

CCECE 2001 CCGÉI

Schedule of Events

**MONDAY, MAY 14**

---

***PLENARY SESSION 1***

TIME: 08:15 – 09:15  
ROOM: Churchill

CHAIR: Dr. Haran Karmaker,  
General Electric Co.

**Adaptive and Learning Systems:  
A key technology for today and  
ever more.**

**Professor Simon Haykin -  
McMaster University**

---

---

NETWORKING BREAK 09:15-09:30

---

---

---

---

**Oral Session MM1: Motors**

TIME: 09:30 – 11:30

ROOM: Stevenson

CHAIRS: R. Hanna, W. Kinser

**Monday, May 14**

---

MM1.1 09:30 – 09:50

**Intelligent monitoring and full-digital automatic control of dc machine drive control system for mine hoist \***

Jiang Jianguo, Zhao Yulin, Shao Zhongming, Yang Fengzhong and Ma Jianmin  
China University of Mining and Technology, Xuzhou, P. R. China  
035

MM1.2 09:50 – 10:10

**An improved nonlinear control strategy for induction Motor drive**

Guang Feng Yanfei Liu  
Queens University, Kingston, Ontario, K7L 3N6  
109

MM1.3 10:10 – 10:30

**Investigation of a robust adaptive nonlinear Controller for induction motors**

*D. Zimmer, M. Bector, W. Kinsner, and R. Menzies*  
University of Manitoba, Winnipeg, Manitoba, Canada  
333

MM1.4 10:30 – 10:50

**Design of One-Degree and Two-Degrees of Freedom Controllers for Indirect Field Orientation Control Induction Machine Drive System**

*Fayez F. M. El-Sousy, Faeka M. H. Khater and Farouk I. Ahmed, NRC Dokki & Cairo U., Egypt*  
365

MM1.5 10:50 - 11:10

**Machines oscillatoires et leur place dans la totalite des machines electriques**

Sigitas Kudarauskas  
Universitė de Klaipėda, Lituanie  
163

MM1.6 11:10 – 11:30

**Robustness of control design for axial flow compressors**

Ali Tahmasebi and Xiang Chen  
University of Windsor, Windsor, Ontario, Canada N9B 3P4  
142

---

---

**Oral Session MM2: Software Systems**

TIME: 09:30 – 11:30

ROOM: Scott

CHAIR: Bruno DiStefano

**Monday, May 14**

---

MM2.1 09:30 – 09:50

**Component interaction testing using model-checking**

Wayne Liu and P. Dasiewicz

University of Waterloo, Waterloo, Ontario Canada N2L 3G1  
034

MM2.2 09:50 – 10:10

**A portable real-time extension set for java**

Hsin-Ta Chiao and Shyan-Ming Yuan

National Chiao Tung University, Hsinchu 300, Taiwan

Shen-Tzay Huang and Scott Hsu-Jing Kao

National Pingtung University of Science and Technology

1 Hseuh-Fu Rd., Nei-Pu Hshiang 91207, Taiwan

156

MM2.3 10:10 – 10:30

**A new family of stream ciphers based on cascaded small s-boxes**

Lin Gan, Stan Simmons and Stafford Tavares

Department of Electrical and Computer Engineering, Queen's University, Kingston, Canada, K7L  
3N6

377

MM2.4 10:30 – 10:50

**A web-based graduate application database system**

*Lin Han and Xining Li*

Department of Computer Science, Lakehead University

Thunder Bay, ON, Canada P7B 5E1

065

MM2.5 10:50 – 11:10

**Mobile Multi-Agent System for Medical Image Retrieval**

A. Liu, R. Martens, R. Paranjape, L. Benedicenti

University of Regina, Regina, SK., S4S 0A2

187

MM2.6 11:10 – 11:30

**Design of One Kind of Transactional Platform System for Electronic Banking**

Jiang Dehong

China Construction Bank ShenZhen Branch,

ShenZhen, Guangdong Province, P.R.China, 518010

246

---

## **Special Session MM3: Computational Intelligence**

TIME: 09:30 – 11:30

ROOM: Wren

CHAIRS: W. Pedrycz

<b>Monday, May 14</b>
-----------------------

---

MM3.1 09:30 - 09:50

**Intelligent Design of Product Lines in Holmes**

Giancarlo Succi, Witold Pedrycz, Jason Yip, Iliyan Kaytazov

University of Alberta, Edmonton, AB

149

MM3.2 09:50 - 10:10

**Quantitative assessment of extreme programming practices**

Giancarlo Succi, Milorad Stefanovic, Witold Pedrycz

University of Alberta, Edmonton, AB

112

MM3.3 10:10 - 10:30

**Severe storm cell classification using suport vector machines and radial basis function approaches**

*L. Ramirez, W. Pedrycz*

University of Alberta, Edmonton AB, T6G 2G7

*N. Pizzi*

National Research Council, 435 Ellice Ave., Winnipeg MB, R3B 1Y6

174

MM3.4 10:30 - 10:50

**Self organizing maps as a tool for software analysis**

*W. Pedrycz, G. Succi, M. Reformat, P. Musilek, X. Bai*

University of Alberta, Edmonton, AB, Canada T6G 2G7

376

MM3.5 10:50 - 11:10

**Adaptive fuzzy force control of an anti-personnel (ap) mine detector robot**

*Ali M. Shahri, Reza A. Moghadam*

Electronic Research Center

Iran University of Science and Technology, Narmak, Teheran

140

MM3.6 11:10 – 12:00

**Computational Intelligence in Software Engineering**

**A Panel Discussion, a Round Table Discussion facilitated**

**by Prof. Witold Pedricz, University of Alberta, Edmonton AB.**

**See detail next page**

---

---

**MONDAY, MAY 14**

**11:10 – 12:00**

---

---

## "Computational Intelligence in Software Engineering"

**A Panel Discussion, a Round Table Discussion  
- facilitated by Prof. Witold Pedricz, University of Alberta,  
Edmonton AB.**

Software Engineering is a rapidly expanding applied research area coming with many success stories and a plethora of challenges and open question. As the software complexity grows and the diversity of software systems skyrocket, it becomes apparent that there is a genuine need for solid, efficient, designer-oriented vehicle to support design activities at various levels. This need becomes particularly visible when dealing with a number of critical aspects of software products and software processes such as risk assessment, cost estimation, quality assurance, and system reliability.

The objective of this panel is to identify a role of Computational Intelligence (CI) as a sound methodological and algorithmic environment for Software Engineering and discuss the already existing trends and research pursuits. By its very nature, Software Engineering and CI are highly compatible: they are knowledge-intensive, human-oriented, and have to deal with various manifestations of the abstract world of software constructs and thought processes. This multifaceted conceptual compatibility is a prerequisite for the development of vital synergistic links that bring the technology of CI into Software Engineering. The symbiosis accrues considerable benefit for both technologies by posing new categories of challenging and highly stimulating problems.

The panel is aimed at all those in academia and industry interested in expanding the frontiers of CI beyond the boundaries of physics-driven systems and entering the challenging world of human-centered world Software Engineering. The panel will be of interest to all software practitioners looking for new innovative solutions for timely problems relative to a variety of products of a typical software process.

---

## **Oral Session MM4: Communications Systems I**

TIME: 09:30 – 11:30

ROOM: Rossetti

CHAIRS: D. O'Shaughnessy  
M. McGuire

<b>Monday, May 14</b>
-----------------------

---

MM4.1 09:30 - 09:50

**Performance of turbo coded multicarrier cdma with iterative multiuser detection and decoding**

*Padam L. Kafle, Abu B. Sesay*

University of Calgary, Calgary, AB, Canada, T2N 1N4  
021

MM4.2 09:50 - 10:10

**Two-stage maximum likelihood estimation (tsmle) for mt-cdma Signals**

*Quazi Mehbubbar Rahman and Abu B. Sesay*

University of Calgary, Calgary, Canada  
027

MM4.3 10:10 - 10:30

**A transmit-diversity coding framework for cellular systems**

*Michaël Godbout and Harry Leib*

McGill University, Montreal, Quebec, Canada, H3A 2A7  
338

MM4.4 10:30 - 10:50

**Broadband array design for performance improvement**

*Qingsheng Zeng and Douglas O'Shaughnessy*

INRS-Telecommunications, University of Quebec, Quebec, CANADA  
151

MM4.5 10:50 - 11:10

**Estimating position of mobile terminals from delay measurements with survey data**

*M. McGuire, K.N. Plataniotis, A.N. Venetsanopoulos*

University of Toronto, Toronto, ON M5S 3G4 Canada  
309

MM4.6 11:10 - 11:30

**Performance Analysis of a Direct-Sequence Spread-Spectrum Packet Radio Network**

*F. Wang and S. K. O'Leary*

University of Regina, Regina, Saskatchewan, Canada S4S 0A2  
200

---

## **Oral Session MM5: Signal Processing**

TIME: 09:30 – 11:30

ROOM: Carlyle

CHAIRS: Ferial El-Hawary

**Monday, May 14**

---

MM5.1 09:30 - 09:50

### **Instantaneous mean frequency estimation using adaptive time-frequency distributions**

*Sridhar Krishnan*

Ryerson Polytechnic University, Toronto, ON M5B 2K3, CANADA.

212

MM5.2 09:50 - 10:10

### **Multirate signal estimation**

*Omid S. Jahromi, Bruce A. Francis, Raymond H. Kwong*

University of Toronto, Toronto, ON, M5S 3G4 Canada

372

MM5.3 10:10 - 10:30

### **A relationship between external noise and the ocean clutter models for bistatic operation of a pulsed high-frequency radar**

*Eric W. Gill John Walsh*

Memorial University of Newfoundland, St. John's, NF, A1B 3X5

318

MM5.4 10:30 - 10:50

### **Proof of a result relating to orthogonal scaling functions series expansions**

*Ting Liu, Christopher J. Zarowski*

Queen's University, Kingston, Ontario, Canada K7L 3N6

387

MM5.5 10:50 - 11:10

### **Software radio receiver for seismic data processing**

*Yannick Ernou, Paul Fortiey*, Université Laval, Quebec City

*Christian Grouffal*, Institut Français du Pétrole

255

MM5.6 11:10 - 11:30

### **A cross-relation matched field inversion for geoacoustic parameter estimation**

*Reza M. Dizaji*, Raytheon Systems Canada Ltd., Waterloo, Ontario

*N. Ross Chapman, R. Lynn Kirlin*, University of Victoria, Victoria, BC

*Manigeh M. Dizaji*, Tarbiat Modarres University, Tehran, Iran

030

---

**Poster Session MP: Poster Presentations**

TIME: 13:15 – 15:15

ROOM: Mountbatten

CHAIR: M. McGuire

<b>Monday, May 14</b>
-----------------------

---

MP 1

**A Physical Model for Characteristics of PIN/QW-LD Optoelectronic Integrated Device**

*M. H. Sheikhi (1), Vahid Ahmadi (1,2), M. K. Moravvej-Farshi (1)*

*(1) Tarbiat Modares Univ., P. O. Box 14155-4838, Tehran, Iran*

*(2) Semiconductor Group, Laser Research Center, AEOL, Tehran, Iran*

010

MP 2

**A Low-Voltage CMOS Filter for Hearing Aids using Dynamic Gate Biasing**

*L. Pylarinos, N. W. Wong, and K. Phang*

University of Toronto

018

MP 3

**Optimal active power flow solutions using a modified hopfield neural network**

*Rukmi Sari Hartati & M.E. El-Hawary*

Dalhousie University, Halifax, NS Canada

041

MP 4

**Including effects of cross-saturation and leakage path saturation together in the generalized model of the three phase induction machine.**

*A.F. Almarshoud,*

College of Technology, Riyadh, Saudi Arabia

*M.A. Abdel-Halim,*

Cairo University, Giza, Egypt

*A.I. Alolah,*

King Saud University, Riyadh, Saudi Arabia

066

MP 5

**A new method of the electromagnetic simulation of 3D microwave integrated circuits**

\*

*Yazhu Ke, Mei Yu, June Chen and Jufeng Dai*

Tianjin University, Tianjin, 300072, P.R. China

079

MP 6

**Performance analyses of the induction motor with saturation fed by an inverter**

*Rui Vagner R. Silva, MSc. \* Roberlam G.de Mendonça, MSc. \*\*, Darizon Alves de Andrade, Dr. \* Samuel César Mota de Paula, M.Sc. \*\*, Luciano Martins Neto, Dr. \**

\* Electrical Engineering Dept., Federal University of Uberlandia

\*\*CEFETGO – Jataí Decentralized Unity , Jataí , GO, Brazil

079

MP 7

**An automated and rapid defect inspection algorithm for fluorescent pdp patterns**

*Renyan Ge and David A. Clausi*

University of Waterloo, Waterloo, Ontario, Canada N2L 3G1

095

MP 8

**A learning mechanism for adaptive fitness function in auto 3D Graphics layout using genetic algorithm**

*A.Walairacht, C.Thanapandi, S.Ohara*

Tokai University, 1117, Kitakaname, Hiratsuka-shi, Kanagawa, Japan

*O. Wongwirat, I. Burintramart*

King Mongkut's Institute of echnology Ladkrabang Bangkok

100

MP 9

**Fpga implementation of pwm pattern generators**

*Dan Deng, Su Chen, Géza Joós*

Concordia University, Montreal, Quebec, Canada H3G 1M8

108

MP 10

**From technique of extracting 10ghz clock pulses 20gb/s otdm signalby using an injected mode-locked fiber ring laser \***

*Jinlong Yu, Xiaohong Ma, Xiaomei Fu, Jufeng Dai, Enze Yang*

Tianjin University, Tianjin 300072, P.R. China

127

MP 11

**A genetic algorithm for testable data path synthesis**

*H. Harmanani, R. Saliba, M. Khoury*

Lebanese American University, Byblos, Lebanon

138

MP 12

**Visi design and implementation of wcdma channel decoder**

*Xu Youyun, Li Zongwang, Luo Hanwen, Song Wentao*

Shanghai Jiao Tong University

146

MP 13

**An active refresh method in web caching**

*Gang Zhang, Yantai Shu, Zheng Zhao, Zhijie Guan*

Tianjin University, Tianjin 300072, China

*Oliver W. W. Yang*

University of Ottawa, Ottawa, Ontario, Canada, K1N 6N5

211

MP 14

**Sp2v: accelerating post-layout spice simulation using verilog gate-level modeling**

*Abolfazl Salimi Zebardast, Dara Rahmati, Benyamin Hamdin Yaran, \* Zainalabedin Navabi*

University of Tehran / Tehran, Iran

224

MP 15

**Condition monitoring of 11 kv paper insulated cables using self-organising maps**

*José M. Rodríguez Arroyo \* # Andy J. Beddoes \* Nigel M. Allinson #*

\* EA Technology Ltd, Capenhurst, Chester, CH1 6ES, UK

# UMIST, Manchester, M60 1QD, UK

234

MP 16

**Swarm-intelligently trained neural network for power transformer protection**

*A. I. El-Gallad, M. El-Hawary*

Dalhousie University, Halifax, NS, CANADA

*A.A. Sallam, A. Kalas*

Suez Canal University, Port Said, EGYPT

257

MP 17

**A ga-based dynamic personalized filtering for internet search service on multi-serach engine**

*Min-Huang Ho, Ming-Chun Cheng, Shyan-Ming Yuan*

National Chiao Tung University

*Yue-Shan Chang*

Ming-Hsin Institute of Technology

267

MP 18

**Etude Comparative des Méthodes d'Analyse Spectrale par Modèle AR et Modèle ARMA. Application à la Détection des Défauts d'Engrenages.**

*N. Haloui, D. Chikouche, F. Djahli, A. Felkaoui*

Ferhat Abbes Sétif – Algérie

270

MP 19

**Position control of a flexible joint with friction using neural network feedforward inverse models**

*Orfan Aboulshamat and Pierre Sicard*

Université du Québec à Trois-Rivières, (Québec), Canada, G9A 5H7  
271

MP 20

**A study of microscopic images of human breast disease using competitive neural networks**

*R. Allan, W. Kinsner*

University of Manitoba, Winnipeg, Manitoba, Canada R3T 5V6  
299

MP 21

**Design of a multilevel dram with adjustable cell capacity**

*Yunan Xiang, Bruce F. Cockburn, Duncan G. Elliott*

University of Alberta, Edmonton, AB T6G 2G7, Canada  
313

MP 22

**Specification and enforcement of object-oriented rbac model**

*Chang, N. Zhang, Cungang Yang*

University of Regina, Regina, Saskatchewan, S4S 0A2  
335

MP 23

**The recognition of facial expressions from video frames**

*Hideyuki Ebine, Misuzu Ikeda*

Kogakuin University, Tokyo, Japan 163-8677

*Osamu Nakamura*

Kogakuin University, Tokyo, Japan 163-8677

364

MP 24

**A robust personal identification system using fast template matching algorithm based on isodensity maps**

*Teruaki Hirano, Osamu Nakamura*

Kogakuin University 1-24-2, Nishi-Shinjyuku, Shinjyuku-Ku, Tokyo

371

MP 25

**Extraction of faces of more than one person from natural background for personal identification**

*Misuzu Ikeda, Hideyuki Ebine*

Kogakuin University, Tokyo, Japan 163-8677

*Osamu Nakamura*

Kogakuin University, Tokyo, Japan 163-8677

373

MP 26

**Automatic extraction method of facial regions for occlusion faces in moving pictures**

*Atushi Hurusawa, Noriyoshi Okamoto*

Kanto Gakuin University

384

MP 27

**Delivering end-to-end quality of service through an internet protocol based differentiated services domain**

*J.C. Dullaert 1, M.H. Rahman 1, and H.T. Mouftah 2*

1. Royal Military College of Canada, Kingston, Ontario, K7K 5L0

2. Queens University, Kingston, Ontario, K7L 3N6

249

MP 28

**Implementation of dsp-ram: an architecture for parallel digital signal processing in memory**

*Bill S.-H. Kwan, Bruce F. Cockburn, Duncan G. Elliott*

University of Alberta

332

MP 29

**A broadband integrated services network architecture based on dwdm**

*Shaowen Song, and Zongsen Wu*

Wilfrid Laurier University, Waterloo, ON, Canada N2L 3C5

349

MP 30

**An efficient FPGA implementation of a pulse-shaping IIR filter**

*N. Batani, C. Thibeault, C.S. Gargour*

École de technologie supérieure (ETS), University of Québec

061

---

---

NETWORKING BREAK 15:15 – 15:30

---

---

---

## Oral Session MA1: Power Systems I

TIME: 15:30 - 17:30

ROOM: Stevenson

CHAIR: Mohammed El-Hawary

<b>Monday, May 14</b>
-----------------------

---

MA1.1 15:30 – 15:50

**A novel zero voltage switched (zvs) buck converter using coupled inductor**

*Yingqi Zhang,, Yan-Fei Liu*

Queen's University, Kingston, Ontario, Canada, K7L 3N6

058

MA1.2 15:50 – 16:10

**Power system adequacy evaluation incorporating a unified power flow controller**

*R. Billinton M. Fotuhi-Firuzabad S.O. Faried*

University of Saskatchewan, Saskatoon, Canada

S. Aboreshaid

Gen. Org. for Tech., Ed., and Voc. Training, Riyadh, Saudi Arabia

069

MA1.3 16:10 – 16:30

**Model and applications for harmonic analysis of ac/dc power systems coupled by power electronic converters in high-power industrial drives**

*Zhao Yulin and Jiang Jianguo*

China University of Mining and Technology

Xuzhou, Jiangsu 221008, P. R. China

036

MA1.4 16:30 – 16:50

**Partially Coupled Electro-Thermal Analysis for Accurate Prediction of Switching Devices**

*A. Lakhsasi (a) , Y. Hamri (a) and A. Skorek (b)*

(a)Université du Québec à Hull, Hull,(PQ) J8X-3X7, Canada.,

(b)Université du Québec à Trois-Rivières, , Canada.

047

MA1.5 16:50 – 17:10

**A comparison of alternative hvdc converter schemes**

*S. M. Al-Dhalaan*

Gen. Org. for Tech., Ed., and Voc. Training, Riyadh, Saudi Arabia

086

MA1.6 17:10 – 17:30

**Control of dc bus voltage in single-stage ac-to-dc converter**

*M.M.A. Rahman, A.K.S. Bhat*

University of Victoria, Victoria, BC, V8W 3P6

145

---

## **Oral Session MA2: Computer Architecture**

TIME: 15:30 – 17:50

ROOM: Scott

CHAIR: Samuel Pierre

<b>Monday, May 14</b>
-----------------------

---

MA2.1 15:30 - 15:50

**Algorithme de maintien de cohérence pour les bases de données sur grappes d'ordinateurs**

*Constant Wette Samuel Pierre*, École Polytechnique de Montréal, Montréal, Canada  
359

MA2.2 15:50 - 16:10

**The impact of out-of-order message delivery on cache coherence protocols**

*M. Tonev, 1 M. Tomašević, 2 J. Đorđević, 2 M. Aleksić 3*  
1 Alcatel, Vancouver, Canada, 2 School of Electrical Engineering, Belgrade, Yugoslavia  
3 ATI Technologies, Toronto, Canada  
099

MA2.3 16:10 - 16:30

**Scalability of Computer Clusters**

*Vu Anh Nguyen Samuel Pierre*, École Polytechnique de Montréal, Montréal, Canada  
361

MA2.4 16:30 - 16:50

**Simulation support for integrated multiprocessing and memory access scheduling**

*Linda Wang and Naraig Manjikian*, Queen's University, Kingston, Ontario  
290

MA2.5 16:50 - 17:10

**Checkpointing and Error Recovery in a Uniprocessor System with On-Chip Cache**

*Rana Ejaz Ahmed*, Research In Motion (RIM) Ltd., Waterloo, ON, Canada  
132

MA2.6 17:10 - 17:30

**Adressage matériel dans les systèmes à microprocesseur avec un adressage physique étendu**

*Mountassar Maamoun et Ghania Zérari*, Université de Blida, Algérie.  
056

MA2.7 17:30 - 17:50

**Multithreaded communication controller for efficient dsm multiprocessors**

*M. Tonev, (1) J. Đorđević, (2) M. Tomašević, (2) M. Aleksić (3)*  
1 Alcatel, Vancouver, Canada  
2 School of Electrical Engineering, Belgrade, Yugoslavia  
3 ATI Technologies, Toronto, Canada  
098

---

## **Oral Session MA3: Optics and Applications**

TIME: 15:30 – 17:30

ROOM: Wren

CHAIRS: K. Phang

**Monday, May 14**

---

MA3.1 15:30 - 15:50

### **Technologies for hybrid wavelength/time optical cdma transmission**

*Lawrence R. Chen*

McGill University Montreal, Quebec, Canada H3A 2A7  
007

MA3.2 15:50 - 16:10

### **Towards optimal design of wavelength-convertible optical switches for the all-optical next-generation internet**

*Xueli Hou and H.T.Mouftah*

Queen's University, Kingston, Ontario, Canada K7L 3N6  
032

MA3.3 16:10 - 16:30

### **Spanning tree algorithm for spare network capacity**

*Lech Szymanski and Oliver W. W. Yang*

University of Ottawa, Ottawa, Ontario K1N 6N5  
148

MA3.4 16:30 - 16:50

### **Tunable phase-shifted long-period gratings by refractive index-shifting**

*Lawrence R. Chen*

McGill University, Montreal, Quebec, Canada H3A 2A7  
008

MA3.5 16:50 - 17:10

### **Mise en oeuvre de modele electromagnetique 3d dans le domaine temporel dans l'optique d'etudes d'elements de circuits pour l'integration monolitique millimetrique**

*F. A. Mohammadi, K. Raahemifar, F. Yuan*

Ryerson Polytechnic University, Toronto, Ontario, Canada  
197

MA3.6 17:10 - 17:30

### **20ghz ultra-short optical pulse source generated by dfb-ld and pulse compression technology**

*Jufeng Dai, Xiaohong Ma, Jinlong Yu, Enze Yang*

Tianjin University, Tianjin 300072, P.R. China  
078

---

---

**Oral Session MA4: Communications Systems II**

TIME: 15:30 – 17:30

ROOM: Rossetti

CHAIR: Victor C.M. Leung

**Monday, May 14**

---

MA4.1 15:30 - 15:50

**Nonlinear channel estimation using correlation properties of pn sequences**

*Xavier N. Fernando and Abu B. Sesay*

TRLabs and University of Calgary  
060

MA4.2 15:50 - 16:10

**On the use of Jensen's inequality for mimo channel capacity estimation**

*S. Loyka, A. Kouki*

Ecole de Technologie Supérieure, Montreal (Quebec), Canada  
167

MA4.3 16:10 - 16:30

**Performance Analysis of CAR: Centralized Adaptive Reservation**

*Henry C. B. Chan 1, Victor O. K. Li 2 and Victor C. M. Leung 3*

1 Dept. of Computing, Hong Kong Polytechnic University, Hong Kong

2 Dept. of Electrical & Electronic Eng. University of Hong Kong

3 Department of Electrical and Computer Eng., UBC, Canada  
113

MA4.4 16:30 - 16:50

**A Markov Chain and Quadrature Amplitude Modulation Fading Based Statistical Discrete Time Model for Multi-WSSUS Multipath Channel**

*Messaoud Ahmed Ouameur and Daniel Massicotte*

Université du Québec à Trois-Rivières, Canada, G9A 5H7  
231

MA4.5 16:50 - 17:10

**Fade depth prediction on wireless microwave links using two-ray multipath model**

*S. Loyka, A. Kouki, F. Gagnon*

Ecole de Technologie Supérieure, Montreal (Quebec), Canada  
162

MA4.6 17:10 - 17:30

**A qos-sensitive sdma-tdma access in fixed broadband wireless networks \***

*Qiang Wang and Anjali Agarwal*

Concordia University, Montreal, Quebec, Canada  
072

---

## **Oral Session MA5: Speech Processing**

TIME: 15:30 – 17:30

ROOM: Carlyle

CHAIR: D.O. Shaughnessy

<b>Monday, May 14</b>
-----------------------

---

MA5.1 15:30 - 15:50

**Efficient recognition of continuously-spoken numbers**

*Douglas O'Shaughnessy and Marcel Gabrea*

INRS- Télécommunications, Montreal, Québec, Canada H5A 1C6  
042

MA5.2 15:50 - 16:10

**New wavelet packet model for automatic speech recognition system**

*Jalal R. Karam, William J. Phillips, William Robertson, Maen M. Artimy*

Department of Engineering Mathematics, Dalhousie University  
002

MA5.3 16:10 - 16:30

**Prediction of hearing aid performance using the multiple model least squares technique**

*Vijay Parsa and Donald G. Jamieson*

University of Western Ontario, London, Ontario, Canada N6G 1H1.  
379

MA5.4 16:30 - 16:50

**Adaptive kalman filtering-based speech enhancement algorithm**

*Marcel Gabrea'*

École de Technologie Supérieure, Montreal, Quebec, Canada  
256

MA5.5 16:50 - 17:10

**Reconnaissance automatique de la parole par la technique msdtw**

*T. Mohamadi, A. Hacine Gharbi, S. Mezaache, A. Harrag*

Universite Ferhat Abbas Setif, Cite Maabouda, Setif 19000, Algeria  
219

MA5.6 17:10 - 17:30

**Evaluation of the G.729 speech coder with pathological voice samples**

*Vijay Parsa and Donald G. Jamieson*

University of Western Ontario, London, Ontario, Canada  
221

**EVENING MONDAY, MAY 14**

---

# ***AWARDS BANQUET***

TIME: 19:00  
(Cocktail Reception at 18:00)

ROOM:

Churchill

SPEAKER:

Dr. Wallace Read

TOPIC

Engineers Don't Grow on Trees

AWARDS CHAIR:

Dr. Vijay Bhargava

---

**TUESDAY, MAY 15**

---

***PLENARY SESSION 2***

TIME: 08:15 – 09:15

ROOM: Churchill

CHAIR:

K.N. Plataniotis

**Multimedia Signal Processing  
and Applications**

SPEAKER:

A.N. Venetsanopoulos

---

---

---

NETWORKING BREAK 09:15-09:30

---

---

---

---

## **Oral Session TM1: Motors II**

TIME: 09:30 – 11:30

ROOM: Stevenson

CHAIRS: H. Karmaker, A.M. El-Serafi

<b>Tuesday, May 15</b>
------------------------

---

TM1.1                      09:30 – 09:50

**Simulation of the 3-phase double-feed induction motor (dfim): a range of stable synchronous operation**

*Diógenes Pereira Gonzaga*

University of São Paulo ,13560-970 São Carlos – SP – Brasil

*Yaro Burian Jr.*

Computation of Campinas State University, Campinas SP, Brasil  
075

TM1.2                      09:50 – 10:10

**Identification of the synchronous machine parameters under magnetic saturated conditions using stand still frequency response test**

*Gh. Ahrabian, A. M. El-Serafi*

University of Tabriz, University of Saskatchewan

154

TM1.3                      10:10 – 10:30

**A new approach to modeling core losses in squirrel cage induction motor using polynomial functions**

*Gabriele Rakotonirina, Jianhong Xu, Anatole Sévigny, Pierre Sicard*

Université du Québec à Trois-Rivières , Québec

239

TM1.4                      10:30 – 10:50

**A new method for calculating the q-axis saturation characteristics of salient-pole synchronous machines**

*Ahmed M. El-Serafi, Narayan C. Kar*

University of Saskatchewan, Saskatoon, Saskatchewan, Canada

250

TM1.5                      10:50 – 11:10

**Volume forces in roebel bars inside slots, forces at the boundary of the slot - a closer view on electromagnetic origin and mechanical consequences**

*Grabner Christian, Köfler Hansjörg*

University of Technology Graz, Austria

289

TM1.6                      11:10 – 11:30

**The two switched reluctance motors parallel drive system**

*Hao Chen Guilin Xie Jianguo Jiang*

China University of Mining & Technology, Xuzhou 221008 China

352

---

**Oral Session TM2: Circuits**

TIME: 09:30 – 11:30

ROOM: Scott

CHAIR: Fei Yuan

**Tuesday, May 15**

---

TM2.1 09:30 – 09:50

**Efficient modeling and analysis of clock feed-through and charge injection of switched current circuits**

*Fei Yuan and Maged Youssef*

Ryerson University, Toronto, Ontario, Canada

*Yichuang Sun*

University of Hertfordshire, Hatfield Herts, United Kingdom

115

TM2.2 09:50 - 10:10

**Statistical analysis of nonlinear current-mode circuits**

*Fei Yuan*

Ryerson University, Toronto, Ontario, Canada M5B 2K3

158

TM2.3 10:10 - 10:30

**Stability issues in digital circuits in amorphous silicon technology**

*N. Mohan, K. S. Karim, S. Prakash, A. Nathan*

University of Waterloo, Ontario, Canada

220

TM2.4 10:30 - 10:50

**Fractals In Circuits**

*L. Lazareck, G. Verch, and J. F. Peters*

University of Manitoba, Winnipeg, Manitoba, Canada R3T 5V6

355

TM2.5 10:50 - 11:10

**An investigation of clock-race conditions in nora dynamic cmos circuits**

*Gaurav Puree, Virender Punia, and Fei Yuan*

Ryerson University, Toronto, Ontario, Canada

356

TM2.6 11:10 - 11:30

**Study and characterization of copper-indium-diteleride**

*F. Kemiha, A. Zegadi, T. Mohamadi*

University F. A. Setif, Setif, Algeria.

173

---

## **Special Session TM3: Multimedia Processing and Systems: View of Experts**

TIME: 09:30 – 11:30

CHAIR: Ling Guan

ROOM: Wren

<b>Tuesday, May 15</b>
------------------------

---

TM3.1 09:30 – 09:50

**Media conversions to support mobile users**

*Anthony Vetro and Huifang Sun*

MERL - Mitsubishi Electric Research Laboratories  
501

TM3.2 09:50 - 10:10

**Video streaming: an fec-based novel approach**

*Jianfei Cai* University of Missouri-Columbia

*Chang Wen Chen*, Sarnoff Corporation, Princeton, NJ 08543  
502

TM3.3 10:10 - 10:30

**Multimedia information retrieval**

*J. A. Lay and P. Muneesawang*, University of Sydney, NSW 2006, Australia

*L. Guan*, Ryerson Polytechnic University, Toronto, Canada  
503

TM3.4 10:30 - 10:50

**Jqos: a qos-based internet videoconferencing system using the java media framework (jmf)**

*Wenbiao Zhu and Nicolas D. Georganas*

School of Information Technology and Engineering, University of Ottawa  
504

TM3.5 10:50 - 11:10

**Toward flexible speech recognition**

**– recent progress at tokyo institute of technology –**

*Sadaoki Furui*

Tokyo Institute of Technology, Department of Computer Science  
505

TM3.6 11:10 - 11:30

**Multimedia processing for building immersive environments**

*Howard Leung and Tsuhan Chen*

Carnegie Mellon University, Pittsburgh, PA 15213, USA  
505

---

## **Oral Session TM4: Intelligent Systems I**

TIME: 09:30 – 11:30

ROOM: Rossetti

CHAIR: W. Pedrycz

**Tuesday, May 15**

---

TM4.1 09:30 – 09:50

### **Adaptive hybrid control using recurrent-neural-network for linear synchronous motor servo drive system**

*Faa-Jeng Lin, Wen-Der Chou, and Chih-Hong Lin*

Chung Yuan Christian University, Chung Li 32023, Taiwan  
043

TM4.2 09:50 - 10:10

### **Brachytherapy cancer treatment optimization using simulated annealing and artificial neural networks**

*S. Miller 1,2, J. Bews 2, and W. Kinsner 1*

1 University of Manitoba, Winnipeg, Manitoba, Canada R3T 5V6  
2 Dept. of Medical Physics, CancerCare Manitoba, Winnipeg, Canada  
300

TM4.3 10:10 - 10:30

### **A New Transformed Input-Domain ANFIS for Highly Nonlinear System Modeling and Prediction**

*Elsaid Mohamed Abdairahim and Takashi Yahagi*, Chiba University, Japan.

346

TM4.4 10:30 - 10:50

### **Two layers position control system of a manipulator using feed forward control**

*Khaled N. S. Faress, Mohsen M. T. El-Hagry*

Electronics Research Institute, ERI, Dokki, Cairo, Egypt.

*Mohammed M. Abd El-Aziz*

Faculty of Engineering, Cairo University, Giza, Egypt.

001

TM4.5 10:50 - 11:10

### **Traffic identification using artificial neural network**

*Ali A. Ali and R.Tervo*, The University of New Brunswick, Fredericton, Canada.

076

TM4.6 11:10 - 11:30

### **Application of artificial neural network in noise mixed partial discharge recognition**

*Zhong Zheng, Kexiong Tan*, Tsinghua University Beijing P.R. China

378

---

**Oral Session TM5: Networks I**

TIME: 09:30 – 11:30

ROOM: Carlyle

CHAIR: H. Mouftah

**Tuesday, May 15**

---

TM5.1 09:30 – 09:50

**Providing packet loss guarantees in differentiated services architectures**

*Haiqing Chen, Hossam Hassanein and Hussein Mouftah*

Queen's University, Kingston, Canada

305

TM5.2 09:50 - 10:10

**Modelling with queues: an empirical study**

*Przemyslaw Pochec and Wail Mardini*

University of New Brunswick, Fredericton, Canada E3A 5A3

004

TM5.3 10:10 - 10:30

**Non-gaussian characteristic and farima(p,d,q) traffic models**

*Zhigang Jin, Yantai Shu, Jiakun Liu*

Tianjin University, Tianjin 300072, China

*Oliver W. W. Yang*

University of Ottawa, Ontario, Canada, K1N 6N5

017

TM5.4 10:30 - 10:50

**Shaping and policing of fractal stable broadband traffic**

*Fotios C. Harmantzis, Dimitrios Hatzinakos*

University of Toronto, Toronto ON, M5S 3G4 Canada

*Irene Katzela*

Lucent Technologies, 55 University Avenue, Toronto ON, Canada

184

TM5.5 10:50 - 11:10

**Performance analysis of wireless atm/aal2 over a burst error channel**

*Luis Villasenor-Gonzalez †‡, Sophia Tsakiridou ‡, Luis Orozco-Barbosa † and Louise Lamont ‡*

† University of Ottawa, Ottawa, ON K1N 6N5, Canada

‡ Communications Research Centre Ottawa, ON, Canada, K2H 8S2, Canada

272

TM5.6 11:10 - 11:30

**A Computer Aided Tool for the Performance Evaluation of Diffserv Networks**

*Zesong Di and H. T. Mouftah*

Queen's University, Kingston, Ontario, Canada, K7L 3N6

181

**Tuesday, May 15**

---

## **STUDENT AWARDS LUNCHEON**

**TIME: 11:45: - 13:15**

**ROOM: Churchill**

**CHAIR: Janet Bradley**

**GUEST SPEAKER:**

**Dr. D. Barber  
Gennum Corporation**

---

---

**Poster Session TP: Poster Presentation**

TIME: 13:15 – 15:15

ROOM: Mountbatten

CHAIR: R. Hudyma

**Tuesday, May 15**

---

TP 1

**The sort of fault diagnosis in large synchronous generators by analytic hierarchy process (a.h.p) method**

*H.Mirabedini, A.Gorji*

Niroo Research Institute, Tehran-Iran

019

TP 2

**Predictive reliability assessment of distribution systems including extreme adverse weather**

*Roy Billinton, Chenjian Wu*

University of Saskatchewan, Saskatoon, Saskatchewan

045

TP 3

**Composite systems operating reserve assessment using a reliability framework**

*Roy Billinton, Mahmud Fotuhi-Firuzabad*

University of Saskatchewan, Saskatoon, Canada

062

TP 4

**Three-phase induction generator connected to a single-phase electrical distribution system including harmonic effects**

*Roberlam G. de Mendonça, \* Rui V. R. Silva,\*\**

*Samuel C. M. de Paula, \* Luciano M. Neto,\*\**

\* CEFETGO – Jataí Decentralized Jataí – GO – Brazil

\*\* Universidade Federal de Uberlândia Uberlândia – MG

081

TP 5

**Evaluation of performance of groundings electrics in conditions of lightning current**

*Samuel Cesar Mota de Paula,\* Carlos A. G. Medeiros,\*\**

*Roberlam G. de Mendonça.\* Rui V. R. Silva.\*\**

*Luciano M. Neto.\*\**

\* CEFETGO – Jataí Decentralized Jataí – GO – Brazil

\*\* Universidade Federal de Uberlândia Uberlândia – MG

093

TP 6

**Study of the ageing phenomena of the tmos submicronic**

*N. Guenifi, M. Hemissi, F. Djahli and A. Mayouf,*

Department of Electronique, Setif Algeria

123

TP 7

**A New Approach to Voltage and Harmonic Compensation**

*Tarek Kandil and John E. Quaicoe,* Memorial University of Newfoundland

161

TP 8

**Swarm intelligence for hybrid cost dispatch problem**

*A. I. El-Gallad M. El-Hawary A. A. Sallam A. Kalas*

Dalhousie University, Halifax, NS, CANADA

Suez Canal University, Port Said, EGYPT

182

TP 9

**Etude des régimes dégradés dans les systèmes électroniques de puissance embarqués dans un véhicule électrique**

*F. Charfi (1) , K. Al Haddad (2) , F. Sellami (1)*

(1) L.E.T.I. ENIS BPW 3038 Sfax –Tunisie.

(2) Ecole de technologie Supérieure, Montréal –QUEBEC, Canada

195

TP 10

**Sliding mode control of 3-phase 3-wire shunt active filter in the dq frame**

*N. Mendalek, K. Al-Haddad, F. Fnaiech\* and L. A. Dessaint*

École de Technologie Supérieure, Montréal, Québec, Canada.

\*CEREP, ESSTT, 5 Av. Taha Hussein, 1008 Tunis, Tunisia.

198

TP 11

**Input-state feedback control of a shunt active power filter**

*N. Mendalek, F. Fnaiech\*, K. Al-Haddad, and L.A. Dessaint*

École de Technologie Supérieure, Québec, H3C 1K3, Canada.

\*ESSTT, 5 Av. Taha Hussein, 1008 Tunis, Tunisia.

199

TP 12

**Measuring the parameters of a cage-rotor reluctance synchronous motor**

*C. A. M. D. Ferraz C. R. de Souza,* University of Campinas, Brazil

209

TP 13

**Extension of the modified Newton method for radial distribution systems load flow**

*S. Kebaili, F. Adjeroud and K. Zehar,* Ferhat Abbas University- Setif, Algeria.

213

TP 14

**A Comparative Study of Hysteresis and PWM Control Techniques Applied to an Injection-Current-Based Three-Phase Rectifier**

*H. Kanaan and K. Al-Haddad*

École de Technologie Supérieure, Québec, H3C 1K3, Canada

*R. Chaffai and L. Duguay*

ASTEC Advanced Power System, Saint-Laurent, Québec, Canada

*F. Fnaiech*

ESSTT – University of Tunis, 1008 Tunis, TUNISIA

218

TP 15

**A novel PWM Current Control Method for AC Harmonic Elimination by Active Power Filter**

*Salim Mouttou Éloi Ngandui Pierre Sicard*

Université du Québec à Trois-Rivières, QC, Canada, G9A 5H7

223

TP 16

**Input state feedback linearization control of a three-phase three-level neutral point clamped rectifier**

*L. Yacoubi, F. Fnaiech, K. Al-Haddad and L.-A. Dessaint*

École de technologie supérieure, Département de génie électrique

1100, rue Notre-Dame Ouest, Montréal (Québec) H3C 1K3

Email : kamal, dessaint, ffarhat, lyacoubi@ele.etsmtl.ca

226

TP 17

**Transient analysis of a wind-driven induction generator**

*Saad M. Alghuwainem Rizk A. Hammouda Abdul-Rahman*

*M.. Al-Farhan*

King Saud University Riyadh Saudi Arabia

232

TP 18

**Determination of reactance of large hydro-generators using finite element and domain decomposition**

*Erich Schmidt*

Vienna University of Technology, Vienna, Austria

*Christian Grabner*

Graz University of Technology, Graz, Austria

*Georg Traxler-Samek*

ALSTOM Power Ltd., CH-5242 Birr, Switzerland

248

TP 19

**Application of iterative methods for the evaluation of harmonic currents produced by multiple static converters**

*Martin de Montigny, Éloi Ngandui, Pierre Sicard, Adam Skorek*

Université du Québec à Trois-Rivières, QC, Canada, G9A 5H7

263

TP 20

**The benefits of implementing distribution automation and system monitoring in the open electricity market**

*Rong-Liang Chen; Shafi Sabir*

302

TP 21

**Probabilistic harmonic power flow for percentile evaluation**

*T. Esposito*

Second University of Naples, 81031 Aversa (CE) Italy

*G. Carpinelli P. Varilone P. Verde*

University of Cassino, Via Di Biasio 43, 03043 Cassino (FR) – Italy

353

TP 22

**Control of grid connected induction generator using naturally commutated ac voltage controller**

*M.A. Abel-halim,*

Cairo University, Giza, Egypt

*A.F. Almarshoud,*

College of Technology, Riyadh, Saudi Arabia

*A.I. Alolah,*

King Saud University, Riyadh, Saudi Arabia

067

TP 23

**Optimization of induction motor design by using the finite element method**

*M R Feyzi, PhD, H V Kalankesh*

The University of Tabriz, Tabriz, Iran

133

TP 24

**Transient analysis of a wind-driven induction generator**

*Saad M. Alghuwainem Rizk A. Hammouda Abdul-Rahman M. Al-Farhan*

King Saud University Riyadh Saudi Arabia

332

---

---

NETWORKING BREAK 15:15 – 15:30

---

---

---

---

## **Oral Session TA1: Power Systems II**

TIME: 15:30 – 17:30

ROOM: Stevenson

CHAIRS:

<b>Tuesday, May 15</b>
------------------------

TA1.1 15:30 - 15:50

**Implementation of non-uniform reliability in a deregulated power market**

*Peng Wang*

Nanyang Technological University, Singapore 639798

*R. Billinton*

University of Saskatchewan, Saskatoon, Canada

171

TA1.2 15:50 - 16:10

**Power quality monitoring and analysis of a university distribution system**

\*Éloi Ngandui \*\*Cédric Meignant

\*Université du Québec à Trois-Rivières, QC, Canada

\*\* École Française d'Électronique et d'Informatique, France

203

TA1.3 16:10 - 16:30

**Medium voltage industrial distribution system power quality assessment utilizing multi-resolution decomposition techniques**

Tarek K. Abdel Galil E.F. El-Saadany, M.M.A. Salama

University of Waterloo

328

TA1.4 16:30 - 16:50

**Multiple contribution of windings and massive rotor to the subtransient behaviour of turbo generators**

*Bacher Johann, Köfler Hansjörg*

University of Technology Graz,

286

TA1.5 16:50 - 17:10

**Modelling of industrial loads for voltage stability studies in power systems**

*Michael A. Merkle Amir M. Miri*

University of Karlsruhe, Germany

091

TA1.6 17:10 - 17:30

**Specific applications of the transistor converter in excitation systems of synchronous generators**

*Gorislav Erceg Romina Erceg*

Croatian Electric Power Company

University of Croatia Viktorica, Cara Emina 2, Rijeka, Croatia

122

---

---

**Oral Session TA2: Systems and Devices**

TIME: 15:30 – 17:30

ROOM: Scott

CHAIR: Fei Yuan

**Tuesday, May 15**

---

TA2.1 15:30 - 15:50

**Unified simulator: an alternative to traditional simulation techniques**

*Kaamran Raahemifar*

Ryerson Polytechnic University, Toronto, Ontario, Canada, M5B 2K3

*Majid Ahmadi*

University of Windsor, Windsor, Ontario, Canada, N9B 3P4

193

TA2.2 15:50 - 16:10

**Numerical study on the performance of GaAs mesfet-like oscillator**

*F. A. Mohammadi, K. Raahemifar, F. Yuan*

Ryerson Polytechnic University, Toronto, Ontario, M5B 2K3, Canada

196

TA2.3 16:10 - 16:30

**Harmonic balance analysis of a microwave balanced power amplifier**

*(1) V. Mirafshar, and (2) A. Abdipour*

(1) University of Waterloo, Ontario N2L 3G1, Canada,

(2) Amir\_Kabir University of Technology, Tehran, 15914, Iran,

310

TA2.4 16:30 - 16:50

**Model checking of the fairisle atm switch fabric using formalcheck**

*Leila Barakatain and Sofiène Tahar*

Concordia University, Montreal, Quebec, H3G 1M8 Canada

111

TA2.5 16:50 - 17:10

**Context-based media adaptation in pervasive computing**

*Zhijun Lei and Nicolas D. Georganas*

University of Ottawa, Ottawa, Ontario, Canada

185

TA2.6 17:10 - 17:30

**FPGA implementation of MD5 hash algorithm**

*Janaka Deepakumara, Howard M. Heys and R. Venkatesan*

Memorial University of Newfoundland, St. John's, NF, Canada

241

---

## **Oral Session TA3: Image and Video Coding**

TIME: 15:30 – 17:30

ROOM: Wren

CHAIRS: R. Dony  
P. Fieguth

<b>Tuesday, May 15</b>
------------------------

---

TA3.1 15:30 - 15:50

**A review of current raw sar data compression techniques**

*A. El Boustani, K. Brunham and W. Kinsner*

University of Manitoba, Winnipeg, Manitoba, Canada, R3T 5V6  
and TRILabs (Telecommunication Research Laboratory) Winnipeg  
296

TA3.2 15:50 - 16:10

**Encoding of color still pictures wavelet transform and vector quantization**

*Shin-Ichi Kadono, Osarm Tahara And Noriyoshi Okamoto*

Kanto Gakuin University, Japan  
311

TA3.3 16:10 - 16:30

**Fixed block-based lossless compression of digital mammograms**

*Marwan Y. Al-Saiegh and Sridhar Krishnan*

Ryerson Polytechnic University, Toronto, ON M5B 2K3, CANADA.  
216

TA3.4 16:30 - 16:50

**Implementation of mpeg system target decoder.**

*Mehran Azimi, Panos Nasiopoulos and Rabab K. Ward*

University of British Columbia, Vancouver, B.C., Canada.  
235

TA3.5 16:50 - 17:10

**A progressive scheme for biomedical image compression using variable order wavelets transforms and hvs characteristics**

*M.B. Bouziane, R. Noumeir, C.S. Gargour*

Ecole de technologie supérieure, Montreal, Quebec, Canada.  
038

TA3.6 17:10 - 17:30

**A structured versus unstructured 2d hierarchical mesh for video object motion tracking**

*Wael Badawy*

University of Calgary, Calgary, Alberta, Canada T2N 1N4  
383

---

## **Oral Session TA4: Intelligent Systems II**

TIME: 15:30 – 17:30

ROOM: Rossetti

CHAIRS: B. DiStefano  
K.N. Plataniotis

<b>Tuesday, May 15</b>
------------------------

---

TA4.1 15:30 - 15:50

**Genetic algorithm for bending process in sheet metal industry**

*Chitra Malini Thanapandp, Aranya Walairacht, Shigeyuki Ohara*

Tokai University, Japan

104

TA4.2 15:50 - 16:10

**Circuit synthesis evolution using a hardware-based genetic algorithm**

*Rami Abielmona, Voicu Groza, University of Ottawa, Ottawa*

227

TA4.3 16:10 - 16:30

**A design neurofuzzy controller for level process control**

*V. Tipsuwanporn, N. Koetsam-ang, V. Kongratana, A. Numsomran and T. Suesut*

King Mongkut's Institute of Technology Ladkrabang, Bangkok.

088

TA4.4 16:30 - 16:50

**Neural networks and fuzzy logic in electrical engineering**

*Francisco Jurado, Blas Ogayar, University of Jaén*

*Manuel Castro, José Carpio, Universidad Nacional*

153

TA4.5 16:50 - 17:10

**A new simple  $\infty$ OH neuron model as a principal component analyzer**

*Marko Jankovic, Electrical Eng. Institute "Nikola Tesla, Belgrade*

207

TA4.6 17:10 - 17:30

**Competing ica techniques in biomedical signal analysis**

*M. Potter and W. Kinsner*

University of Manitoba, Winnipeg, Manitoba, Canada R3T 5V6

298

---

## **Oral Session TA5: Networks II**

TIME: 15:30 – 17:30

ROOM: Carlyle

CHAIR: S. Pierre

<b>Tuesday, May 15</b>
------------------------

---

TA5.1 15:30 - 15:50

**Description and validation of the media gateway control protocol (mgcp) using sdl/msc**

*Ligang Wang, Anjali Agarwal, J. William Atwood*  
Concordia University, Montreal, Quebec, Canada  
073

TA5.2 15:50 - 16:10

**Performance study of nfs over myrinet-based clusters for parallel multimedia applications I**

*T.Olivares\*, L.Orozco-Barbosa#, F.Quiles\*, A. Garrido\*, P.J.Garcia\**  
\* Universidad de Castilla-La Mancha,Albacete, Spain  
# University of Ottawa, Ottawa, ON K1N 6N5 Canada,  
222

TA5.3 16:10 - 16:30

**3D wavelet compression by message passing on a myrinet cluster**

*E. Moyano\*, P. González\*, L. Orozco-Barbosa#, F.J. Quiles\*, P.J. García\*, A. Garrido\**  
\* Universidad de Castilla-La Mancha,Albacete, Spain  
# University of Ottawa, Ottawa, ON K1N 6N5 Canada,  
268

TA5.4 16:30 - 16:50

**Performance evaluation of jitter management algorithms**

*Frank P. Zhang and Oliver W. W. Yang*, University of Ottawa, Ontario, Canada  
*Brian Cheng*, Mitel Corporation, Kanata, Ontario, Canada  
152

TA5.5 16:50 - 17:10

**Affectation de cellules à des commutateurs par programmation par contraintes**

Grâce Amoussou, Gilles Pesant, Samuel Pierre  
École Polytechnique de Montréal, Montréal, Qué., Canada  
360

TA5.6 17:10 - 17:30

**Design of plc networks using remote i/o module based on controller area network**

*P. Roengruen, T.Suesut, V.Tipsuwanporn, V. Kongratana and S.Kulphanich*  
King Mongkut's Institute of Technology Ladkrabang, Bangkok.  
134

---

---

**WEDNESDAY, MAY 16**

---

## ***PLENARY SESSION 3***

TIME: 08:15 – 09:15

ROOM: Churchill

CHAIR: R. Dony

### **Device Technology Convergence and the All Optical Cloud in Photonics**

**Dr. R. Normandin**

National Research Council  
of Canada

---

---

**NETWORKING BREAK 09:15-09:30**

---

---

## **Oral Session WM1: Power Systems III**

TIME: 09:30 – 11:30

ROOM: Stevenson

CHAIR: R. Hanna

**Wednesday, May 16**

---

WM1.1 09:30 – 09:50

**Commande multiphasée d'un survolteur pour un système d'énergie renouvelable**

*K. Agbossou, R. Simard, S. Kelouwani, A. Anouar and T.K. Bose*

Université du Québec à Trois-Rivières

178

WM1.2 09:50 - 10:10

**Effectiveness of different filtering methodologies in harmonic distortion mitigation**

*E.F. El-Saadany*

University of Waterloo, Waterloo, On. N2L 3G1 Canada

327

WM1.3 10:10 - 10:30

**Unified power quality conditioner with a novel control algorithm based on wavelet transform**

*A. Elnady A. Goauda M. M. A. Salama, Waterloo University, Ontario, Canada*

331

WM1.4 10:30 - 10:50

**Counter-flow in a deregulated power system network and it's effect on transmission loss allocation**

*N.Chowdhury A.Bhuiya, Power Systems Research Group, University of Saskatchewan*

204

WM1.5 10:50 - 11:10

**Analysis of a voltage regulator for self-excited induction generator employing current-type static compensator**

*Hamid R. Karshenas and Akbar Abdolahi, Isfahan University of Technology, IRAN*

259

WM1.6 11:10 - 11:30

**Probabilistic modeling of converters for power evaluation in non sinusoidal conditions**

*T. Esposito*

Second University of Naples Via Roma 29, 81031 Aversa Italy

*A. Russo P. Varilone*

University of Cassino, Via Di Biasio 43, 03043 Cassino Italy

354

---

## Oral Session WM2: VLSI Design

TIME: 09:30 – 11:30

ROOM: Scott

CHAIR: E.P. Nowicki

**Wednesday, May 16**

---

WM2.1 09:30 – 09:50

### **An efficient rectilinear steiner tree algorithm for vlsi global routing**

*Shawki Areibi*

University of Guelph, CANADA N1G 2W1

*Min Xie and Anthony Vannelli*, University of Waterloo, CANADA

101

WM2.2 09:50 - 10:10

### **A genetic algorithm for testable data path synthesis**

*H. Harmanani, R. Saliba, M. Khoury*, Lebanese American University, Byblos, Lebanon

138

WM2.3 10:10 - 10:30

### **Applying cycle-based simulation technique to VITAL as a VHDL gate level standard**

*Benyamin Hamdin Yaran, Dara Rahmati, Abolfazl Salimi Zebardast*

CAD Lab of ECE Department, University of Tehran, Tehran, Iran

291

WM2.4 10:30 - 10:50

### **Characterization of a gate drive technique for snubberless operation of gate controlled devices**

*R.Sachdeva and E.P.Nowicki*, The University of Calgary, Calgary, Alberta, Canada

324

WM2.5 10:50 - 11:10

### **Fault characterizations and design-for-testability technique for detecting i ddq faults in CMOS/BICMOS circuits**

*Kaamran Raahemifar*

Ryerson Polytechnic University, Toronto, Ontario, Canada.

*Majid Ahmadi*

University of Windsor, Windsor, Ontario, Canada, N9B 3P4

190

WM2.6 11:10 - 11:30

### **A new initialization technique for asynchronous circuits**

*Kaamran Raahemifar 1 , Fei Yuan 2*

Ryerson Polytechnic University, Toronto, Ontario, Canada.

*Farahnaz A. Mohammadi*

Nortel Networks Corporation, Brampton, Ontario L6T 5P6

192

---

**Oral Session WM3: Image Processing and Analysis I**

TIME: 09:30 – 11:30

ROOM: Wren

CHAIRS: E. Ternigan  
P. Fieguth

**Wednesday, May 16**

---

WM3.1 09:30 – 09:50

**A fMRI data analysis method using a fast infomax-based ica algorithm**

Dezhong Yao 1,2,3 ,Huafu Chen 1, Suzanna Becker 2 Tiangang Zhou 3, Yan Zhuo,3 Lin Chen 3

1. University of Science and Technology of China, Chengdu, China.

2. McMaster University, Hamilton, Ontario, L8S 4K1, Canada

3. University of Science and Technology of China, Beijing China

285

WM3.2 09:50 - 10:10

**Radiometric equalization of remote sensing data by utilization of laserscan data**

*J. Bückner, M. Pahl, O. Stahlhut*

University of Hannover, Germany

087

WM3.3 10:10 - 10:30

**Morphological skeleton algorithm for pdp production line inspection**

*Renyan Ge and David A. Clausi*

University of Waterloo, Waterloo, Ontario, Canada N2L 3G1

094

WM3.4 10:30 - 10:50

**Modeling the correlation structure of images in the wavelet domain**

*Z. Azimifar, P. Fieguth, E. Jernigan*

University of Waterloo, Waterloo, Ontario, Canada, N2L-3G1

236

WM3.5 10:50 - 11:10

**CMOS image sensor camera with focal plane edge detection**

*Muahel Tabet and Richard Hornsey*

University of Waterloo, Ontario, Canada N2L 3G1

hornsey@venus.uwaterloo.ca

242

WM3.6 11:10 - 11:30

**Motion estimation of sparse, remotely-sensed fields**

*F. Jin\*, F.M.Khellah\*, P.W.Fieguth\*, L.Winger\*\**

\* University of Waterloo, Waterloo, ON N2L 3G1, Canada

\*\* Cisco Systems, 180 Columbia Street West , Waterloo, ON Canada

254

---

**Oral Session WM4: Networks III**

TIME: 09:30 – 11:30

ROOM: Rossetti

CHAIR: C. Desmond

**Wednesday, May 16**

---

WM4.1 09:30 – 09:50

**New job selection and location policies for load distributing algorithms \***

*Marei S. Al-Amri 1 and Rana Ejaz Ahmed 2*

1. King Saud University, Riyadh-11421, Saudi Arabia
2. Presently at Research In Motion (RIM) Ltd., Waterloo, ON, Canada.

089

WM4.2 09:50 - 10:10

**Reliable multicast transmissions using forward error correction and automatic retransmission requests**

*Ben Li*

Norsat International Incorporated, Winnipeg, Manitoba, Canada

005

WM4.3 10:10 - 10:30

**A robust model parameter extraction technique based on meta-evolutionary programming for high speed/high frequency package interconnects**

*Nader Damavandi, Safteddin Safavi-Naeini*

University of Waterloo, Canada

116

WM4.4 10:30 - 10:50

**Load-balanced wireless ad hoc routing**

*Audrey Zhou and Hossam Hassanein*

Queen's University, Kingston, Ontario, Canada, K7L 3N6

294

WM4.5 10:50 - 11:10

**The use of conceptual models during the design of new telecommunication services**

*Ali Roshannejad, Armin Eberlein*

University of Calgary, Alberta, Canada

277

WM4.6 11:10 - 11:30

**A tree-based algorithm for protection/restoration in optical mesh networks**

*Shahram Shah-Heydari and Oliver Yang*

University of Ottawa, Ottawa, Canada K1N 6N5

139

---

---

**Oral Session WM5: DSP Architectures**

TIME: 09:30 – 11:30

ROOM: Carlyle

CHAIR: H. Mouftah

**Wednesday, May 16**

---

WM5.1 09:30 – 09:50

**A dynamic programming approach to complex allocation in a dsp pipelined processor**

*R. Muresan, C. Gebotys*

University of Waterloo, Waterloo, Ontario, N2L 3G1  
025

WM5.2 09:50 - 10:10

**A vlsi implementation of an adaptive-effort low-power viterbi decoder for wireless communications**

*G. Allan and S. Simmons*

Queen's University, Kingston, Ontario  
141

WM5.3 10:10 - 10:30

**Efficient Implementation of the Discrete Wavelet Transform on the Parallel DSP-RAM Architecture**

*Hongyu Liao, Bruce F. Cockburn, and Mrinal K. Mandal*

University of Alberta, Edmonton, Canada T6G 2G7  
307

WM5.4 10:30 - 10:50

**On high speed add - compare - select for viterbi decoders**

*R. V.K. Pillai 1 and Paul D'Arcy 2*

1 StarCore Technology Centre, Agere Systems, Atlanta, Georgia,

2 NetCom Division, Agere Systems, Allentown, PA 18103

375

WM5.5 10:50 - 11:10

**An accurate linear approximation method utilizing a bipartite reciprocal table for a floating point divider**

*Ilyoo Choo and R.G. Deshmukh*

Florida Institute of Technology, Melbourne, FL 32901  
023

WM5.6 11:10 - 11:30

**Implantation d'un algorithme de detection de contours multi-echelles sous formes de circuits fpga**

*Sarifuddin, H. Laggoune*

Jl Margonda Raya 100, Pondok Cina, 16424 Indonesia

160

---

## **Oral Session WA1: Applications**

TIME: 13:00 – 15:20

ROOM: Stevenson

CHAIR: A. Ferworm

<b>Wednesday, May 16</b>
--------------------------

---

**Note that Wednesday Afternoon Sessions Begin at 13:00**

---

WA1.1 13:00 - 13:20

**Extending the capability of mars umbilical technology demonstrator**

*Nasser Houshangji*

Purdue University Calumet, Hammond, IN. 46323, U.S.A.

183

WA1.2 13:20 - 13:40

**A novel direct-drive motor system for the joint of the robot**

*Hao Chen Dong Zhang Jianguo Jiang*

China University of Mining & Technology, Xuzhou 221008 China

350

WA1.3 13:40 - 14:00

**Theoretic design of a smart vision sensor**

*Hongmei Gao and Xiang Chen*

University of Windsor, Ontario, Canada

121

WA1.4 14:00 - 14:20

**Constrained image understanding for an internet robot supporting telepresence**

*Alexander Ferworm Wing-Hong Shiu Kostas Plataniotis*

Ryerson Polytechnic University

The University of Guelph

The University of Toronto

180

WA1.5 14:20 - 14:40

**Performance prediction on graphics hardware  
Using software simulation**

*Daniel Wai-him Wong and Milivoje Aleksic*  
ATI Technologies Inc., Toronto, Canada  
040

WA1.6 14:40 - 15:00

**Algorithms for orthographic views with hidden entities and manufacturing features  
information for sheet metal parts**

*Periasamy Thanapandi\**, *Jackson Tholath\*\**,  
*Teruyoshi Ishiguro\*\*\**, *And Toshio Takagi\**  
\*FA Software Division, Amada Co. Ltd., JAPAN  
\*\*Amada Soft India Ltd., Chennai, 600 017, INDIA  
\*\*\*Amtec Co. Ltd., 200, Ishida,, JAPAN  
278

WA1.7 15:00 - 15:20

**Application of rough set theory to fault diagnosis of check valves in reciprocating  
pumps**

*Shi Wengang Wang Rixin Huang Wenhui*  
Harbin Institute of Technology, Harbin 150001, China  
044

---

## **Session WA2 Digital Design**

TIME: 13:00 – 15:00

ROOM: Scott

CHAIR: Z. Vranesic

<b>Wednesday, May 16</b>
--------------------------

---

**Note that Wednesday Afternoon Sessions Begin at 13:00**

---

WA2.1 13:00 - 13:20

**Design and implementation of a parity-based bist scheme for FPGA global interconnects**

*Xiaoling Sun, Susan Xu and Jian Xu*

University of Alberta, Edmonton, AB, Canada T6G 2G7

*Pieter Trouborst* Nortel Networks, Ottawa, ON, Canada K2C 3V5  
225

WA2.2 13:20 - 13:40

**Run-time reconfiguration: towards reducing the density requirements of FPGAs**

*K. Brunham and W. Kinsner*

University of Manitoba, Winnipeg, MB, R3T 5V6

297

WA2.3 13:40 - 14:00

**Design of high-speed and flexible controllers in programmable logic devices**

*A. Grbic, S. Srblic and Z. Vranesic*

University of Toronto, Ontario, Canada

369

WA2.4 14:00 - 14:20

**Handling complex vhdl semantics with an oo intermediate format**

*Dara Rahmati, Abolfazl Salimi Zebardast, Mohammad H. Reshadi, \* Zainalabedin Navabi*

University of Tehran, Tehran, Iran

\* Northeastern University / Boston, MA 02115

301

WA2.5 14:20 - 14:40

**FPGA implementation of PWM pattern generators**

*Dan Deng Su Chen Géza Joós*

Concordia University, Montreal, Quebec, Canada H3G 1M8

108

WA2.6 14:40 - 15:00

**Low power multiport memories exploration and design**

*Wen-Tsong Shiue*

Silicon Metrics Corporation, Austin, TX 78759 USA

279

---

**Oral Session WA3: Image Processing and Analysis II**

TIME: 13:00 – 15:00

ROOM: Wren

CHAIR: B. Smolka

**Wednesday, May 16**

---

**Note that Wednesday Afternoon Sessions Begin at 13:00**

---

WA3.1 13:00 - 13:20

**A method of acquiring and refining a signal depicted on an image**

*K.A. Zarmakoupis J. Kappatou*

University of Patras, 26500 RION PATRAS, Greece  
292

WA3.2 13:20 – 13:40

**Parallel implementation for image rotation using parallel virtual machine (pvm)**

*J. Hinks, S.A. Amin*

BIOCORE, Coventry University, Coventry, UK  
233

WA3.3 13:40 - 14:00

**Image segmentation using mri vertebral cross-sections**

*Simon Booth and David A Clausi*

University of Waterloo, Waterloo, Ontario, Canada N2L 3G1  
238

WA3.4 14:00 - 14:20

**Feature analysis of activated sludge based on microscopic images**

*Marcin Sikora*

Munich Univ. of Technology, Munich, Germany

*Bogdan Smolka*

Silesian University of Technology, Gliwice,  
329

WA3.5 14:20 - 14:40

**On the fast modified vector median filter**

*B. Smolka, M. Szczepanski*

Silesian University of Technology, Gliwice, Poland

*K.N. Plataniotis, A. N. Venetsanopoulos*

University of Toronto, Toronto, Canada  
385

WA3.6 14:40 - 15:00

**Wavelet filters in multi-resolution motion estimation**

*Jinwen Zan, M.N.S. Swamy and M.O. Ahmad*

Concordia University, Montreal, Quebec, Canada H3G 1M8  
389

---

## **Oral Session WA4: Wireless Communication**

TIME: 13:00 – 15:00

ROOM: Rossetti

CHAIRS: D. Hatzinakos  
R.A. Pacheco

**Wednesday, May 16**

---

**Note that Wednesday Afternoon Sessions Begin at 13:00**

---

WA4.1 13:00 - 13:20

**Smart antenna testbed for ds-cdma systems**

*Zhang Yong, Feng Zhenghe*

Tsinghua University, Beijing.

251

WA4.2 13:20 - 13:40

**Capacity analysis of cdma networks with smart antenna**

*Zhang Yong, Feng Zhenghe*

Tsinghua University, Beijing.

252

WA4.3 13:40 - 14:00

**Decorrelation receivers for unresolved multipath ricean fading channels**

*Florence Danilo-Lemoine*

Carleton University, Ottawa, Ontario, Canada. K1S 5B6

*Harry Leib*

McGill University, T.S.P. Lab., Montréal, Québec, Canada. H3A 2A7

381

WA4.4 14:00 - 14:20

**Spatio-temporal equalization and multiuser detection for ds-cdma systems: a semi-blind approach**

*Ryan A. Pacheco and Dimitrios Hatzinakos*

University of Toronto, Toronto, Ontario, Canada M5S 3G4

166

WA4.5 14:20 - 14:40

**Non-coherent mt-cdma system with diversity combining**

*Quazi Mehbubar Rahman and Abu B. Sesay*

University of Calgary, Calgary, Canada

026

WA4.6 14:40 - 15:00

**Simulation of indoor uhf propagation using numerical technique**

*Larbi Talbi*

University of Quebec at Hull, Hull, Quebec, Canada, J8X 3X7

208

---

## **Oral Session WA5: Biomedical Applications**

TIME: 13:00 – 16:00

ROOM: Carlyle

CHAIR: K.N. Plataniotis

<b>Wednesday, May 16</b>
--------------------------

---

**Note that Wednesday Afternoon Sessions Begin at 13:00**

---

WA5.1 13:00 - 13:20

**The electroencephalogram as a biometric**

*R.B. Paranjape\*, J. Mahovsky\*, L. Benedicenti\*, Z. Koles'*

<sup>^</sup> University of Alberta, Edmonton, Canada.

\* University of Regina, Saskatchewan, Canada

186

WA5.2 13:20 - 13:40

**Towards gestalt telehealth: considering social, ethical and cultural issues**

*RK Bali & RNG Naguib*, Coventry University, Coventry, CV1 5FB, UK

052

WA5.3 13:40 - 14:00

**A low power hybrid posture monitoring system**

*Michael Bazzarelli, BSc., Nelson Durdle, Ph.D., Edmond Lou, Ph.D., James Raso, MASC.*

University of Alberta, Edmonton, Alberta, Canada

Glenrose Rehabilitation Hospital, Edmonton, Alberta, Canada

103

WA5.4 14:00 - 14:20

**Oriental coherence metrics: classification of colonic cancer images based on human form perception**

*Alison G. Todman 1, Raouf N. G. Naguib 1, Mark K. Bennett 2*

1. BIOCORE, Coventry University, U.K. 2. University of Newcastle, Freeman Hospital, Newcastle, UK

084

WA5.5 14:20 - 14:40

**A low power accelerometer used to improve posture**

*Edmond Lou 1, Michael Bazzarelli 2, Doug Hill 1, Nelson Durdle*

1. Glenrose Rehabilitation Hospital, Edmonton, Alberta, Canada 2. University of Alberta, Edmonton, Alberta, Canada, T6G 2G7.

024

WA5.6 14:40 - 15:00

**A classification canvas for the analysis of biomedical data**

*Aleksander B. Demko, Nicolino J. Pizzi, Ray L. Somorjai*, National Research Council, Winnipeg  
MB, R3B 1Y6  
015

WA5.7 15:00 - 15:20

**Contrôle amélioré de la compression de la densité spectrale du signal emg de surface : application à la fatigue**

*R.E. Bekka, A. Reffad, D. Chikouche*, Université de Sétif, 19000 SETIF, ALGERIA.  
136

WA5.8 15:20 - 15:40

**Analyse de la compression de la densité spectrale du signal emg de surface par les méthodes basées sur la fft**

*R. E. Bekka, A. Mihi, D. Chikouche*, Université de Sétif, 19000 SETIF, ALGERIA  
137

WA 5.9 15:40 – 16:00

**Fast iris detection using neural nets**

*Hazem M. El-Bakry*, Mansoura University - Egypt  
012