

Session (Oral) TM1: Modulation and Coding

Tuesday, May 04, 2004 **TIME: 9:30 – 12:20**

CHAIR: Dr. L. Szczecinski,
INRS Canada **Room:** Tuscarora

1. Irregular Rate-Compatible LDPC Codes for Capacity Approaching Hybrid-ARQ Schemes

Mohammadreza Yazdani (Carleton University, Canada) and Amir H. Banihashemi (Carleton University, Canada) 5286

2. Rate Design Rule for Superposition Coded Modulations

Gunes Karabulut (University of Ottawa, Canada) and Abbas Yongacoglu (University of Ottawa, Canada) 5400

3. Structured LDPC over URN Model Channels with Memory

Vijay Nagarajan (University of Colorado, Boulder) and Olgica Milenkovic (University of Colorado, Boulder) 5666

4. Generalized Asymmetric Multi-h Phase-Coded Modulation for M-ary Data Transmission

Bhumi A. Dave (University of Western Ontario, Canada) and Raveendra K. Rao (University of Western Ontario, Canada) 5676

Break : 10:50 – 11:00

5. Drift -Controlled Scalable Video Coding in Over-Complete Wavelet Domain

Vidhya Seran (State University of New York at Buffalo, USA) and Lisimachos Kondi (State University of New York at Buffalo, USA) 5837

6. Continuous Time Bandpass Delta-Sigma Modulators for a Software Defined Radio

Robert Sobot (Simon Fraser University, Canada), Shawn Stapleton (Simon Fraser University, Canada) and Marek Syrzycki (Simon Fraser University, Canada) 6034

7. Construction of Lattices from LDPC Codes

Mohammad Reza Rafsanjani Sadeghi (Carleton University, Canada), Amir H Banihashemi (Carleton University, Canada) and Daniel Panario (Carleton University, Canada) 6085

8. Analytical Evaluation of Turbo Multiuser Detection Algorithms

Nedal Elhelw (INRS Energy, Materials and Telecommunications, Canada), Cesar Hermosilla (Universidad Tecnica Federico Santa Maria, Chile) and Leszek Szczecinski (INRS Energy, Materials and Telecommunications, Canada) 6091

Session (Oral) TM2: CDMA

Tuesday, May 04, 2004 TIME: 9:30 – 12:20

CHAIR: Dr. P. Kafle, TRLabs Room: Canadiana

1. A Novel Approach to Call Blocking Probability Evaluation in Multiservice CDMA

Keivan Navaie (Carleton University, Canada) and Farid Fadaie (University of Toronto, Canada) 5178

2. A Pilot Power Based Power Control and Base Station Assignment Algorithm in Cellular CDMA Networks

Maheswaran Subramaniam (Ryerson University, Canada) and Alagan Anpalagan (Ryerson University, Canada) 5313

3. On The Improvement of RLS Channel Estimation in Forward Link of MC-CDMA Systems

Pariya Khunabut (Chulalongkorn University, Thailand), Suwich Kumaruttanapruk (Chulalongkorn University, Thailand), Pruksa Tansongcharoen (Chulalongkorn University, Thailand) and Somchai Jitapankul (Chulalongkorn University, Thailand) 5729

4. Design Issues and Performance Analysis of CDMA Multi-beam Satellites

Ozgur Ekici (University of Ottawa, Canada) and Abbas Yongacoglu (University of Ottawa, Canada) 5952

Break : 10:50 – 11:00

5. A Coordinated Location-Based Downlink Scheduling Scheme (CLDSS) in a Cellular CDMA Network with Partitioned Cells

Gang Wu (Ryerson University, Canada) and Alagan Anpalagan (Ryerson University, Canada) 5512

6. Combined Admission Control Algorithm and Bandwidth Adaptation Algorithm in Multimedia Cellular Networks for QoS Provisioning

Nidal Nasser (Queen's University, Canada) and Hossam Hassanein (Queens University, Canada) 6004

7. Adaptive Soft-Input Soft-Output Multiuser Detection for Coded CDMA Systems

Wei Zhang (University of Ottawa, Canada), Claude D'Amours (University of Ottawa, Canada) and Abbas Yongacoglu (University of Ottawa, Canada) 6011

8. Adaptive Cancellation of Periodic Noise and Multipath Dispersion in an Infrared Wireless CDMA System

Balakanthan Balendran (Ryerson University, Canada) and Xavier N. Fernando (Ryerson University, Canada) 5179

Session (Oral) TM3: Wireless LAN / Satellite Communications

Tuesday, May 04, 2004 TIME: 9:30 – 12:20

CHAIR: Dr. N. Sangari, RIM Room: Haida
Canada

1. Security Issues of the 802.11b Wireless LAN

Hamid Boland (Carleton University, Canada) and Hamed Mousavi (Carleton University, Canada) 5316

2. Error Recovery Service for IEEE 802.11b Protocols via Adaptive Forward Error Correction and Dynamic Packet Sizing

Mohammed Smadi (McMaster University, Canada), Varna Szabados (McMaster University, Canada) and Barna Szabados (McMaster University, Canada) 5317

3. QoS In IEEE 802.11 Wireless LAN: Current Research Activities

Francisco Mico (Universitat de Valencia, Spain), Pedro Cuenca (University of Castilla-La Mancha, Spain) and Luis Orozco-Barbosa (University of Castilla-La Mancha, Spain) 5587

4. Performance Analysis of Real-time Traffic in Wireless LANs

Huifang Feng (Tianjin University, China) and Yantai Shu (Tianjin University, China) 5926

Break : 10:50 – 11:00

5. Performance Evaluation and Total Degradation of 16-QAM Modulations over Satellite Channels

Hisham AbdulHussein Al-Asady (Queen's University, Canada) and Mohamed Ibnkahla (Queen's University, Canada) 6006

6. An Advanced Broadband Satellite System Offering High-Speed Internet Access and TV Broadcast Services

Ali Grami (University of Ontario Institute of Technology, Canada) 5302

7. Controlled Load Service Management in Int-Serv Satellite Access Networks

Floriano De Rango (University of Calabria), Mauro Tropea (University of Calabria) and S. Marano (University of Calabria) 6895

8. Security Issues in Wireless Local area Networks

Debabrata Nayak (Indian Institute of Technology Bombay, India), N. Rajendran (IDRBT), D. B. Phatak(IDRBT) and V.P. Gulati (Indian Institute of Technology Bombay, India) 6198

9. Intrusion Detection for Wireless Local Area Network

Hongyu Yang (Civil Aviation University of China, China), Lixia Xie (Civil Aviation University of China, China) and Jizhou Sun (Tianjin University, China) 6608

Session (Oral) TM4: Switching, Routing and Networking

Tuesday, May 04, 2004 TIME: 9:30 – 12:20

CHAIR: Dr. T. Ganesh Babu,
Ryerson University **Room:** Chippawa

1. Pie: Scalable Routing in Peer-to-Peer Networks

Peter Lichodzijewski (Dalhousie University, Canada), Leigh Wetmore (Dalhousie University, Canada) and A. N. Zincir-Heywood (Dalhousie University, Canada) 4265

2. Adaptive Measurement-Based Admission Control using Neural Network Predictor

Nayera Sadek (Southern Methodist University, USA), Alireza Khotanzad (Southern Methodist University, USA) and Thomas Chen (Southern Methodist University, USA) 5863

3. A Robust Packet -Filtering Method For High -Bandwidth Aggregates

Bao-Tung Wang (Columbia University) and Henning Schulzrinne (Columbia University) 5886

4. Design and Implementation of Enhanced Crossbar CIOQ Switch Architecture

Atiq Awan (Memorial University of Newfoundland, Canada), and Ramachandran Venkatesan (Memorial University of Newfoundland, Canada) 5948

Break : 10:50 – 11:00

5. The Performance of TCP Congestion Control Algorithm over High-Speed Transmission Links

Z. Chen (Concordia University, Canada), Mustafa Mehmet Ali (Concordia University, Canada) 6078

6. Enhanced EPON Auto-discovery For Fast Network and Service Recovery

Wenfeng Chen (Nortel Networks, Canada), Delfin Y. Montuno (Nortel Networks, Canada) and Kent Felske (Nortel Networks, Canada) 6283

7. Simulation of Lead-Time Scheduling in PMP FWA Networks

Robert Buchnajzer (Concordia University, Canada), J. William Atwood (Concordia University, Canada) and Adam Krzyzak (Concordia University, Canada) 6292

8. IFF: A Novel Wavelength Assignment Scheme for WDM Optical Networks

Abdelhamid Eshoul (University of Ottawa, Canada), Hussein Mouftah (University of Ottawa, Canada) 5903

9. Adaptive Shortest Path Routing in GMPLS-based Optical Networks Using Fuzzy Link Costs

Bin Zhou (Queen's University, Canada), Hussein Mouftah (University of Ottawa, Canada) 6240

**Session (Oral) TM5: Special Session on
Abstraction, Modelling and Simulation**
Tuesday, May 04, 2004 TIME: 9:30 – 12:20

CHAIR: Dr. A. Lawniczak,
University of Guelph **Room:** Auditorium

1. Link-Layer Modeling of a Wireless Channel Using Stochastic Network Calculus
Farshid Agharebparast (University of British Columbia, Canada) and Victor C. M. Leung
(University of British Columbia, Canada) 6597

2. Multiple Abstraction Schemes for Generalized Virtual Private Switched Networks

Ravi S. Ravindran(Nortel Networks, Canada), Peter Ashwood-Smith(Nortel Networks, Canada), Hong Zhang (Nortel Networks, Canada) and Guo-Qiang Wang (Nortel Networks, Canada) 5660

3. Models and Tools for Simulation of Video Transmission on Wireless Networks

Jian Zhu (Carleton University, Canada), Ashraf Matrawy (Carleton University, Canada) and Ioannis Lambadaris (Carleton University, Canada) 5834

4. End-to-End Rate Control for Networks with Random Access Links

Clement Yuena dn Peter Marback (University of Toronto) 9008

Break : 10:50 – 11:00

5. An Application Framework for Mobile Internet Services

Aladdin Sleh, Davison Avery and Mohammed Siddiqui (Bell Canada) 5551

6. Effects of Network Connection Topology and Routing Algorithm on Phase Transition and Throughput in Packet-Switching Network Model

A. T. Lawniczak(University of Guelph, Canada), K. P. Maxie, (University of Guelph, Canada), A. Gerisch, University of Halle, Germany 9004

7. Effects of Network Topology and Routing on Traffic in Packet-Switching Network Model

A. T. Lawniczak(University of Guelph, Canada), K. P. Maxie (University of Guelph, Canada) and A. Gerisch (University of Halle, Germany) 9006

8. Study of Packet Average Path Length and Average Speed of Delivery in Data Network Traffic Model

K.P. Maxie, A.T. Lawniczak, University of Guelph, Canada and A. Gerisch, University of Halle,Germany 9007

9. Effects of an Extra Link and Routing on Spatio-Temp Packet Traffic Dynamics of Network Model

K.P. Maxie (University of Guelph, Canada), A.T. Lawniczak, (University of Guelph, Canada) and A. Gerisch (University of Halle,Germany) 9005

Session (Oral) TM6: Modeling and Simulation I

Tuesday, May 04, 2004 TIME: 9:30 – 12:20

CHAIR: Dr. W. Li, University of Wisconsin Room: Cree

1. Design and Simulation of Laser Diode with Sampled Grating Structure by the Split-step Traveling Wave Approach

Wei Li (University of Wisconsin-Platteville, USA), W. -P. Huang (McMaster University, Canada) and X. Li (McMaster University, Canada) 6862

2.A Novel Temperature-Dependent Gummel-Poon Based Large Signal for Accurate Modeling of Heterojunction Bipolar Transistors

Ammar Issaoun (École de Technologie Supérieure, Canada), D. Dousset (École Polytechnique de Montréal, Canada), A.B. Kouki (École de Technologie Supérieure, Canada) and F.M. Ghannouchi (École Polytechnique de Montréal, Canada) 4199

3. Analytic Modeling and FEM Simulation of a Resonant Micromachined Magnetic Field Sensor

Behraad Bahreyni (University of Manitoba, Canada) and Cyrus Shafai (University of Manitoba, Canada) 5171

4. Creation of Scalable Macromodels for Micro-Electromechanical Systems

Bryan Wan Sai Cheong (Carleton University, Canada), Adam Froimovitch (Carleton University, Canada), Thomas Hewitt (Carleton University, Canada) and Tom Smy and Pavan Gunupudi (Carleton University, Canada) 5274

Break : 10:50 – 11:00

5. An Advanced Quasi-3D Model for Semiconductor Optical Amplifiers

Wei Li (University of Wisconsin-Platteville, USA), G. -X. Chen (McMaster University, Canada), W. -P. Huang (McMaster University, Canada) and X. Li (McMaster University, Canada) 6854

6. Global Routing for VLSI Standard Cells

Hao Sun (University of Guelph, Canada) and Shawki Areibi (University of Guelph, Canada) 5645

7. Scaling Expressions for DC Parameters of a Gummel-Poon Based model for HBT's

Ammar Issaoun (École de Technologie Supérieure, Canada), A.B. Kouki (École de Technologie Supérieure, Canada) and F.M. Ghannouchi (École Polytechnique, Canada) 4204

8. A Multiresolution Reconstructive Algorithm Based on Network Theory for Electrical Capacitance Tomography

Zhao Ma (Wuhan University, China), Xiaoming Lin (Wuhan University, China) and Hongqing Zeng (Carleton University, Canada) 4949

Session (Oral) TM7: Watermarking and Retrieval

I

Tuesday, May 04, 2004

TIME: 9:30 – 12:20

CHAIR: Dr. O. Ahmed,
Concordia University

Room: Hennipen North

1. A Rectification Method for RST Invariant Digital Image Watermarking

Yan Liu (University of Ottawa, Canada) and Jiying Zhao (University of Ottawa, Canada)
5662

2. Multibit Data Hiding Based on CDMA

Yongqing Xin (University of Manitoba, Canada) and Mirek Pawlak (University of
Manitoba, Canada) 5893

3. Object-Based Image Watermarking Technique Using Wavelets

Jinwen Zan (Concordia University, Canada), M. Omair Ahmad (Concordia University,
Canada) and M.N.S. Swamy (Concordia University, Canada) 5988

**4. Personal Identification Based on Both Facial Images and Watermarking
Techniques in Network Environment**

Masanori Hashimoto (Kogakuin University, Japan) and Osamu Nakamura (Kogakuin
University, Japan) 5941

Break : 10:50 – 11:00

5. Audio Quality Measurement by Using Digital Watermarking

Libin Cai (University of Ottawa, Canada) and Jiying Zhao (University of Ottawa,
Canada) 5994

**6. Performance Evaluation of Collaboration Algorithms in an Agent-based
Architecture for Information Retrieval**

Ali Chamam (Ecole polytechnique de Montréal, Canada), Samuel Pierre (Ecole
Polytechnique de Montréal, Canada) and Roch Glitho (Ericsson Research Canada,
Canada) 6636

7. Geometrically Robust Image Watermarking via Pseudo-Zernike Moments

Yongqing Xin (University of Manitoba, Canada), Simon X. Liao (University of
Winnipeg, Canada) and Mirek Pawlak (University of Manitoba, Canada) 5894

8. Digital Watermarking by Using A Feature-based Multiwavelet Fusion Approach

Jiying Zhao (University of Ottawa, Canada), Zheng Liu (University of Ottawa, Canada)
and Robert Laganiere (University of Ottawa, Canada) 5680

Session (Oral) TM8: Speech and Audio Processing

Tuesday, May 04, 2004 TIME: 9:30 – 12:20

CHAIR: Mr. K. Umapathy,
 University of
 Western Ontario **Room: Hennipen South**

1. Not Available

2. Wavelet based Speech Enhancement using Two Different Threshold-based Denoising Algorithms

A. Lallouani (ETS , University of Quebec, Canada), Marcel Gabrea (ETS, University of Quebec, Canada) and Christian S. Gargour (ETS, University of Quebec, Canada) 5310

3. Adaptive Processing of Singing Voice Timbre

Francois Thibault (McGill University, Canada) and Philippe Depalle (McGill University, Canada) 5866

4. Speech Modeling By Non-Stationary Partials with Time Varying Amplitude and Frequency

Ying Huang (University of Guelph, Canada) and Robert D. Dony (University of Guelph, Canada) 6041

Break : 10:50 – 11:00

5. AM-FM Decomposition of the Speech Signal Using MWL Criterion

Reza Rashidi Far (Queens University, Canada) and Saeed Gazor (Queens University, Canada) 6413

6. Correlation Coefficient-based Voice Activity Detector Algorithm

Alexandru Craciun (University of Quebec, Canada) and Marcel Gabrea (University of Quebec, Canada) 6459

7. Real Time Implementation of an Adaptive Filter for Speech Enhancement

John Creighton (University of New Brunswick, Canada) and Rajamani Doraiswami (University of New Brunswick, Canada) 6901

8. Improving Speech Analysis Methods for Robust Automatic Recognition

Douglas O'shaughnessy (INRS-Universite du Quebec,Canada) 5115

**Session (Oral) TM9: Transmission and
Distribution Systems**

Tuesday, May 04, 2004 TIME: 9:30 – 12:20

CHAIR: Dr. A. M. Gaouda,
United Arab Emirates
University

Room: Ontario

**1. An Electromagnetic Transient Simulation Model for Voltage Sourced Converter
Based HVDC Transmission**

Behzad Qahraman (University of Manitoba, Canada), Ebrahim Rahimi (University of Manitoba, Canada) and Aniruddha M. Gole (University of Manitoba, Canada) 5957

2. Monitoring Capacitor Banks Interaction in Distribution Systems
Ahmed M. Gaouda (United Arab Emirates University, UAE) 6438

3. Expansion of Transmission Systems in a Deregulated Environment
Yong Zheng (Saskatchewan Power Corporation, Canada) and Nurul Chowdhury (University of Saskatchewan, Canada) 6604

**4. Dynamic Analysis of Transmission Line Connection in Restoration of
Interconnected Power Systems**
Morteza Kheradmandi (Sharif University of Technology, Iran) and M. Ehsan (Sharif University of Technology, Iran) 6176

Break : 10:50 – 11:00

5. Identification and synthesis of the models electromechanical energy converters
Alexander Shaydurov (McGill University, Canada) 5652

6. Power Flow Control and Loss Minimization with UPFC
Alireza Farhangfar (University of Alberta, Canada), S. Javad Sajjadi (University of Tehran, Iran) and Saeed Afsharnia (University of Tehran, Iran) 5445

**7. Finite Element Analyses in the Design Optimization of Winding Support and
Tank Wall of Power Transformers**
Erich Schmidt (Vienna University of Technology, Austria), Peter Hamberger (Transformatoren GmbH & Co, Austria) 5928

**8. Evaluation of Magnetic Field from Different Power Transmission Line
Configurations in Malaysia**
Ismail Said, Nazaruddin A Rahman, Halil Hussain, Ahmed Farag and T. Juhana (Universiti Tenaga Nasional, Malaysia) 5454

Session (Oral) TM10: Computer Architecture

Tuesday, May 04, 2004 TIME: 9:30 -12:20

**CHAIR: Mr. G. Bailak, MD
Robotics** **Room: Oneida**

1. Performance Analysis of Clustered Processors

Sepehr Zarabi (University of Victoria, Canada) and Amirali Baniasadi (University of Victoria, Canada) 5902

2. A Reliability Study on Switching Fabric Based System Architecture

Alice Rueda (University of Manitoba, Canada) and Mirek Pawlak (University of Manitoba, Canada) 5924

3. Withdrawn

4. An Improved on-line Monitoring Technique for a Fault-tolerant Computing Node

Musbah Elahresh (University of Belgrade), Jovan Djordjevic (University of Belgrade), Milo Tomasevic (University of Belgrade) and Milivoje Aleksic (ATI Technologies, Canada) 6148

5. A Review of the Single Event Effects Performance of x86 Microprocessors

David M. Hiemstra (MD Robotics, Canada) and George Bailak (MD Robotics, Canada) 7018

Break : 10:50 – 11:00

6. Improving performance of a DSM system by the communication controller optimizations

Milan Tončev (Alcatel, Canada), Milo Tomasevic (University of Belgrade), Jovan Djordjevic (University of Belgrade) and Milivoje Aleksic (ATI Technologies, Canada) 5943

7. A New Approach for Configuration Compression in Virtex Based RTR Systems

Farshid Farshadjam (Iran University of Sci. & Technology, Iran), Mahmood Fathy (Iran University of Sci. & Technology, Iran) and Mehdi Dehghan (Amirkabir University of Technology, Iran) 5970

8. Object-Aware Cache: Higher Hit-Ratio in Object-Oriented ASIPs

Maziar Goudarzi (Sharif University of Technology, Iran), Shaahin Hessabi (Sharif University of Technology, Iran) and Alan Mycroft (University of Cambridge, UK) 5752

Session (Oral) TA1: MIMO / OFDM/ CDMA Systems

Tuesday, May 04, 2004

TIME: 14:10 – 17:30

CHAIR: Dr. K. M. Ahmed,
Asian Institute of
Technology

Room: Canadiana

1. A Novel Parallel Detection Architecture For Modular MIMO Receivers

Zouheir Rezki (Ecole de Technologie Supérieure, Canada), Francois Gagnon (Ecole de Technologie Supérieure, Canada) and Jean Belzile (Ecole de Technologie Supérieure, Canada) 5993

2. Spatial-Temp-Frequency Decomposition for 3D MIMO Microcellular Environments

Hamidreza Saligheh Rad (Queens University, Canada), Saeed Gazor (Queens University, Canada) and Kamal Shahtalebi (Shahrood University, Iran) 6020

3. A Cross-Layer Design for MIMO Rayleigh Fading Channels

Amine Maaref (University of Quebec, Canada) and Sonia Aissa (University of Quebec, Canada) 6935

4. Performance analysis of a low complexity space-time detector in Rayleigh fading environments

Naveen Mysore and Jan Bajcsy (McGill University, Canada) 6966

5. OFDMA for the 4th Generation Cellular Networks

Gholamreza Parsaei (Iran Telecommunication Research Center, Iran) and Abdulrahman Yarali (Murray State University, USA) 6993

Break : 15:50 – 16:10

6. A Novel Technique for Peak to Average Power Ratio Reduction in OFDM Systems

Mohammad E.R. Khan (Asian Institute of Technology, Thailand), Kazi M. Ahmed (Asian Institute of Technology, Thailand) 5135

7. Signal-to-Interference Ratio Estimation in CDMA Systems

Mohamed Abou-Khousa and Ali Ghrayeb (Concordia University, Canada) and Mohamed El-Tarhuni (American University of Sharjah, UAE) 6064

8. Implementation and Field Test of a New Channel Estimation Technique for DVB-T System

Sili Lu (Laval University, Canada), Assia Semmar (Laval University, Canada), Xianbin Wang (Communication Research Centre, Canada), Yiyan Wu (Communication Research Centre, Canada), Jean-Yves Chouinard (Laval University, Canada) and Paul Fortier (Laval University, Canada) 6067

9. On the Influence of the Temporal Parameters of a New Generalized Sidelobe Canceller Receiver in a Multipath Environment

K. Ghanem and A. T. Denidni (University of Quebec, Canada) 6123

10. A novel Multiuser Subcarrier and Bit Joint Allocation Algorithm For OFDM System

Peng Wang (Tianjin University, China), Yu Zhao (Tianjin University, China)

Final Program

Chunping Hou (Tianjin University, China) and Dazhong Cao (Tianjin University, China) 5444

Session (Oral) TA2: Ad-hoc Networks

Tuesday, May 04, 2004 TIME: 14:10 – 17:30

**CHAIR: Dr. N. Georganas,
University of Ottawa Room: Haida**

1. Connectivity in Inter-vehicle Ad Hoc Networks

Maen M. Artimy (Dalhousie University, Canada), William Robertson (Dalhousie University, Canada) and William J. Phillips (Dalhousie University, Canada) 5284

2. MUNet: Multicasting Protocol in Unidirectional Ad-hoc Networks

Noparut Vanitchanant (University of Southern California, USA), John Silvester (University of Southern California, USA) and Virote Vipanunt (IEEE Computer Society) 5905

3. Connectivity Maintenance and Coverage Preservation in Wireless Sensor Networks

Di Tian (University of Ottawa, Canada) and Nicolas D. Georganas (University of Ottawa, Canada) 5971

4. A Network Layer Based Architecture for Service Discovery in Mobile AD HOC Networks

Jerry Tyan (University of Guelph) and Qusay H. Mahmoud (University of Guelph) 6080

5. Efficient Available Bandwidth Estimation in Ad Hoc Networks

Liang Zhang (Tianjin University, China), Yantai Shu (Tianjin University, China), Yan Liu (Tianjin University, China) and Guanghong Wang (Tianjin University, China) 5738

Break : 15:50 – 16:10

6. Adaptive Gossip-Based Energy Conservation for Wireless Ad Hoc Routing

Xiaobing Hou and David Tipper (University of Pittsburg, USA) 6823

7. Evaluation of Ad hoc Networking Over the Fixed 3G Backbone

Ahmed Barnawi (University of Bradford, UK) and John G. Gardiner (University of Bradford, UK) 6170

8. A TCP Congestion Control Algorithm for Wireless Internet Connections

H. Yaiche, S. Pierre and A. Quintero A (Ecole Polytechnique de Montreal, Canada) 6463

9. Authenticated Secure Communications in Mobile Ad hoc Networks

Muhammad Junaid Bohio (University of Ottawa, Canada) and Ali Miri (University of Ottawa, Canada) 6289

10. Strategyproof Trust Management in Wireless Ad Hoc Network

Huijing Sun (Beijing University of Posts and Telecommunications, China), Junde Song (Beijing University of Posts and Telecommunications, China) 6167

Session (Oral) TA3: Image Processing II

Tuesday, May 04, 2004 **TIME: 14:10 – 17:30**

CHAIR: Dr. J. Alirezaie,
Ryerson University **Room:** Hennipen South

1. A Hybrid Algorithm Using Discrete Cosine Transform and Gabor Filter Bank for Texture Segmentation

Nezamoddin Nezamoddini-Kachouie (Ryerson University, Canada), Javad Alirezaie (Ryerson University, Canada), Paul Fieguth (University of Waterloo, Canada) 6469

2. Optimization Algorithm for Restoring an All-Focused Micromechanical Structure Image

Tina Shoa (University of Manitoba, Canada), Cyrus Shafai (University of Manitoba, Canada), Gabriel Thomas (University of Manitoba, Canada) and Alireza Shoa (McMaster University, Canada) 6307

3. Multispectral Imaging of Ice

Dennis Gregoris (MD Robotics Limited, Canada), Simon Yu (MD Robotics Limited, Canada) and Frank Teti (MD Robotics Limited, Canada) 6753

4. Joint Blind Deconvolution, Fusion and Classification of Multi-frame Imagery

Jianxin Han (University of Toronto, Canada) and Dimitrios Hatzinakos (University of Toronto, Canada) 6777

5. A Comparative Study of Fourier Descriptors and Hu's Seven Moment Invariants for Image Recognition

Qing Chen (University of Ottawa, Canada), Emil Petriu (University of Ottawa, Canada), Xiaoli Yang (Lakehead University, Canada) 4895

Break : 15:50 – 16:10

6. A Hybrid Range Imaging System Solution for In-Flight Space Shuttle Inspection

Ross Gillett (MD Robotics Limited, Canada), Andrew Kerr (MD Robotics Limited, Canada), Christian Sallabarger (MD Robotics Limited, Canada), Daven Maharaj (Optech Incorporated, Canada), Eric Martin (Optech Incorporated, Canada), Robert Richards (Optech Incorporated, Canada) and A. Ulitsky (Optech Incorporated, Canada) 6861

7. Design of an Electronic Saccadic Imaging System

Winnie Wong (York University, Canada) and Richard Hornsey (York University, Canada) 6916

8. On Modeling and Turbo Compression of Grayscale Images in the Slepian-Wolf Context

Isabel Deslauriers (McGill University, Canada) and Jan Bajcsy (McGill University, Canada) 6973

9. Identifying Distinguishing Size and Shape Features of Mine-like Objects in Sidescan Sonar Imagery

Final Program

Patrick C. Connor (University of New Brunswick, Canada) and Maryhelen Stevenson (University of New Brunswick, Canada) 6038

Session (Oral) TA4:Watermarking and Retrieval II

Tuesday, May 04, 2004 **TIME: 14:10 – 17:30**

CHAIR: Dr. N. Boulgouris,
University of Toronto **Room: Hennipen North**

1. Fused Watermark Detection on Noisy Interpolated Images

Alexia Giannoula (University of Toronto, Canada), Nikolaos Boulgouris (University of Toronto, Canada) and Dimitrios Hatzinakos (University of Toronto, Canada) 5998

2. RST Invariant Digital Image Watermarking based on Resynchronization

Dong Zheng (University of Ottawa, Canada) and Jiyang Zhao (University of Ottawa, Canada) 6045

3. Minimizing Human-Machine Interactions in Automatic Image Retrieval

Kambiz Jarrah (Ryerson University, Canada), Paisarn Munesawang (Ryerson University, Canada), Ivan Lee (University of Sydney, Australia) and Ling Guan (Ryerson University, Canada) 6164

4. A Novel Robust Image Watermarking Using a Chirp Based Technique

Arunan Ramalingam (Ryerson University, Canada), Sridhar Krishnan (Ryerson University, Canada) 6562

5. A Novel Blind Watermarking Based on Lattice Vector Quantization

Xiaoqiang Li and Xiangyang Xue (Fudan University, China) 6506

Break : 15:50 – 16:10

6. Neural-fuzzy Approach for Content-based Retrieval of Digital Video

Siddhivinayak Kulkarni (Nipissing University, Canada) 6930

7. Analysis of distance based indexing methods for similarity search

Mahdi Mirzazadeh (University of Waterloo, Canada) and Bashir S. Sadjad (University of Waterloo, Canada) 7483

8. A Wavelet Transform Based Digital Image Watermarking Scheme

Mohammad Aboofazeli (University of Manitoba, Canada), Gabriel Thomas (University of Manitoba, Canada) and Zahra Moussavi (University of Manitoba, Canada) 5854

9. A Steganalysis Method, New Fragile Watermark Algorithm and Its Applications

Dong Wang (Tianjin University, China), Mingchu Li (Tianjin University, China) and Jizhou Sun (Tianjin University, China) 5726

Session (Oral) TA5: Biomedical Signal and Image Analysis

Tuesday, May 04, 2004 **TIME: 14:10 – 17:30**

CHAIR: Dr. S. Krishnan,
Ryerson University **Room:** Chippawa

1. An Improved Method for Muscle Activation Detection During Gait

Lanyi Xu (University of Ottawa, Canada) and Andy Adler (University of Ottawa, Canada) 5368

2. Functional Mapping of Multiple Mechanomyographic Signals to Hand Kinematics

Adam Grossman (University of Toronto, Canada), Jorge Silva (Bloorview Macmillan Children's Centre, Canada) and Tom Chau (Bloorview Macmillan Children's Centre, Canada) 5649

3. Relationship between Airflow and Frequency- Based Features of Tracheal Respiratory Sound

Marziyeh Golabbakhsh (University of Manitoba, Canada) and Zahra Moussavi (University of Manitoba, Canada) 5826

4. Biomedical Data Classification Using Hierarchical Clustering

Hu Yang (University of Manitoba, Canada) and N.J. Pizzi (Institute for Biodiagnostics, National Research Council, Canada) 6546

5. Multifractal Characterization of Synthetic ECG in the Presence of Coloured Noise

Michael Potter (University of Manitoba, Canada) and Witold Kinsner (University of Manitoba, Canada) 6915

Break : 15:50 – 16:10

6. A Novel Way of Lossless Compression of Digital Mammograms Using Grammar Codes

Xiaoli Li (Ryerson University, Canada), Sridhar Krishnan (Ryerson University, Canada) and Ngok-Wah Ma (Ryerson University, Canada) 6815

7. A Multifractal Analysis Approach for SAR Image Segmentation

Abdelhakim El-Boustani (University of Manitoba, Canada), Sharjeel Siddiqui (University of Manitoba, Canada), Witold Kinsner (University of Manitoba, Canada) Slawo Wesolkowski (University of Waterloo, Canada) 6103

8. A Novel Morphological-based Carotid Artery Contour Extraction

Amr R. Abdel-Dayem (University of Western Ontario, Canada) and Mahmoud R. El-Sakka (University of Western Ontario, Canada) 6551

9. A Computer Method for Synthesizing Lung Nodules

Maciej Dajnowiec (Ryerson University, Canada), Javad Alirezaie (Ryerson University, Canada) 6060

Session (Oral) TA6: Power Converters and Motor Drives

Tuesday, May 04, 2004 TIME: 14:10 – 17:30

CHAIR: Dr. H. Karmaker, GE Room: Ontario
Canada

1. Development of a Neuro-Fuzzy Controller for Induction Motor

Hao Wen (Lakehead University, Canada) and Mohammad Nasir Uddin (Lakehead University, Canada) 6018

2. Stability Conditions of Adaptive Pseudo-Reduced-Order Flux Observer for Vector-Controlled Sensorless IM Drives

Hossein Madadi Kojabadi (University of New Brunswick, Canada), Liuchen Chang (University of New Brunswick, Canada) and Rajamani Doraiswami (University of New Brunswick, Canada) 6056

3. Characteristics of the Measured Current Harmonics Produced by Clusters of Variable Speed Drives

Éloï Ngandui (Université du Québec à Trois-Rivières, Canada) 6070

4. Sensorless Control of Permanent Magnet Synchronous Motor Using Extended Kalman Filter

Albert Qiu (Queen's University), Bin Wu (Ryerson University, Canada) and Hassan Kojori (Honeywell Ltd., Canada) 6150

5. Modeling Techniques of Resonant Converters: Merits and Demerits

Mohamed Z. Youssef (Queen's University, Canada) and Praveen K. Jain (Queen's University, Canada) 5227

Break : 15:50 – 16:10

6. A ZVS Current-Fed AC-DC PWM Full Bridge Converter

Gerry Moschopoulos (University of Western Ontario, Canada) and Wannian Huang (University of Western Ontario, Canada) 5691

7. A Very Fast Direct Torque Control for Permanent Magnet Synchronous Motors Start up

Hassan Ghasemi (University of Waterloo, Canada), Sadegh Vaez-Zadeh (University of Tehran, Iran) 6263

8. A Comparative Study of Simple Ac-De PWM Full-Bridge Current-Fed and Voltage-Fed Converters

Gerry Moschopoulos (University of Western Ontario, Canada) and Jayesh Shah (University of Western Ontario, Canada) 5692

9. Space Vector Modulation for Neutral Point Clamped Multilevel Inverter with Even Order Harmonic Elimination

David Feng (Ryerson University, Canada), Bin Wu (Ryerson University, Canada), Sanmin Wei (Ryerson University, Canada) and David Xu (Ryerson University, Canada) 6118

Session (Oral) TA7: Embedded Systems

Tuesday, May 04, 2004 TIME: 14:10 – 17:30

CHAIR: Dr. G. Khan, Ryerson Room: Oneida
University

1. Hardware-Software Co-Synthesis of Bus Architecture Embedded Devices

Jacob Levman, (Ryerson University, Canada), Gul Khan, (Ryerson University, Canada) and Javad Alirezaie (Ryerson University, Canada) 4552

2. A New Approach to Test Cases Generation based on Real-Time Process Algebra (RTPA)

Yizheng Yao (University of Calgary, Canada) and Yingxu Wang (University of Calgary, Canada) 6134

3. On the Extension of SystemC by SystemVerilog Assertions

Ali Habibi (Concordia University, Canada) and S. Tahar (Concordia University, Canada) 6549

4. Plurix, a Distributed Operating System extending the Single System Image Concept

Ralph Goeckelmann, M. Schoettner, S. Frenz, P. Schulthess (University of Ulm, Germany) 6669

5. A New Graph Structure for Hardware-Software Partitioning of Heterogeneous Systems

Gul Khan (Ryerson University, Canada) and Matthew Jin (Ryerson University, Canada) 5222

Break : 15:50 – 16:10

6. Implementing Task Scheduling and Event Handling in RTOS+

Cyprian F. Ngolah (University of Calgary, Canada), Yingxu Wang (University of Calgary, Canada) and Ximining Tan (University of Calgary, Canada) 6136

7. An Implementation of the Hardware Partition in A Software/Hardware Co-Designed Java Virtual Machine

Hejun Ma (University of New Brunswick, Canada), Ken Kent (University of New Brunswick, Canada) and David Luke (University of New Brunswick, Canada) 6758

8. Formal Description of a Generic Graph Model with RTPA

Aderemi Adewumi (University of Lagos, Nigeria) and Yingxu Wang (University of Calgary, Canada) 6140

9. 11-Bit Floating-Point Pipelined Analog to Digital Converter in 0.18 μ m CMOS

Mehdi Sadaghdar (Simon Fraser University, Canada), Kris Iniewski (Simon Fraser University, Canada) and Marek Syrzycki (Simon Fraser University, Canada) 6128

10. Design of a Flexible Cryptographic Hardware Module

Andrew W. H. House (Memorial University of Newfoundland, Canada) and Howard M. Heys (Memorial University of Newfoundland, Canada) 5715

Session (Oral) TA8: Fuzzy Systems and Neural Networks

Tuesday, May 04, 2004 TIME: 14:10 – 17:30

CHAIR: Mr. B. Di-Stefano,
 Nuptek Systems

Room: Tuscarora

1. Application of Fuzzy Logic for Improved Software Project Management Estimations

Imran Siwani (University of Western Ontario, Canada) and Miriam Capretz (University of Western Ontario, Canada) 6573

2. Scheduling of DSP Data Flow Graphs with Processing Times Characterized by Fuzzy Sets

Awni Itradat (Concordia University, Canada), M.O. Ahmad (Concordia University, Canada) and Ali Shatnawi (Jordan University of Science and Technology, Jordan) 6028

3. Fuzzy Logic Control in RPR Network

Xin Zhang , Hossein Ghandehari, Gary Yip, Ngok-Wah Ma and Kaamran Raahemifar (Ryerson University, Canada) 6564

4. Reference Model Supervisory Loop for Neural Network Based Adaptive Control of a Flexible Joint with Hard Nonlinearities

Hicham Chaoui (Université du Québec en Outaouais, Canada), Pierre Sicard (Université du Québec à Trois-Rivières, Canada) and Ahmed Lakhsasi (Université du Québec en Outaouais, Canada) 6720

5. Representing Generalized Fuzzy Automata in Recurrent Neural Networks

Mansoor Doostfatemeh (University of Guelph, Canada) and Stefan C. Kremer (University of Guelph, Canada) 6579

Break : 15:50 – 16:10

6. Dynamic Process Control for In-Situ Bioremediation System

Zhiying Hu (University of Regina, Canada), Christine W. Chan (University of Regina, Canada) and Gordon H. Huang (University of Regina, Canada) 6081

7. On Classification of Simulated Sensory Deficiency

Aimee L. Betker, Z. Moussavi and T. Szturm (University of Manitoba, Canada) 6014

8. Performance Evaluation of a Fuzzy Based Jitter Management Algorithm

Akbar Ghaffar Pour Rahbar (University of Ottawa, Canada), Oliver Yang (University of Ottawa, Canada) and Frank Zhang (University of Ottawa, Canada) 7027

9. Simulation of Two-Rate Adaptive Neural Network and Fuzzy Logic Hybrid Control for Stochastic Model of an Experimental Aircraft

Igor Astrov (Tallinn University of Technology, Estonia), Andrus Pedai (Tallinn University of Technology, Estonia) and Ennu Rustern (Tallinn University of Technology, Estonia) 5001

10. Design of QFT Robust Controller for Fuzzy Systems

Mehdi Narimani (Isfahan University of Technology, Iran) and Farid Sheikholeslam (Isfahan University of Technology, Iran) 6545

Session (Oral) TA9: FPGA and System on Chip

Tuesday, May 04, 2004

TIME: 14:10 – 17:30

CHAIR: Dr. B. Cockburn,
University of Alberta

Room: Cree

1. An Improved FPGA Implementation of a Hyperelliptic Cryptosystem

Coprocessor

Grace Elias (University of Ottawa, Canada), Lo Sing Cheng (University of Ottawa, Canada), Ali Miri (University of Ottawa, Canada) and Tet Hin Yeap (University of Ottawa, Canada) 5832

2. Modeling the Interconnects of Xilinx Virtex FPGAs and Derivation of their Test Configurations

Christian Giasson (University of Alberta, Canada) and Xiaoling Sun (University of Alberta, Canada) 5857

3. A Dual Round-Robin Arbiter for Split-Transaction Buses in System-on-Chip Implementations

James Reed (Queen's University, Canada) and Naraig Manjikian (Queen's University, Canada) 5858

4. Hardware Implementation of the Optimized Transform and Quantization Blocks of H.264

Roman Kordasiewicz (McMaster University, Canada) and Shahram Shirani (McMaster University, Canada) 5895

5. A Reconfigurable Digital IC Tester Implemented using the ARM Integrator Rapid Prototyping System

Fang Pang (University of Alberta, Canada), Tyler Brandon (University of Alberta, Canada), Bruce Cockburn (University of Alberta, Canada) and Michael Hume (University of Alberta, Canada) 6599

Break : 15:50 – 16:10

6. Low-Level Run-Time Reconfiguration of FPGAs for Dynamic Environments

Rami Abielmona (University of Ottawa, Canada), Voicu Groza (University of Ottawa, Canada), Nizar Sakr (University of Ottawa, Canada) and Jonathan Ho (University of Ottawa, Canada) 6857

7. Embedded System Partitioning with Flexible Granularity by using a Variant of Tabu Search

Usman Ahmed (Ryerson University, Canada) and Gul N. Khan (Ryerson University, Canada) 6805

8. Constructive and Local Search Heuristic Techniques for FPGA Placement

Xiaojun Bao (University of Guelph, Canada) and Shawki Areibi (University of Guelph, Canada) 5657

9. Enhanced Technique for Built-In-Self-Test of Sequential Logic

Benedict Chien (Queen's University, Canada) and Stan Simmons (Queen's University, Canada) 6692

10. Thermo-mechanical Stress Analysis of VLSI Devices by Partially Coupled Finite Element Method

Mohammed Bougataya (Université du Québec en Outaouais, Canada), Ahmed Lakkasai (Université du Québec en Outaouais, Canada), Yvon Savaria (École Polytechnique de Montréal, Canada), Dannie Massicotte (Université du Québec à Trois-Rivières, Canada) 5658

**Session (Oral) TA10: Special Session on Radio
Resource Management in Next Generation
Wireless Networks**

Tuesday, May 04, 2004 TIME: 14:10 – 17:30

CHAIR: Dr. A. Anpalagan Room: Auditorium

1. On the Capacity of Cellular Fixed Relay Networks

Hakan Bolukbasi (Carleton University, Canada), Halim Yanikomeroglu (Carleton University, Canada), David D. Falconer (Carleton University, Canada) and Shalini Periyalwar (Nortel Networks, Canada) 6914

2. The Capacity of Multi-Antenna Array System in Microcell and Picocell Wireless Environment

Apichart Intarapanich (University of Calgary, Canada), Robert J. Davies (University of Calgary, Canada), Abu B. Sesay (University of Calgary, Canada) and Padam Lal Kafle (University of Calgary, Canada) 5839

3. Scalable Video Transmission over Orthogonal Frequency Division Multiplexing Wireless Channels

George Partasides (SUNY at Buffalo, USA) and Lisiimachos P. Kondi (SUNY at Buffalo, USA) 5803

4. Fast Packet Scheduling Assuring Fairness and Quality of Service in HSDPA

Ghassane Aniba (University of Quebec, Canada) and Sonia Aissa (University of Quebec, Canada) 6934

5. Seamless QoS - Aware Fair Handoff in Multimedia Wireless Networks width Optimized Revenue

Nidal Nasser (Queen's University, Canada) and Hossam Hassanein (Queens University, Canada) 6008

Break : 15:50 – 16:10

6. On 4G and Beyond Multi-hop Wireless Networks

Ahmed M. Safwat (Queen's University, Canada) 6967

7.A Study of DiffServ based QoS Issues in Next Generation Mobile Networks

Thimma Ganesh Babu (Ryerson University), Jerry Hayes (Concordia University) and Alagan Anpalagan (Ryerson University) 7029

8. Integrated Solutions for Wireless MPLS and Mobile IP: Current Status and Future Directions

Abd-Elhamid Taha (Queen's University, Canada), Hossam Hassanein (Queen's University, Canada), Hussein T. Mouftah (University of Ottawa, Canada) 6114