

Session (Oral) WM1: Space Time Coding

Wednesday, May 5, 2004 TIME: 8:10 – 12:10

CHAIR: Dr. T. Kirubarajan, Room: Ontario
McMaster University

1. A Differential Space-Time Code Receiver using the EM-Algorithm

Michael L.B. Riediger (Simon Fraser University, Canada) and Paul K.M. Ho (Simon Fraser University, Canada) 5165

2. Kalman Filtering for Channel Estimation in Space-Time Coded Systems

Haizhen Jin (McGill University, Canada) and Harry Leib (McGill University, Canada) 5243

3. Space-Time Coding and Signal Space Diversity in the Presence of Channel Estimation Errors

Tolga Kurt (University of Ottawa, Canada) and Hakan Delic (Bogazici University, Turkey) 5272

4. Unitary Space-Time Codes from Group Codes: Permutation Codes Variant II

Terasan Niyomsataya (University of Ottawa, Canada), Ali Miri (University of Ottawa, Canada) and Monica Nevins (University of Ottawa, Canada) 5712

5. Tracking Time-Selective Fading Channels for Space-Time Block Coding in Impulsive Noise

Ziauddin M. Kamran, T.Kirubarajan, and Alex B. Gershman (McMaster University, Canada) 5800

6. Receive Antenna Selection for Space-Time Block Codes

Xiang Nian Zeng (Concordia University, Canada) and Ali Ghraryeb (Concordia University, Canada) 6075

Break : 10:10 – 10:30

7. Capacity of PPM Ultra-Wideband Communications with Inter Pulse Interference

Reza Pasand (University of Calgary, Canada), John Nielsen (University of Calgary, Canada), Abu B. Sesay (University of Calgary, Canada) 7028

8. Single-Carrier Concatenated Space-Time Block Coded Transmissions over Selective -Fading Channels

Tuan Tran(University of Calgary, Canada), Tung X. Lai (University of Calgary, Canada) and Abu B. Sesay (University of Calgary, Canada) 6159

9. Improved Space-Time Trellis Codes with Three and Four Transmit Antennas

David Bernier (Royal Military College, Canada) and Francois Chan (Royal Military College, Canada) 6816

10. Iterative Decoding Algorithm of Lattices

Mohammad Reza Rafsanjani Sadeghi (Carleton University, Canada), Amir H. Banihashemi (Carleton University, Canada) and Daniel Panario (Carleton University, Canada) 6094

11. Computer Design of Super-Orthogonal Space-Time Trellis Codes

Brady Laska (Royal Military College, Canada), Dustin Dunwell (Royal Military College, Canada), Francois Chan (Royal Military College, Canada) and Hamid Jafarkhani (University of California at Irvine, USA) 6888

Session (Oral) WM2: CDMA Systems / Advanced Coding

Wednesday, May 5, 2004

TIME: 8:10 -12:10

**CHAIR: Dr. A. Mirbagheri,
University of Toronto**

Room: Chippawa

1. Reverse-Link Power Allocation in Two-Hop Multimedia CDMA Networks

Dave Walsh and Halim Yanikomeroglu (Carleton University, Canada) 6053

2. Performance of Multicode DS/CDMA with Noncoherent M-ary Orthogonal Modulation in the Presence of Timing Errors

Cyril-Daniel Iskander (Florida Atlantic University, USA) 6092

3. An Improved Widely Linear Receiver for Cyclostationary CDMA Systems with OQPSK Modulation

Arash Mirbagheri, Konstantinos N. Plataniotis and Subbarayan Pasupathy (University of Toronto, Canada) 6467

4. BER Performance of STBC over Frequency Selective Fading Channels in the Downlink WCDMA System

Tung X. Lai and Abu B. Sesay (University of Calgary, Canada) 6173

5. An Iterative MMSE-Decision Feedback Multiuser Detector for Space-Time Coded Multicarrier CDMA System

Padam L. Kafle, Abu B. Sesay and J. McRory (TRLabs, Calgary, Canada) 6968

6. A Linear Decoder for Vector Quantization over a CDMA Channel

Ha H. Nguyen (University of Saskatchewan, Canada) 6852

Break : 10:10 – 10:30

7. Codesign Implementation of a 3G Base Station Receiver

Sébastien Jomphe and Jean Belzile (Ecole de Technologie Supérieure, Canada), Sofiène Affès (Institut national de la recherche scientifique, énergie, matériaux et télécommunications) and Karim Cheikhrouhou (Institut national de la recherche scientifique, énergie, matériaux et télécommunications) 6007

8. Signal Mappings of 8-ARY Constellations for BICM-ID Systems over a Rayleigh Fading Channel

Nghi Tran (University of Saskatchewan, Canada) and Ha Nguyen (University of Saskatchewan, Canada) 6471

9. A Novel Context Modeling Scheme for Motion Vectors Context-Based Arithmetic Coding

Mahmoud Ghandi (Sharif University of Technology, Iran), Mohammad Mahdi Ghandi (University of Essex, UK) and Mohammad Bagher Shamsollahi (Sharif University of Technology, Iran) 6713

10. A Union Bound Based Evaluation Technique for Convolutionally and Turbo Coded Communication Systems

Bo Xu (McGill University, Canada) and Jan Bajcsy (McGill University, Canada) 6970

11. A Multi-wavelet Packet Modulation in Wireless Communications

Mingli You (Dalhousie University, Canada) and Jacek Ilow (Dalhousie University, Canada) 7302

Session (Oral) WM3: Internetworking and Protocols

Wednesday, May 5, 2004

TIME: 8:10 – 12:10

**CHAIR: Dr. Ganesh Babu,
Ryerson University**

Room: Canadiana

1. SDL Modeled Hybrid Error Control Scheme for Reliable Multicast over Internet
Bo Rong , Alain Servais , Maria Bennani(Universite du Quebec, Canada), Ahmed Elhakeem (Concordia University, Canada) and Michel Kadoch (Universite du Quebec, Canada) 5511

2. An IP Traceback Mechanism for Reflective DoS Attacks
Bao-Tung Wang (Columbia University) and Henning Schulzrinne (Columbia University) 5885

3. An Approach to Solving a Multicasting Scalability Issue in MPLS Networks Using State Encoding
Omar Banimelhem (Concordia University, Canada), J. William Atwood (Concordia University, Canada) and Anjali Agarwal (Concordia University, Canada) 6583

4. Multicasting with Delay and Delay Variation Constraints Using Genetic Algorithm
Moussa Hamdan and Mohamed El-Hawary (Dalhousie University, Canada) 7301

5. Agent -Based Resource Management in Hybrid Wireless Networks
Rajeev Babbar (University of Calgary, Canada), Abraham O. Fapojuwo (University of Calgary, Canada) and Behrouz H. Far (University of Calgary, Canada) 6050

6. Enhanced Polling Scheme with IEEE 802.11a WLAN
Taekon Kim, Chang Yeul and Chil-Youl Ynag (Samsung Electronics Co.) 5205

Break : 10:10 – 10:30

7. Session-based Service Discovery in Peer-to-Peer Communications
Ramiro Liscano (University of Ottawa, Canada), Allan Jost and Anand Dersingh (Dalhousie University, Canada) and Hao Hu (Intel China Ltd., China) 6119

8. Average Degradation Degree Fair Adaptation Algorithm in Wireless Network with Mobile Hosts
Floriano De Rango (University of Calabria, Italy), G. Aloï (University of Calabria, Italy) and S. Marano (University of Calabria, Italy) 6974

9. A Proposed Protocol for Internet Key Exchange (IKE)
Hossein Haddad (Isfahan University of Technology, Iran), Mehdi Berenjkoub (Isfahan University of Technology, Iran) and Saeed Gazor (Queens University, Canada) 6706

10. An Integrated Scheduling and Buffer Management Scheme for Packet-Switched Routers
Ren-Jie Pi Beijing, Junde Song, Meina Song (Beijing University of Posts and Telecommunications, China) 5646

11. Multipath Traffic Distribution in MPLS Network
Zenghua Zhao (Tianjin University, China) and Yantai Shu (Tianjin University, China) 5785

Session (Oral) WM4: Biomedical Image Analysis

Wednesday, May 5, 2004

TIME: 8:10 – 12:10

**CHAIR: Dr. A. Alder,
University of Ottawa**

Room: Hennipen South

1. Evaluation of Hierarchical Elastic Medical Image Registration Method

Xiaoyan Xu (University of Guelph, Canada) and Robert D. Dony (University of Guelph, Canada) 6047

2. Images Can be Regenerated from Quantized Biometric Match Score Data

Andy Adler (University of Ottawa, Canada) 5599

3. Lossy Compression of DNA Microarray Images

Naser Faramarzpour (McMaster University, Canada), Shahram Shirani (McMaster University, Canada) and M. Jamal Deen (McMaster University, Canada) 5820

4. Compression of 3D Facial Data

In-Su Park (McMaster University, Canada), Shahram Shirani (McMaster University, Canada) and David W. Capson (McMaster University, Canada) 5992

5. Neural Network Texture Segmentation in Equine Leg Ultrasound images

Qi Huang (University of Guelph, Canada) and Robert D. Dony (University of Guelph, Canada) 6040

6. Gait Analysis and Recognition using Angular Transforms

Nikolaos V. Boulgouris (University of Toronto, Canada), Konstantinos N. Plataniotis (University of Toronto, Canada) and Dimitris Hatzinakos (University of Toronto, Canada) 6057

Break : 10:10 – 10:30

7. A Fuzzy Classifier Approach to Assessing the Progression of Adolescent Idiopathic Scoliosis from Radiographic Indicators

Peter O. Ajemba (University of Alberta, Canada), Lino Ramirez (University of Alberta, Canada), Nelson G. Durdle (University of Alberta, Canada), Doug L. Hill (Glenrose Rehabilitation Hospital, Canada) and V. J. Raso (Glenrose Rehabilitation Hospital, Canada) 6115

8. Semi Real-time algorithm for Posture Estimation of the Human Face using a 3-D Reference Picture

Daisuke Takahashi (Kanto Gakuin University, Japan) and Noriyoshi Okamoto (Kanto Gakuin University, Japan) 5891

9. ECG Signal Compression by Using Multiquadric Interpolation

Pond Boonyaves (Chulalongkorn University, Thailand), Porntip Paisalsing (Chulalongkorn University, Thailand), Pian Totarong (National Institute of Metrodology, Thailand) and Somchai Jitapunkul (Chulalongkorn University, Thailand) 5896

10. Modeling Human Body Effects for Indoor Radio Channel using UTD

Mohamad Ghaddar (University of Quebec, Canada), Larbi Talbi (University of Quebec - Outaouais, Canada), Tayeb A. Denidni (University of Quebec, Canada), Alain Charbonneau (Université du Québec en Outaouais, Canada) 6074

Session (Oral) WM5: RF Circuits

Wednesday, May 5, 2004

TIME: 8:10 – 12:10

CHAIR: Dr. A. B. Kouki, Ecole de Technologie Supérieure
Room: Auditorium

1. Design Issues of Direct Conversion Radio Frequency Receivers in SiGe Technology

Roghoyeh Salmeh, Brent J. Maundy and Ronald H. Johnston (University of Calgary, Canada) 4315

2. Design and Realization of a RF Transceiver for Marine Identification Systems
Mohamad El-Asmar (Ecole de Technologie Supérieure, Canada) and Ammar B. Kouki (Ecole de Technologie Supérieure, Canada) 5664

3. Physics-Based Analysis of Variable RF MEMs Capacitors
Kousseil Ben Ahmed (Ecole de technologie supérieure, Canada), Ammar B. Kouki (Ecole de Technologie Supérieure, Canada) and A. Khebir (Ecole de Technologie Supérieure, Canada) 5823

4. Low-Voltage, Low-Power and Low Phase Noise 2.4 GHz VCO for Medical Wireless Telemetry

Ahmed Fakhr, M. Jamal Deen and Hubert deBruin (McMaster University, Canada) 6058

5. A Low- power 5 Mb/s turbo Decoder for Third -Generation Wireless Terminals
Ibrahim Al-Mohandes and Mohamed Elmasry (University of Waterloo, Canada) 7482

6. A Bipolar Voltage Variable Attenuator for Radio Frequency Applications
You Zheng and Carlos E. Saavedra (Queen's University, Canada) 4813

Break : 10:10 – 10:30

7. Low-Power and High-Speed Digital Correlator for Radio Astronomy

Christoph Spuhler (University of Rochester, USA), Yi Chang (University of Rochester, USA), Martin Margala (University of Rochester, USA), Brent Carlson (Herzberg Institute of Astrophysics, Canada) and Peter Dewdney (Herzberg Institute of Astrophysics, Canada) 6191

8. An Adaptive Algorithm for Efficient Electromagnetic Field Calculations
Mina Ayatollahi (University of Waterloo, Canada) and Safieddin Safavi-Naeini (University of Waterloo, Canada) 6947

9. Low-Voltage and Low-Power 1.9GHz Body-Input Dowconversion Mixer
Nabeel Jafferli (McMaster University, Canada) and M. Jamal Deen (McMaster University, Canada) 6093

10. A Clock Frequency Doubler using a Passive Integrator and Emitter-Coupled Comparator Circuit

Carlos E. Saavedra and Yang Zhang (Queen's University, Canada) 5042

11. A Flexible Digital Platform for Real-Time Control of RF Components with Application to MIMO Channel Emulation

Pierre-Paul Carpentier (École de technologie supérieure, Canada), Ammar Kouki (Ecole de Technologie Supérieure, Canada) and Claude Thibeault (École de technologie supérieure, Canada) 5793

Session (Oral) WM7: Information and Intelligent Systems

Wednesday, May 5, 2004

TIME: 8:10 – 12:10

**CHAIR: Dr. M. Maheswaran,
McGill University**

Room: Haida

1. Evaluation of Request Distribution Schemes for Web-Server Clusters

Ramandeep Bhinder (TRLabs, Canada), Muthucumar Maheswaran (McGill University, Canada) and Jeff Diamond (TRLabs, Canada) 6171

2. Knowledge Representation and Processing in Intelligent Software Measurement System (ISMS)

Tong Chen (University of Calgary, Canada) and Behrouz Homayoun Far (University of Calgary, Canada) 5578

3. Decision Support and -Automation for Malfunction Handling and Optimization in a Feedback Production Control System for Complex Production Facilities

Clemens Martin (University of Ontario Institute of Technology, Canada) 6157

4. Information Estimations of Complexity Structures

Alexander Shaydurov (McGill University, Canada) 5345

5. An Application of Decision Support to Network Intrusion Detection

Hongyu Yang (Tianjin University, China), Lixia Xie (University of China, China) and Jizhou Sun (Tianjin University, China) 6299

6. Ontology-Based Intelligent Information Retrieval System

Wenjie Li (Tianjin University, China), Zhiyong Feng (Tianjin University, China), Yong Li (Tianjin University, China) and Zhoujun Xu (Tianjin University, China) 5441

Break : 10:10 – 10:30

7. Specification of Design Patterns using Real-Time Process Algebra (RTPA)

Vu Nguyen-Cong (Nong Lam University, Viet Nam) and Yingxu Wang (University of Calgary, Canada) 6142

8. Application de L' Adressage Physique Rapide A L' Architecture de Visualisation dans les Systemes A Microprocesseur

Mountassar Maamoun, Blida University) and Boualem Laichi (Departement d'Informatique, USTHB) 6662

9. Design of Dual Port RAM for Parallel Volume Rendering System

Xiaotu Li, Jizhou Sun, Weifang Nie (Tianjin University, China) and Yurong Wang (Capital University of Economics and Business, China) 5155

10. Considerations for the Development of Large Scale Mobile Network Management System

Man Yi , Shang Jing , Song Junde and Song Mei (Beijing University of Posts and Telecommunications, China) 5984

Session (Oral) WM9: Control Systems I

Wednesday, May 5, 2004 TIME: 8:10 – 12:10

CHAIR: TBA

Room: Tuscarora

1. Model Predictive Control for Bilateral Teleoperation Systems with Time Delays

Jie Sheng (University of Illinois at Urbana-Champaign, USA) and Mark W. Spong (University of Illinois at Urbana-Champaign, USA) 6555

2. On Identification of Non-linear Two-Channel Hammerstein Systems

Mirek Pawlak (University of Manitoba, Canada) and Ruixiang Song (University of Manitoba, Canada) 5282

3. A new Z-domain Continued Fraction Expansion and its use in the Generation of Stable Transfer Functions

Venkatanarayana Ramachandran (Concordia University, Canada), Ling Luo (Concordia University, Canada) and C.S. Gargour (University of Quebec, Canada) 5300

4. Effects of Control Systems Time Delay on The Performance of Direct Harmonics Elimination

Jenny Zheng Zhou (Manitoba HVDC Research Centre, Canada), Athula Rajapakse and Aniruddha M. Gole (University of Manitoba, Canada) 5725

5. Performance of a Non Linear Controller Based IPMSM Drive

Jason Lau (Lakehead University, Canada) and Mohammad N. Uddin (Lakehead University, Canada) 5828

6. Control Schemes for Stabilization of Force-Reflecting Teleoperators with Communication Delay

Iliia G. Polushin (Lakehead University, Canada), Abdelhamid Tayebi (Lakehead University, Canada) and Horacio J. Marquez (University of Alberta, Canada) 6874

Break : 10:10 – 10:30

7. An Algorithm for Locating Microseismic Events

Brian L. F. Daku (University of Saskatchewan, Canada), J. Eric Salt (University of Saskatchewan, Canada), Li Sha (University of Saskatchewan, Canada) 6978

8. Using Model Predictive Control for Real-Time Control over the Internet

Samer Mansour (Dalhousie university, Canada), Bill Robertson (Dalhousie University, Canada), Bill Phillips (Dalhousie University, Canada) and Guy Kember (Dalhousie University, Canada) 5855

9. An Integrated Robotic Laser Range Sensing System for Automatic Mapping of Wide Workspaces

Phillip Curtis (University of Ottawa, Canada) and Pierre Payeur (University of Ottawa, Canada) 5983

10. An Architectural Framework for a Distributed Process Control Information System

Varanon Uraikul (University of Regina, Canada), Christine Chan (University of Regina, Canada) and Paitoon Tontiwachwuthikul (University of Regina, Canada) 6079

11. Mobile Robot Position Determination Using Data from Gyro and Odometry

Farouk Azizi (Purdue University Calumet, USA) and Nasser Houshangi (Purdue University Calumet, USA) 5814

Session (Oral) WM10: Electric Machines and Motor Drives

Wednesday, May 5, 2004

TIME: 8:10 – 12:10

**CHAIR: Dr. A. Rajapakse,
University of
Manitoba**

Room: Oneida

1. Development and Interfacing of a Generic Switched Reluctance Motor Model for an EMT

Athula D. Rajapakse (University of Manitoba, Canada), Aniruddha M. Gole (University of Manitoba, Canada) and Dharshana Muthumani (Manitoba HVDC Research Center, Canada) 5225

2. Experimental Methods for Measuring the q-Axis Saturation Characteristics of Synchronous Machines

Narayan C. Kar (University of Windsor, Canada) and Ahmed M. El-Serafi (University of Saskatchewan, Canada) 5519

3. Performance Analysis of a Reluctance Synchronous Motor Under Abnormal Operating Condition

Prabhakar Neti (University of Victoria, Canada) and Subhasis Nandi (University of Victoria, Canada) 5694

4. Power Transformer Critical Diagnostics for Reliability and Life Extension

Muhammad Arshad (American University of Sharjah) and Syed M. Islam (Curtin University of Technology, Australia) 5734

5. Saturation in Synchronous Generators During Unbalanced Faults

Kwok-Wai Louie (Manitoba HVDC Research Centre, Canada) and Jose R. Marti (University of British Columbia, Canada) 5853

6. Finite Element Analysis of Shaft Eddy Currents in High Speed Asynchronous Machines

Erich Schmidt (Vienna University of Technology, Austria) 5925

Break : 10:10 – 10:30

7. Alternative Network Element Sets

J. J. Narraway, University of New Brunswick, Canada 9001

8. Flux Estimation of Induction Machines with the Linear Parameter-Varying System Identification Method

Juntao Pan, David Westwick and Ed Nowicki (University of Calgary, Canada) 6910

9. Impedance Characterization of a Six-Phase Synchronous Generator-Rectifier System Using Average-Value Model

Juri Jatskevich and Tarek Aboul-Seoud (University of British Columbia, Canada) 6929

10. Performance Analysis of a 4-Switch, 3-Phase Inverter Based Cost Effective IPM Motor Drives

Mohammad Nasir Uddin (Lakehead University, Canada), Tawfik S. Radwan (Memorial University of Newfoundland, Canada) and M. A. Rahman (Memorial University of Newfoundland, Canada) 4639

Session (Oral) WA1: Circuits and Applications

Wednesday, May 5, 2004

TIME: 13:00 – 15:20

CHAIR: Dr. D. Dodds,
University of
Saskatchewan

Room: Ontario

1. Pixel Architectures for Digital X-Ray Mammography in Crystalline Silicon Technology

Mohammad Hadi Izadi and Karim S. Karim (Simon Fraser University) 6320

2. Symbolically Defined Empirical Large-Signal Model for HBTs Compared to the Gummel-Poon Model

Ammar Issaoun (École de Technologie Supérieure, Canada), A.B. Kouki (École de Technologie Supérieure, Canada) and F.M. Ghannouchi (École Polytechnique, Canada) 4203

3. Reducing the Temperature Effect on a CMOS Transconductance and its Application in g-C Filters

Yuelin Cui and R. Raut (Concordia University, Canada) 5446

4. Single-Ended DSL Line Tester

Bernardo Celay and David Dodds (TRLabs/University of Saskatchewan, Canada) 6869

5. Custom Column Readout Circuitry to Extend the Dynamic Range of a Si:H Current Mediated Pixel Amplifiers for Large Area Diagnostic X-Ray Imaging Applications

Tony Ottaviani and Karim S. Karim (Simon Fraser University, Canada) 6316

6. Sources of Linearity Degradation in LINC Transmitters for Hybrid and Outphasing Combiners

Ahmed Birafane (École de Technologie Supérieure, Canada) and Ammar B. Kouki (École de Technologie Supérieure, Canada) 5668

7. A Multi Frequency Fresnel Lens using a Perforated Dielectric

Irfan Kadri (Carleton University, Canada), Mike Britton (Ellistar Sensor Systems), Langis Roy (Carleton University, Canada) 5888

Session (Oral) WA2: Communications & Networking

Wednesday, May 5, 2004

TIME: 13:00 – 15:20

CHAIR: Dr. L. Zhao

Room: Canadiana

1. Blind Decision Feedback Equalizer based on High Order MCMA

Idir Chahed (Ecole de Technologie Supérieure, Canada), Jean Belzile (Ecole de Technologie Supérieure, Canada) and Ammar B. Kouki (Ecole de Technologie Supérieure, Canada) 6843

2. A Postprocessor for an Interval-Based M-ary Detection System that Monitors Long-Duration Input

Erin R. Budd (University of New Brunswick, Canada) and Maryhelen Stevenson (University of New Brunswick, Canada) 5936

3. Characteristic function approach for higher order crossings with application for speed estimation

Lian Zhao (Ryerson University, Canada) 7543

4. Approximation of Phase and Envelope Distribution of Gaussian Random Amplitude-Modulated Signals

Stephen H. Sung (Calian Ltd., Canada) and Yifeng Zhou (Defence R&D Canada) 6372

5. Performance Analysis of Certain Scheduling Disciplines in Hardware

Padmini Vellore (Memorial University of Newfoundland, Canada) and R. Venkatesan, (Memorial University of Newfoundland, Canada) 5813

6. Packet Loss Probability for DiffServ over Heterogeneous MPLS Multicast Networks : A Simulation Study

Abdullah AlWehaibi (Concordia University, Canada), Michel Kadoch (Ecole de technologie supérieure, Canada) and Ahmed ElHakeem (Concordia University, Canada) 6909

7. A New Method in Blind Estimation of Fast Time-Varying Channels Based on Subspace Method

AmirReza Momen (Iran Telecommunication Research Center (ITRC), Iran), Saeed Masajedian (Iran Telecommunication Research Center (ITRC), Iran), Yasin Miar (Iran Telecommunication Research Center (ITRC), Iran) and Jahangir Dadkhah Chime (Iran Telecommunication Research Center (ITRC), Iran) 6627

Session (Oral) WA3: Robotics and Control

Wednesday, May 5, 2004

TIME: 13:00 – 15:20

**CHAIR: Dr. A. Bot,
GS Research and
Consulting**

Room: Hennipen North

1. Robot Path Planning with Multiresolution Probabilistic Representations: A Comparative Study

Martin Soucy (University of Ottawa, Canada) and Pierre Payeur (University of Ottawa, Canada) 5980

2. Microscopic Dynamics of Cytobots

Blake W. Podaima (TRLabs, Canada) and Thuraiappah Vaseeharan (TRLabs, Canada), Richard Gordon (TRLabs, Canada) 6137

3. Advanced Robotics Mechatronics System: Emerging Technologies for Interplanetary Robotics

George Bailak (MD Robotics Limited, Canada), Bruno Rubinger (MD Robotics Limited, Canada), Moksoon Jang (University of Toronto, Canada) and Francis Dawson (University of Toronto, Canada) 6716

4. An Improvement of Self-localization for Omnidirectional Mobile Robots using a New Odometry Sensor and Omnidirectional Vision

Hamid Reza Moballeghe, Peiman Amini and Yousof Pakzad (University of Ottawa, Isfahan University of Technology) 7011

5. A New Efficient Control Algorithm Using Potential Field: Extension to Robot Path Tracking

Gong Cheng (Dalhousie University, Canada), Jason Gu (Dalhousie University, Canada), Tao Bai (Dalhousie University, Canada) and Osama Majdalawieh (Dalhousie University, Canada) 6725

6. Numerical Simulation of a Multipowered Onboard Drive Train

Raphael Roy (Université de Moncton, Canada) and Jamel Ghouili (Université de Moncton, Canada) 6801

7. SDI-12 based Turbidity Measurement System with Field Calibration Capability

Jose Pereira (ESTSetúbal), Octavian Postolache (Institute of Telecommunication - IST), Pedro Girão (Instituto de Telecomunicações) and Helena Ramos (Instituto de Telecomunicações) 6661

Session (Oral) WA4: Control Systems II

Wednesday, May 5, 2004

TIME: 13:00 – 15:20

**CHAIR: G. Swick
Niagara College**

Room: Tuscarora

1. On the Debugging of a High Clutter Tracking System

Zhen Ding (Raytheon Canada Ltd, Canada) 6833

2. A Decision Support System for Oil Production Prediction

Hanh H. Nguyen (University of Regina, Canada), Christine W. Chan (University of Regina, Canada) and Micheal Monea (Petroleum Technology Research Center, Canada) 6086

3. Agent-based Resource Management for Smart Robotic Sensors

Abderrahmane Assal (University of Ottawa, Canada) and Voicu Groza (University of Ottawa, Canada) 6931

4. Genetic Algorithm for Dynamic Path Planning

Ahmed Elshamli (University of Guelph, Canada), Hussein Abdullah (University of Guelph, Canada), Shawki Areibi (University of Guelph, Canada) 5797

5. Tension Control Loop Using a Linear Actuator Based on the Energetic Macroscopic Representation

Christian Thiffault (Université du Québec à Trois-Rivières, Canada), Pierre Sicard (Université du Québec à Trois-Rivières, Canada) and Alain Bouscayrol (Université des Sciences et Technologies de Lille, France) 6728

6. A Requirements Interaction Detection Process Guide

Mohamed Shehata (University of Calgary, Canada), Li Jiang (University of Calgary, Canada) and Armin Eberlein (American University of Sharjah, UAE) 6401

7. A Web-Based 3D Virtual Robot Remote Control System

Xiaoli Yang (Lakehead University, Canada), Dorina C. Petriu (Carleton University, Canada), Thom E. Whalen (CRC, Canada), Emil M. Petriu (University of Ottawa) 5898

Session (Oral) WA5: Motor Drives

Wednesday, May 5, 2004

TIME: 13:00 – 15:20

**CHAIR: Dr. R. Alden,
McMaster University**

Room: Cree

1. Fuzzy-Logic-Based Controller For Synchronous Reluctance Motor

Tawfik S. Radwan (Memorial University of Newfoundland, Canada), Essam M. Rashad (Memorial University, Canada), Mohammad Nasir Uddin (Lakehead University, Canada) and M. A. Rahman (Memorial University of Newfoundland, Canada) 6371

2. A Comparison between Nonlinear Controllers for Induction Motors based on Different Reference Frames

Azeddine Kaddouri (Université de Moncton, Canada), Jamel Ghouili (Université de Moncton, Canada) and Mohsen Ghribi (Université de Moncton, Canada) 6538

3. Intelligent modeling and control of a pneumatic motor

Rapelang Marumo (University of Sheffield, UK) and O. M. Tokhi (University of Sheffield, UK) 5996

4. Adaptive Fuzzy Variable Structure Control of Induction Motors

Mohammed S. Agamy (Queen's University, Canada), Hasan A. Yousef (Alexandria University, Egypt) and Omar A. Sebakhy (Alexandria University, Egypt) 4676

5. Real Time Flux and Torque Estimator for Induction Machines

Moussa Zerbo (Université du Québec à Trois-Rivières), Canada, Abdellfattah Ba-Razzouk (Université du Québec à Trois-Rivières), Canada and Pierre Sicard (Université du Québec à Trois-Rivières), Canada 6872

6. High Frequency Characterization of a Via Hole Discontinuity

N. Hassaine, L. Villeneuve and F. Concilio (Harris Corporation, Canada) 5824

Session (Oral) WA6: Agent-based Systems

Wednesday, May 5, 2004

TIME: 13:00 – 15:20

CHAIR: Dr. K. Plataniotis,
University of Toronto

Room: Haida

1. Design of a Multi-Agent System for Autonomous Database Administration

Sunitha Ramanujam (University of Western Ontario, Canada) and Miriam A. M. Capretz (University of Western Ontario, Canada) 5997

2. A Collective View and Methodologies for Software Agents' Interaction

Behrouz Homayoun Far (University of Calgary, Canada) 6033

3. An Agent-Based Shopping System

Luigi Benedicenti (University of Regina), Xuguang Chen (University of Regina), Xiaoran Cao (University of Regina) and Raman Paranjape (University of Regina) 5805

4. A Framework for Repurposing Multimedia Content

Mohammod Shamim Hossain, Md. Abdur Rahman, Abdulmotaleb El Saddik (University of Ottawa, Canada) 5904

5. Towards a Multi-domain Semantic Web Application

M. Anwar Hossain, Abdulmotaleb El Saddik and Pierre Levy (University of Ottawa, Canada) 6024

6. Extreme Programming in Global Software Development

Yang Xiaohu, Xu Bin, He Zhijun, (Zhejiang University, China) and Srinivasa R. Maddineni, (SSGM/Securities Trading IT, USA) 6528

7. Self-management model based on Multiagent and Worm Techniques

Ya-Ping Zhang (Tianjin University, China), Jizhou Sun (IBM Lab Center, Tianjin University, China) and Jian Bo Ma (Tianjin University, China) 5491

Session (Oral) WA7: Modeling and Simulation II

Wednesday, May 5, 2004

TIME: 13:00 – 15:20

CHAIR: Dr. M. Yagoub,
University of Ottawa

Room: Auditorium

1. An Adaptive Time Step Control Algorithm for Nonlinear Time Domain Envelope Transient

Carlos E. Christoffersen (Lakehead University, Canada) and Jude Alexander (Lakehead University, Canada) 5876

2. Configurable Coprocessing with an ARC-PCI Board

William Bishop (University of Waterloo, Canada), David Grant (University of Waterloo, Canada) and Wayne Loucks (University of Waterloo, Canada) 5918

3. A Temperature dependent Large-Signal Drain Current Neural Model for the Dual-Gate MESFET

Mohammad Abdeen (University of Ottawa, Canada) and M. C. E. Yagoub (University of Ottawa, Canada) 6076

4. A Physics-Based Analytical Model of a GaN/AlGaN HEMT Incorporating Spontaneous and Piezoelectric Polarization

Jonathan C. Sippel (Rochester Institute of Technology, USA), Syed Islam (Rochester Institute of Technology, USA) and Sankha S. Mukherjee (Rochester Institute of Technology, USA) 6088

5. Power MOSFET Macromodel Accounting for Saturation and Quasi Saturation Effect

Wael El Manhawey (Mentor Graphics) and Wael Fikry (Mentor Graphics) 6527

6. A Tool Converting Finite State Machine to VHDL

Amr T. Abdel-Hamid (Concordia University, Canada), Mohamed Zaki (Concordia University, Canada) and Sofiene Tahar (Concordia University, Canada) 6582

7. A CMOS Elliptic Low-Pass Switched Capacitor Ladder Filter for Video Communication Using Bilinear Implementation

Mohammad Moghaddam Tabrizi (University of Tehran, Iran), Amir Amirabadi (University of Tehran, Iran), Mohammad Sharifkhani (University of Waterloo, Canada) and Omid Shoaei (University of Tehran, Canada) 6328

Session (Oral) WA8: Wireless Networks and Applications

Wednesday, May 5, 2004

TIME: 13:00 – 15:20

CHAIR: TBA

Room: Chippawa

1. The Design of an Architecture for Software Agents on Mobile Platforms

Koragod Saenchai (Khon Kaen University), Luigi Benedicenti (University of Regina, Canada) and Raman Paranjape (University of Regina, Canada) 6083

2. Havana: A Mobile Agent Platform for Seamless Integration with the Existing Web Infrastructure

Qusay H. Mahmoud (University of Guelph, Canada) and Leslie Yu (University of Guelph, Canada) 6035

3. Modeling the Customer Behavior in the Mobile Payment on a non-Connected Vending Machine Platform

Seyed Bahram Zahir Azami (Hivva Technologies, Canada), Nathalie Torabi i (Hivva Technologies, Canada), Mohammad Tanabian (Hivva Technologies, Canada) 5852

4. Reduced Size Cross-Coupled Resonator Bandpass Filters for Wireless Communication Systems

F. Ghanem (INRS-EMT, Canada), T. A. Denidni (INRS-EMT, Canada), G. Y. Delisle (University of Ottawa) 6127

5. TCP Performance Evaluation Over Wireless Networks

Xiaojing He (Tianjin University, China), Linying Xu (Tianjin University, China), Manyun Liu (Tianjin University, China) and Lianfang Zhang (Tianjin University, China) 5914

6. A Distributed -Agent Scheme in Mobile IP Networks

Xuejun Sun (Tianjin University, China), Shengli Li (Tianjin University, China) Tao Liu (Tianjin University, China), Lianfang Zhang (Tianjin University, China) 5740

7. Research on the SLA-based Service Management in Mobile Communication Network

Song Mei (Beijing University of Posts and Telecommunications, China), Chang Qian (Beijing University of Posts and Telecommunications, China), Song Rongbing (Beijing University of Posts and Telecommunications, China) and Song Junde (Beijing University of Posts and Telecommunications, China) 5927

Session (Oral) WA9: High Speed Circuits and Applications

Wednesday, May 5, 2004

TIME: 13:00 – 15:20

**CHAIR: Dr. J. Deen,
McMaster University**

Room: Oneida

1. A Low -Voltage Current Mode Instrumentation Amplifier Designed in a 0.18-micron CMOS Technology

Evan L. Douglas (University of New Brunswick, Canada), Dennis F. Lovely (University of New Brunswick, Canada) and David M. Luke (University of New Brunswick, Canada) 6417

2. A 12-bit, 50 MS/s SiGe BiCMOS Sample-and-Hold Residue Amplifier

Siddharth Devarajan, Ronald J. Gutmann and Kenneth Rose (Rensselaer Polytechnic Institute, USA) 6048

3. New CML Latch Structure for High Speed Prescaler Design

Muhammad Usama (Carleton University, Canada) and Tad Kwasniewski (Carleton University, Canada) 6592

4. Generation of Analog and Digital Transfer Functions having a Monotonic Magnitude Response

Venkatanarayana Ramachandran (Concordia University, Canada), C. S. Gargour (University of Quebec, Canada) and Ravi P. Ramachandran (Rowan University, USA) 5311

5. Design of a High-Speed (255,239) RS Decoder using 0.18uM CMOS

Anh Dinh and Daniel Teng (University of Saskatchewan, Canada) 6883

6. Synchronous Sequential Circuits Design Using Evolutionary Algorithms

Ahmed T. Soliman (Ain Shams University, Egypt) and Hazem M. Abbas (Mentor Graphics Egypt, Egypt) 6696

7. A 10 b, 40 Msample/s, 25 mW Pipeline Analog to Digital Converter

Amir Amirabadi (University of Tehran, Iran), Mohammad Moghaddam Tabrizi (University of Tehran, Iran), M. Sharifkhani (University of Waterloo, Canada) and Omid Shoaie (University of Tehran, Iran) 6670

Session (Oral) WA10: Signal and Image Processing

Wednesday, May 5, 2004

TIME: 13:00 – 15:20

**CHAIR: R. Blake
Niagara College**

Room: Hennipen South

1. Adaptive Image Restoration Using a Perception Based Error Measurement

Stuart Perry (Canon Information Systems Research Australia, Australia), Pedram Varjavandi (Ryerson University, Canada) and Ling Guan (Ryerson University, Canada) 6163

2. Re-positioning Effects on a Full Torso Imaging System for the Assessment of Scoliosis

Peter O. Ajemba (University of Alberta, Canada), Nelson G. Durdle (University of Alberta, Canada), Doug L. Hill (Glenrose Rehabilitation Hospital, Canada) and V. J. Raso (Glenrose Rehabilitation Hospital, Canada) 6122

3. Volumetric Display of Magnetic Resonance Images using Scopira and OpenGL

Satish B. S. Pallapotu (University of Manitoba, Canada) and Nicolino J. Pizzi (Institute for Biodiagnostics, National Research Council, Canada) 6560

4. An Effective Feature Extraction Algorithm for The Recognition of Facial Expressions

Satoshi Nakamizo (Kogakuin University, Japan), Ken-ichi Haneda (Kogakuin University, Japan) and Osamu Nakamura (Kogakuin University, Japan) 5920

5. Rate-Distortion Optimization of Spatial Filters for Motion -Compensated Video Coding

Vincent Fong (Queen's University, Canada) and Wai-Yip Chan (Queen's University, Canada) 5892

6. Tone Recognition of Thai Continuous Speech Using Fujisaki's Model

Nutthee Ngarmchatetanarom, Ekkarit Maneenoi, Widhyakorn Asdornwised (Chulalongkorn University, Thailand) and Somchai Jitapunkul (Chulalongkorn University, Thailand) 5089

7. New Compactly Supported Scaling And Wavelet Functions Derived From Gegenbauer Polynomials

Luciana R. Soares (Federal University of Pernambuco, Brazil), Helio M. Oliveira (Federal University of Pernambuco, Brazil) and Renato J. de Sobral Cintra (Federal University of Pernambuco, Brazil) 7026

Session (Poster) P01: Application I

Wednesday, May 5, 2004 TIME: 13:30 – 14:30

**CHAIR: Dr. K. Plataniotis Room: Oakes Foyer
 Mr. P. Westlind**

1. A Novel Reputation System Facilitating Cooperation in Pervasive Wireless Environment

Huiping Sun (Beijing University of Posts and Telecommunications, China)
Junde Song (Beijing University of Posts and Telecommunications, China) 5897

2. Pitch and MFCC Dependent GMM Models for Speaker Identification Systems

Hassan Ezzaïdi (Université du Québec à Chicoutimi, Canada) and Jean Rouat (Université de Sherbrooke, Canada) 4257

3. Cramer-Rao Bound for Channel Estimation Errors in Space-time Coding and Modulation

Guihua Kang (Zhejiang University, China), Zhaoyang Zhang (Zhejiang University, China), Peiliang Qiu (Zhejiang University, China) 6395

4. Research on the Session Control Technologies in 3GPP UMTS Networks

Zhou Wenan (Beijing University of Post and Telecom, Beijing, P.R. China), Wang Daoyi (CITIC communications project management Co Ltd.) and Song Junde (Beijing University of Post and Telecom, Beijing, P.R. China) 6687

5. Supporting Traditional IP Applications in Active Networks

Zhigang Jin (Tianjin University, China), Yongmei Luo (Tianjin University, China), Yantai Shu (Tianjin University, China) and Zhifeng Fu (Tianjin University, China) 4989

6. Collaborative Learning System based on Wireless Mobile equipments

Zhaopeng Meng (Tianjin University, China), Jianjun Chu (Tianjin University, China) and Lianfang Zhang (Tianjin University, China) 5619

7. Three Routes to Chaos in Power Systems

Jia Hongjie (Tianjin University, China), Yu Yixin (Tianjin University, China), Yu Xiaodan (Tianjin University, China), Huang Chunhua (Tianjin University, China) Zhang Pei (EPRI, USA) 4629

8. Microprocessor-Based Phase Tracking System for Digital Power Metering

Wu Jiekang (Guangxi University, Zhejiang, China), Long Jun (Guangxi University, China) Liang Ying (Guangxi University, China), J.X. Wang (Guangxi University, China) 3858

9. A Cognitive Map-Based Decision Support Model for Web Resource Management

Yuanyuan Gao (Tianjin University, China), Zhiyong Feng (Tianjin University, China) and Guozheng Rao (Tianjin University, China) 5059

10. A Hybrid and Hierarchical NIDS Paradigm Utilizing Naive Bayes Classifier

Qin Zhao (Tianjin University, China), Jizhou Sun (Tianjin University, China) and Song Zhang (Tianjin University, China) 5064

11. Survey of Collaborative Environments

Andrew Rocznik (University of Ottawa, Canada), Abdulmotaleb El Saddik (University of Ottawa, Canada), Pierre Levy (University of Ottawa, Canada) 5884

12. A New Single Layer Broadband CPW Fed-Printed Monopole Antenna for Wireless Applications

Yacouba Coulibaly (INRS-EMT, Canada), Tayeb A. Denidni (INRS-EMT, Canada), Larbi Talbi (University of Quebec, Canada), Abdel R. Sebak (Concordia University, Canada) 6141

13. Accurate Ray-Tracing Technique for Wall Reflections Modeling

Yongming Huang (University of Quebec - Outaouais, Canada), Larbi Talbi (University of Quebec, Canada), Tayeb A. Denidni (INRS - EMT, Canada) 5794

14. Characteristic-Locus Method in Transient Stability of Power Systems

Francisco Jurado (University of Jaen), Manuel Valverde (University of Jaen), Jose Carpio (Universidad Nacional de Educacion a Distancia) 5151

15. A Static Power Reduction Technique for Ternary Content Addressable Memories

Nitin Mohan (University of Waterloo, Canada), Manoj Sachdev (University of Waterloo, Canada) 5812

16. Dual-wavelength Passively Mode-locked Fiber ring Laser

Zhichao Deng (University of Ottawa, Canada), Jianping Yao (University of Ottawa, Canada) 5861

17. Développement d'une méthode MPPT pour les systèmes photovoltaïques

Tahar Tafticht (Université de Québec à Trois-Rivières, Canada), Kodjo Agbossou (Université du Québec à Trois-Rivières, Canada) 5979

18. Caractérisation des Effets de Couplage dans les Circuits Intégrés Micro-Ondes

Mustapha C. E. Yagoub (University of Ottawa, Canada), Prasun Sharma (University of Ottawa, Canada) 6002

19. Respiratory Sounds Classification using Gaussian Mixture Models

Mohammed Bahoura (Université du Québec à Rimouski, Canada), Charles Pelletier (Université du Québec à Rimouski, Canada) 6054

20. The Knowledge Modeling System and its Application

Christine W. Chan (University of Regina, Canada) 6073

21. A New Scheme for Securing Mobile Agents

Behzad Malek (University of Ottawa, Canada), Ali Miri (University of Ottawa, Canada) 6295

22. Channel Conductivity of High Frequency Field Effect Transistor Designed on Nitride Semiconductors

Dimiter Alexandrov (Lakehead University, Canada), Christina Gallagher (Lakehead University, Canada) 6484

23. Numerical Simulation of Multi-channel WDM Transmission System in Non-linear Optical Fiber Communication System

Xiaomei Fu (Tianjin University, China), Jufeng Dai (Tianjin University, China), Jinlong Yu (Tianjin University, China), Enze Yang (Tianjin University, China) 6494

24. Impact of Cache Optimization Techniques on Energy Management

Assim Sagahyroon (American University, UAE), Maddu Karunaratne (V-Cube Corp - Fremont, USA) 6515

25. A Improved Space-Time Trellis Coded OFDM Scheme for Frequency Selective Fading Channels

Yanan Li, Yunshang Ge, Jinlong Yu, Jufeng Dai, Xiaomei Fu, Enze Yang (Tianjin University, China) 6637

26. BMP: an Efficient and Scalable Multicast Protocol

Siavash Samadian-Barzoki (University of Tehran, Iran), Mozafar Bag-Mohammadi (University of Tehran, Iran), Nasser Yazdani (University of Tehran, Iran) 6679

27. On-Line Tracking and Mitigation of Power System Harmonics Using ADALINE-Based Active Power Filter System

R. El Shatshat, M. Kazerani and M.M.A. Salama (University of Waterloo, Canada) 6850

28. A Bayesian-Networks-Based Approach for Managing Uncertainty in Location-Tracking Applications

Wegdan Abdelsalam (University of Waterloo, Canada), Yasser Ebrahim (Wilfrid Laurier University, Canada) 6904

29. An Advanced Library Format for ASIC Design

Maddu Karunaratne (V-Cube Technology Corp., USA), Assim Sagahyroon (American University, UAE) A. Weerakkody (V-Cube Technology Corp., USA) 6511

30. High-Level Symbolic Simulation Using Integer Equations

Amir Masoud Gharehbaghi (Sharif University of Technology), Shaahin Hessabi (Sharif University of Technology) and Mohammad Reza Eshghi (Sharif University of Technology) 6025

31. Comparing a Novel QOS Routing Algorithm to Standard Pruning Techniques used in QOS Routing Algorithms Wayne S. Goodridge, William Robertson, Bill Phillips, Shyamala Sivakumar (Dalhousie University, Canada) 5842

32. Design and Analysis of An Internet Traffic Rate Controller

Jun Cong (University of Ottawa), Hongyi Zhang (University of Ottawa) 6264

33. Constraint-based Routing Across Multi-domain Optical WDM Networks

Tarek Saad (University of Ottawa, Canada), Hussein Mouftah (University of Ottawa, Canada), Ali Nouroozifar (University of Ottawa, Canada) 6798

34. A Routing Algorithm Based Loading Ratio In Nodes

Zhaohui Qi (Tianjin University, China), Jizhou Sun (Tianjin University, China) and Wenjie Li (Tianjin University, China) 5708

35. SPTP: A Simulation Platform for Network Node Performance Evaluation

Meina Song (Beijing University of Posts and Telecommunications, China), Junde Song (Beijing University of Posts and Telecommunications, China) and Zhixin Mu (Beijing University of Posts and Telecommunications, China) 5437

36. A Dynamic K-Routing Algorithm in Wavelength-Routed Optical Networks

Shoib Siddiqui (University of Ottawa, Canada), Jing Wu (Communications Research Centre, Canada), Hussein Mouftah (University of Ottawa, Canada), Michel Savoie (Communications Research Centre, Canada) 5670

37. A Hybrid Approach For Provisioning Sub-Wavelength Requests in IP-over-WDM Networks

Antonis Hadjiantonis, Ahmad Khalil, Georgios Ellinas, M. A. Ali (The Graduate Center of the City University of New York, USA), Nasser Abdellatif, Jalil Moghaddasi (Bronx Community College of the City University of New York, USA) 6972

38. New Adaptive Iterative Learning Control (AILC) for Uncertain Robotic Manipulators

Shafiqul Islam (Lakehead University, Canada) and A. Tayebi (Lakehead University, Canada) 6239