization Algorithm Based on Locally Linear Approximating for WSN](#)

Xin Song; Cuirong Wang

[Run Time Compression of Image Data in Wireless Sensor Networks](#)

Sreekanth Mallireddy; Sesh Commuri

[Tracking Manoeuvring Mobile Nodes in Wireless Sensor Networks with Range-Only Measurements](#)

Evangelos Mazomenos; Jeffrey Reeve; Neil White

[Admission Control with Multi-constrained QoS Providing in Wireless Sensor Networks](#)

Xiaoyan Yin; Xingshe Zhou; Miao Pan; Shining Li

[Likelihood Function-Based Modulation Classification in Bandwidth-Constrained Sensor Networks](#)

Jefferson Xu; Wei Su; Mengchu Zhou

[Framework of Network Centric Signal Sensing for Automatic Modulation Classification](#)

Wei Su; John Kosinski

[Hidden Markov Model Based Classification Approach for Multiple Dynamic Vehicles in Wireless Sensor Networks](#)

Ahmad Aljaafreh; Liang Dong

[Cooperative Detection of Moving Targets in Wireless Sensor Network Based on Fuzzy Dynamic Weighted Majority Voting Decision Fusion](#)

Ahmad Aljaafreh; Liang Dong

[Self-Deployment by Distance and Orientation Control for Mobile Sensor Networks](#)

Jun Li; Lingguo Cui; Baihai Zhang

[A Sequential Mesh Test based Selective Forwarding Attack Detection Scheme in Wireless Sensor Networks](#)

Guorui Li; Xiangdong Liu; Cuirong Wang

MA02 Metro 2
Vehicle Routing and Transportation Management From 2010-04-12 14:00:00 To 2010-04-12 15:30:00

Session Chair: Zhigang Liu

Southwest Jiaotong University, China

Session Co-Chair: Ahmad Aljaafreh

Western Michigan University, USA

[A New Vehicle Tracking Method with Region Matching Based on Kalman Forecasting Model](#)

Zhigang Liu

[Application of Improved AHP in the Evaluation of Railway Emergency Plans](#)

Yanhui Wang; Chenchen Zhang; Lingxi Zhu; Qian Sun

[An Evaluation of Feature Extraction Methods for Vehicle Classification Based On Acoustic Signals](#)

Ahmad Aljaafreh; Liang Dong

[Mixed Traffic Microscopic Simulation System at Signalized Intersection](#)

Shanshan Lee; Dalin Qian; Nianyuan Lee; Qingqing Tang

[An Adaptive Weighted Boosting Algorithm for Road Detection](#)

Yun Sha; Guo-ying Zhang

[Map Matching of Mobile Probes based on Handover Location Technology](#)

Yueming Yuan; Wei Guan; Wei Qiu

[A Dynamic Traffic Adjustment Approach to Optimizing performance in Multipath Network Serving Heterogeneous Flows](#)

Ling Cai; Jinkuan Wang; Cuirong Wang; Laiquan Han; Bin Wang

Adaptive MAC Protocol for UAV Communication Networks Using Directional Antennas

Abdel Ilah Alshbatat; Liang Dong

A Queue Extended Forwarding Algorithm for Multipath Networks

Laiquan Han; Jinkuan Wang; Cuirong Wang; Ling Cai; Bin Wang

Probability of Conflict Analysis of 3D Aircraft Flight Based on Two-Level Markov Chain Approximation Approach

Muna Albasman; Jianghai Hu

Analysis of Model Orders in Human Dynamics Identification using Linear Polynomial and Hammerstein-Wiener Structures

Kalevi Tervo; Aino Manninen

Improved Particle Swarm Optimization for PAPR Reduction of OFDM Systems

Jing Gao; Jinkuan Wang; Bin Wang

ME01

Energy and Environment

Metro 1

From 2010-04-12 16:00:00 To 2010-04-12 17:30:00

Session Chair: Rui Duan

Katholieke Universiteit Leuven, Belgium

Session Co-Chair: Jhi-young Joo

Carnegie Mellon University, USA

Future Electricity Market Interoperability of a Multi-agent Model of the Smart Grid

Rui Duan; Geert Deconinck

A Novel Grey Model to Forecast Short-Term Electricity Price for Nordpool Using Particle Swarm Optimization and Correlation Hours Method

Mingli Lei; Zuren Feng; Qingsong Song

Adaptive Load Management (ALM) in Electric Power Systems

Jhi-young Joo; Marija Ilic

Complete Coverage Path Planning for Road Cleaning Robot

Guoqing Hu; Zhengwei Hu; Hongbo Wang

Humidity Measurement in Harsh Industrial Environments

Wei Zhang; Simon X. Yang

The Gain Scheduling Control for Wind Energy Conversion System Based on LPV Model

Jin-jun Chen; Zhi-cheng Ji

Modeling and Optimization of Ocean-going Unloading Problem with Stochastic Demand

Shengkai Jin; Shiji Song; Yuli Zhang; Cheng Wu

Cluster-tree based energy efficient protocol for wireless sensor networks

Gerard Chalhoub; Michel Misson

Study on Ultrasonic Measuring Component of Binary Gas

Jiang Yifeng; Shen Lin; Zhu Zhengwei

Simulation of an Optical Accelerometer Based on Integrated Optical Ring Resonator

Tong Zhang

Operator-Based Parallel Compensation Control for the Plants with Hysteresis

Changan Jiang; Mingcong Deng

ME02

Network Management

Metro 2

From 2010-04-12 16:00:00 To 2010-04-12 17:30:00

Session Chair: Yang Zhang

Chongqing University, China

Session Co-Chair: Maen Saleh

Western Michigan University, USA

An Open CNC System Based on Switched Ethernet

Haibo Yang; Hu Lin; Yaodong Tao; Jin Li

Ontology-Based P2P Semantic Search Routing Algorithm

Chuan_yun Xu; Yang Zhang

TCP Venoplus - A Cross-Layer Approach to Improve TCP Performance in Wired-Cum-Wireless Networks using Signal Strength

Sachin Shetty; Ying Tang; William Collani

Comparing FCFS & EDF Scheduling Algorithms for Real-Time Packet Switching Networks
Maen Saleh; Liang Dong

Adaptive and Impulsive Cluster Synchronization of a General Complex Dynamical Network
Bingxiong Shi; Junan Lu; Jinhu Lu; Xinghuo Yu

Improving Methods for Node Locating Calculation
Xianhui Yang; Rui Lv

Information Security Implementation Difficulties in Critical Infrastructures: Smart Metering Case
Layla Alabdulkarim; Zofia Lukszo

A New Approach to Detect Radio Jammings in Wireless Networks
Ming Yu; Wei Su; John Kosinski; MengChu Zhou

An Innovative Approach for the Wormhole Attack Detection and Prevention In Wireless Ad Hoc Networks
Marianne Azer; Sherif El-kasas; Magdy El-soudani

Time Resources Allocation in Cognitive Radar System
Lina Fan; Jinkuang Wang; Bin Wang; Dongmei Shu

ZigBee-Wireless Mesh Networks for Building Automation and Control
Wenqi (wendy) Guo; William M. Healy; MengChu Zhou

Topology Control Algorithm Based on Overlapping Clustering
Dongmei Yan; Jinkuan Wang; Li Liu; Bin Wang; Peng Xu

Banquet

Salon D
From 2010-04-12 19:00:00 To 2010-04-12 21:00:00