



The Annual Connection

The Year 2008-9 in Review, and Looking Ahead to 2009-10

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Greetings from the Section Chair

Dear Colleagues. Welcome to the 2009 edition of the Toronto Section's Newsletter. I am pleased to highlight the key organizational achievements of the past year:

- Section is steadily moving towards its goal - complete coverage of the IEEE technical areas. Recently, the following IEEE Societies found their "homes" in the Toronto Section Chapters:

- IEEE Broadcast Technology Society
- IEEE Consumer Electronics Society
- IEEE Industrial Electronics Society
- IEEE Power Electronics Society
- IEEE Product Safety Engineering Society
- IEEE Robotics and Automation Society
- IEEE Systems, Man, and Cybernetics Society.

- New affinity group has been formed - Consultants Network Affinity Group.
- New IEEE Student Branch has been established at Humber College.

September 2009 will be marked by two large events, which the Section has been working on for the last year. The first is IEEE Toronto International Conference: Science and Technology for Humanity (IEEE TIC-STH 2009) which will be held on September 26-27. This is the first international conference organized and hosted by the Section. All local universities are involved in the organizing committee. The conference will be run simultaneously onsite and online. Around 200 papers will be delivered. The second event is the IEEE Milestone ceremony dedicated to the First External Cardiac Pacemaker created at the University of Toronto in 1950.

Most activities the Section is conducting this year are dedicated to the IEEE 125th Anniversary, celebrating the history of the global organization and contributions to the profession by members of the IEEE Toronto Section. I am pleased to congratulate all Section members with the anniversary of our organization and wish all of you the best of luck in your future endeavors.

Alexei Botchkarev (Alex Bot)

Ph.D., PMP, CMSP, SMIEEE

Chair, IEEE Toronto Section

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Current Section Executive Committee

Committee

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Treasurer

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Nominations (Section Past Chair)

Alagan Anpalagan

Publications

Bob Alden

Public Relations

Visda Vokshoori

Student Activities

Olivier Trescases

GOLD

April Khademi

Life Members

Pelle Westlind

Women In Engineering

Behnaz Ghoraani

Aerospace & Electronic Systems

Hassan Kojori

Circuits & Devices

Emanuel Istrate

Communications

Xavier Fernando

Computer

Dennis Cecic

Dielectrics & Electrical Insulation

Jody Levine

Electromagnetics & Radiation

George Eleftheriades

Eng. & Human Environment

Bayo Awoyemi

Eng. in Medicine and Biology

Benjamin Mak

Industry Applications

Ehsan Behboudi

Instrumentation & Measurement

Albert Man

Power Engineering

Mario Germani

Signals & Computational Intelligence

Anna T. Lawniczak

Signal Processing

Sridhar Krishnan

Solid State Circuits

Dustin Dunwell

IEEE Canada Past President

Robert (Bob) Hanna

Member at Large

Wallas Khella

Member at Large

Bruno Di Stefano

Newsletter Editor

Naresh Kurada

Webmaster

Karl Martin

IEEE Awards and Recognitions

Congratulations to the many IEEE Toronto members who were recognized in various ways in 2008-09.

Ling Guan Professor / Canada Research Chair, Ryerson University, was inducted into the Class of 2008 *IEEE Fellow for his contributions to image and multimedia signal processing* •

Bogdan Kasztenny, was inducted into the Class of 2008 IEEE Fellow for his contributions to *protective relaying methods, designs, and application* • **Jorg Liebeherr**, University of Toronto, was inducted into the Class of 2008

IEEE Fellow for his contributions to *the design and analysis of computer networks and their protocols* • **Bin Wu**, Ryerson University, was inducted into the Class of 2008 IEEE Fellow for his contributions to *high-power converter technology and adjustable speed drive* • **Francis P. Dawson** University of Toronto, was inducted into the Class of 2009 IEEE Fellow for his contributions to *modeling of excitation and detection of electrical arcs* • **Brendan J. Frey**,

University of Toronto, was inducted into the Class of 2009 IEEE Fellow for his contributions to *information processing and machine learning*

Jonathan Rose, University of Toronto, was inducted into the Class of 2009 IEEE Fellow for his contributions to *field-programmable gate arrays* • **Marcelo Mota**, IEEE Toronto Section Secretary has been awarded the 2008 IEEE Larry K. Wilson Transnational Award. Marcelo's long and fruitful volunteer work for the IEEE

developing and promoting the Institute's activities internationally in all Regions outside the U.S. (Regions 7, 8, 9 and 10), with a stronger focus in Regions 9 (Latin America) and 7 (Canada) • **Bruno DiStefano**, Senior Member of IEEE Toronto Section, awarded the 2008 W.S. Read Gold Medal (Outstanding and Sustained Service to IEEE Canada and the Institute) in recognition of service to the profession & IEEE.

2009 IEEE Toronto International Conference – Science and Technology for Humanity TIC-STH 2009

September 26-27, 2009 Ryerson University, 245 Church Street
Toronto, Ontario, Canada
<http://www.tic-sth2009.org/>

Senior Member Elevations

As a measure of richness of the section's heritage of excellence, the following IEEE members were elevated to Senior Members for their contributions to Electrical & Computer Engineering in 2008-09 (from January 2008 to June, 2009): Lan Kang, Zhang Jianhui, Aleksic Milivoje, Ali Mohd, Allison Robert, Ben Amara Foued, Calbaza Dorin, Chen Yuxin, Chhabra Amitabh, Cumberland Tom, Fabian Robert, Gadelrab Serag, Goma Sergiu, Guo Yinhu, Haruna Abdul-Razaq, Johnson Charles, Kassam Mahmood, Kwong Raymond, Law KaLun, Manyakin Konstanti, Masood Sindhu Fasih Ahmed, Milgram Paul, Ng Roy, Ostroff Jonathan, Quiroz Alberto, Rahal Ali, Raina Vijay, Ramirez Mario, Sasic Mladen, Se Shuen Yan, Sepa Zsolt, Shakiba Mohammad, Shen Zhong Bing, Singh Tarlochan, Venkatesh B, Vlach Philip, Welles Marilyn, Zarnett Gerald, Zdravkovic Andrej, Zubair Ahmad, Janaki Balakrishnan, Rob Corcoran, Prince Francis, Michael Jenkin, Bruno Korst, Guomin Li, Rene Midence, Milos Radomir Popovic, Brunello Gustavo A, Shan Jinjun, Edebiri Charles, Jacobsen Hans-Arno, Osvath Laszlo, Shokr Mohammed, Zhang Dan, Palmer William, Refai-Ahmed Gamal, Sahba Farhang, SetO Art, Slater N, Abdelrahman Tarek, LOSTANLEN Yves, Meshkin Kasra, Tin Noel T T & Zhang Zhiying, Doherty and Yu Sun. Congratulations to all.

We are eager to help any and all members that qualify and wish to upgrade to senior member status. If you are interested, please send us your CV and we will inform you of the easy steps that need to be taken to do the online application process. We will also help to find qualified members to act as references. Contact Membership Development Chair, Dimitri Androutsos at dimitri@ieee.org.

Annual General Meeting

The 2009 Annual General Meeting (AGM) of the Section will be held on October 24, 2009 at the Marriott Hotel. At the 2008 AGM the following outstanding individuals were recognized for their contributions to the IEEE • IEEE Canadian Foundation 2008 Women in Engineering Prize to Visda Vokhshoori In recognition of valued service and contribution to IEEE Canada • IEEE Canadian Foundation Certificate of Appreciation to **Wallas Khella** for 11 years of continuous service with the IEEE Canadian Foundation • IEEE Canadian Foundation Certificate of Appreciation to **Hugh Swain** for 27 years of continuous service with the IEEE Canadian Foundation • IEEE Toronto Section 2008 Outstanding New Leader Award **April Khademi** Chair of the GOLD Affinity Group (2008-) recognizing young, rising leadership • In appreciation of Excellent Service to the IEEE Toronto Section **Karl Martin** Webmaster (2007-) for his high quality, hard work in maintaining the Section Website • In appreciation of Excellent Service to the IEEE Toronto Section **Dimitrios Androutsos** Chair of the Membership Development Committee (2006-) for his leadership in organizing and carrying out the extremely successful Senior Member Elevation Campaign • In appreciation of Excellent Service to the IEEE Toronto Section **Sridhar Krishnan** Chair of the Signal Processing Chapter (2005-) for his leadership in organizing the 2008 Canadian Conference on Electrical and Computer Engineering (CCECE) • In

appreciation of Excellent Service to the IEEE Toronto Section **Alagan Anpalagan** Section Chair, (2006-2007), Chair of the Nominations & Appointments Committee (2008-) for his leadership in organizing the 2008 Canadian Conference on Electrical and Computer Engineering (CCECE) for his leadership in organizing the 2008 Canadian Conference on Electrical and Computer Engineering (CCECE) • IEEE Toronto Section Exemplary Service **Patrick Finnigan**, Chair of the Life Member Affinity Group (2005-2007) for his leadership and remarkable hard work in preparing, submitting and following up on the multi-year process for recognition and approval, by both IEEE History Committee and IEEE Board of Directors, of the "Hopps First External Pacemaker" as an IEEE Milestone in Electrical Engineering and Computing • IEEE Toronto Section 2008 Chapter Chair of the Year **Xavier Fernando** Chair of the Communications Society Chapter (2006-) for his leadership in a Chapter that stands out for its prolific number of events catering for the needs of its members.

Nominations for Office 2010 – 2011

The IEEE Toronto Section Nominations Committee has prepared a partial slate of candidates for the upcoming election for Section Officers. The candidates are:

Officer	Candidate
Chair	Wai Tung Ng
Vice Chair	Xavier Fernando
Secretary	Marcelo Mota
Treasurer	Pelle Westlind

Additional nominations are invited from the membership of the IEEE Toronto Section for these positions. Such membership nominations must be supported in writing by the signatures of ten or more voting members of the IEEE Section. Nominees, to qualify for election, shall have experience in at least two Section positions (not necessarily in IEEE Toronto Section), or in the combined opinion of the Executive Committee, adequate experience in the affairs of the Toronto or other Sections.

Nominations will remain open until September 15, 2009. Please contact Alagan Anpalagan, Nominations Committee Chair, at: 416-979-5000 x6079 or alagan@ieee.org

Student Activities

Student membership and student activities are very important parts of the IEEE. The Toronto Section is always very supportive of career enhancement and professional development events organized by students. This includes financial support to various technical seminars such as the annual Connections, ECE Graduate Symposium at the University of Toronto and the International Conference for Upcoming Engineers (ICUE), held in rotating venues throughout Ontario. In addition, our section allocates an annual scholarship budget of \$10,000. Congratulations to the following student award and scholarship winners in 2008: IEEE Toronto Section, Bruno N. Di Stefano Scholarship:

Toronto Section of the IEEE conducted a survey from February to August 2009, to understand the evolving needs of IEEE Toronto Section members and how the section can respond. Further, the survey was composed of 30 questions organized into 3 broad categories namely membership, member needs and how the members rate IEEE. Although the response was small, the survey highlighted some interesting insights from the members who responded to the survey.

The individual responses are listed in the ensuing pages. However, in summary most of the respondents felt that the IEEE Toronto Section has served them satisfactorily and a majority of them felt that investing in the IEEE membership

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Communications Society Chair Xavier Fernando receives, North American Chapter Achievement Award for 2008 during IEEE COMSOC Awards Luncheon during GLOBECOM conference in New Orleans, USA

Mohammad Mehdi Haj-Shafiei – University of Toronto; IEEE Toronto Section, Wallas Khella Scholarship ;IEEE Canadian Foundation, Dr. Robert T. H. Alden Scholarship (jointly with IEEE Toronto Section); **Hao Jun Liu of the University of Toronto.**

IEEE University of Ontario Institute of Technology Student Branch of the IEEE Toronto Section has been selected as the recipient of the 2008 MGA Student Branch Membership Growth Award for IEEE Region 7

Conferences and Conventions

For years, Toronto has been a venue of choice for many IEEE-sponsored conferences. Traditionally, our section was involved in preparing and staging the conferences. In 2008-09, the section volunteers were involved in organizing 1.) IEEE International Symposium on Information Theory – ISIT 2008 2.) Symposium on Alternate Energy and Global Synergy 3.) *Tesla, An Evening With Genius* - Play organized by: Professional Engineers of Ontario (PEO) and Institute of Electrical and Electronics Engineers (IEEE), Toronto Section 4.) Engineering Forum for Nuclear Technology in Ontario – Joint IEEE Toronto/Association of Polish Engineers in Canada Conference 5.) The Toronto section along with sections in the Central Area was involved in organizing the 21st Annual IEEE Canadian Conference on Electrical and Computer Engineering (CCECE) held in

IEEE Honours Development of Pacemaker in Toronto by Patrick Finnigan & Pelle Westlind

In 1949 Dr. John A. Hopps conducted experiments with medical colleagues Dr. W.G. Bigelow and Dr. J.C. Callaghan at the Banting and Best Institute in Toronto.

While experimenting with radio frequency heating to restore body temperature, these doctors made an unexpected discovery: if a heart stopped beating due to cooling, it could be started again by artificial stimulation using mechanical or electric means. Their discovery of a method to restart a heart that had stopped beating led Hopps to develop the first pacemaker at the National Research Council of Canada in 1950.



In picture (Left to Right) Dr. J.C. Callaghan, Dr. W.G. Bigelow Dr. John A. Hopps

This work led to subsequent inventions of external and implantable pacemakers which are used worldwide by more than 2 million patients (1950-2005) extending their lives and greatly improving their quality of life.

At the age of 21 Dr. Jack Hopps joined the National Research Council in 1941 after training at the University of Manitoba as an electrical engineer. The device that Hopps invented produced an electrical impulse to stop ventricular fibrillation. At this point in history, transvenous catheter electrodes were used. Surprisingly enough, they are still used today for implantable pacemakers. In early 1950, the catheter electrodes relied on vacuum tubes. About a decade later, transistors were used to help decrease the size of the pacemakers

To commemorate this noble and significant invention as an IEEE milestone, a proposal and rigorous research was carried out by a diverse team of IEEE members: Ron Potts, Bert deKat, and Inci McGreal, with additional support from members of the IEEE Toronto Section (especially Life Members and the Section Executive), and the IEEE History Center. The feedback from referees of the IEEE History Center, including Jerome Suran, former President of IEEE, and a world-leading expert on Pacemakers, significantly enhanced the technical proposal for this milestone. And now, the IEEE Milestone was approved by the IEEE History Committee and Board of Directors, and will be unveiled at a ceremony as part of the TIC-STH 2009 Conference. This will take place on Sept. 26 at the Best Institute, 114 College St., where the research was performed.

Niagara Falls during May 4 to 7, 2008 under the leadership of Dr. S. Krishnan. CCECE'08 6.) 2009 IEEE Toronto International Conference – Science and Technology for Humanity (TIC-STH 2009) on September 26-27, 2009 7.) Product Safety Engineering Society Symposium – PSESS on Oct 19-21, 2009.

Sparks in the Section

Each of our 14 Chapters is associated with one or more of IEEE's 39 Technical Societies. You will read over their short reports, appreciate the range and timeliness of the technical materials made available for you by each chapter. All the technical or social meetings are published on our web site with a date-title-presenter note on our home page (<http://toronto.ieee.ca/index.html>) and in our monthly newsletter with links to a page containing full details.

Aerospace and Electronics Systems Chapter by Hassan Kojori

This is relatively new chapter officially formed in June 2007 under the Section leadership of H. Kojori and Ali Nabavi has a mandate to serve the engineering community that supports aerospace, space and defense sectors. During 2008-09, the chapter held meetings and lectures in: 1.) Data Fusion in Tracking: Architectures and Performance - an IEEE Aerospace and Electronic Systems Society Distinguished Lecture 2.) Passive Coherent Location: Tracking Aircraft Using Radio





IEEE Pacemaker Milestone Plaque

as a valuable investment. Never the less there were considerable respondents who did not know about the value added benefits of the IEEE membership. Further, in particular they felt that they receive enough information about the Toronto Section events but prefer to be reminded a day earlier. In addition both time and distance prevented respondents from attending the Toronto Section events Finally most of the respondents prefer to attend webinars from their home rather than their place of work. The responses to the survey is as follows

- Approximately 36% were members grade while senior members, life members, Graduate Student Member, Student members were 22%,10% ,10% and 6% respectively. Of these approximately 90% were male respondents

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and TV Stations 3.) Toronto Aerospace Museum Lecture and Tour 4.) Soft Switching Techniques in Power Electronics Converters. For more questions about these, please contact Hassan Kojori at kojori@ieee.org

Circuits & Devices Chapter by Emanuel Istrate

This chapter represents the local chapters of the Circuits and Systems Society, the Components Packaging and Manufacturing Technologies Society, the Electron Devices Society and the Lasers and Electro-Optics Society. During 2008-09, the chapter held the following meetings and lectures. 1.) Quantum Cascade Lasers – Distributed Feedback Lasers and Arrays for Chemical Sensing 2.) Carbon Nanotube Photonics 3.) Intelligent Multiparameter Fibre-Optic Sensors 4.) Signal Processing for Fibre Optic Communications 5.) Silicon Integrated Nanophotonics: A Platform for On-Chip Optical Interconnects 6.) Hetero-epitaxy of III-V Compounds on Silicon Substrates by MOCVD for Device Applications- an IEEE Electron Devices Society Distinguished Lecture 7.) Photonic Crystal Microcavities in III-V and SOI Membranes: Linear and Nonlinear Responses 8.) Optical and Electronic Signal Processing for Fibre-Optic Communications - an IEEE Lasers and Electro-Optics Society Distinguished Lecture 9.) Optical Printed Circuit Board (O-PCB) and VLSI Photonics - *an IEEE Lasers and Electro-Optics Society Distinguished Lecture* 10.) Enabling Technologies for the Monolithic Integration of Semiconductor Lasers and Waveguide Optical Isolators 11.) Flexible Nonlinear Light Sources 12.) Information Theory Applied to Fiber-optic Transmission: Limits to Spectral Efficiency of Optical Fibers Due to the Kerr Nonlinearity jointly organized with the Communications Chapter 13.) Optical Signal Processing by Parametric Devices- *an IEEE Lasers and Electro-Optics Society Distinguished Lecture*. For more questions about these, please contact Emanuel Istrate at e.istrate@ieee.org

Communications Chapter by Xavier Fernando

Communications Chapter has been very productive this year. It was awarded North American Chapter Achievement Award for 2008 for the outstanding performance. It actively participated in IEEE COMSOC WCET Certification program. It has organized several technical seminars on leading topics such as, cognitive radio networks, optical amplifiers, optical signal processing, Aircraft location tracking using radio and TV Stations (a very different talk), coding and signal processing for wireless communications. The seminar, 'The Art of Science and Research' by Prof. Pas Pasupathy was attended by more than 50 audiences. The Chapter Chair will be delivering a tutorial at Globecom Conference in December 2009. The Chapter also actively participated in North American Eastern Chapter Chair's Congress in New York, June 2009. The Chapter is also actively involved in IEEE Toronto Section International Conference – Science and Technology for Humanity. Apart from these, the chapter held meetings and lectures in: 1.) Cognitive Radio: Research Challenges - Lecture and Online Webinar 2.) Cognitive Radio: some perspectives on interference mitigation 3.) Optical Amplifiers for Telecommunication Applications 4.) Passive Coherent Location: Tracking Aircraft Using Radio and TV Stations 5.) Sphere Decoding and the LLL Algorithm 6.) Adding

Wireless Communication to Embedded Systems 7.) The QR Decomposition and the Decision Feedback Detectors: Applications to Block Data Transmission Systems 8.) The Art and Science of Research 9.) Information Theory Applied to Fiber-optic Transmission: Limits to Spectral Efficiency of Optical Fibers Due to the Kerr Nonlinearity Jointly organized with the Circuits and Devices Joint Chapter. For more questions about these, please contact Xavier Fernando at xavier@ieee.org

Solid-State Circuits Society (SSCS) by Dustin Dunwell

The Toronto Solid-State Circuits Society (SSCS) has enjoyed a busy and productive 2008-2009. We have organized world-class research presentations from Dr. Peter Kinget, Dr. Nikola Nedovic and Dr. Antonio Liscidini. We have also presented a seminar on entrepreneurship in electronics given by Dr. Peter Hiscocks and organized in cooperation with the IEEE Graduates of the Last Decade (GOLD) section. We continue to experiment with webcasting of our meetings in an effort to reach as many of our members as possible. We would like to take this opportunity to thank all of our members for their support during the past year. In addition to the above the chapter held meetings and lectures in: 1.) A 1.25mW 75dB SFDR Continuous Time Filter below kT/C in-band noise 2.) Clock and Data Recovery in High-Speed Wireline Communications 3.) Launching an Electronics Business 4.) CMOS Quadrature Front Ends in a Single-Stage: The LMV Cell 5.) Designing Analog and RF circuits for Ultra-low Supply Voltages.

Computer Chapter by Dennis Cecic

The Computer Chapter, joined by Panos Economopoulos as Chapter Secretary, continued offering hands-on technical training to its members. In November 2008 and March 2009, the Chapter Chair, Dennis Cecic, gave two one-day seminars on Building USB Applications where the participants implemented a custom USB application. The Chapter is committed to delivering additional technical training on Safe C coding in the coming year. In March 2009, Lawrence Mandel, Jen Hawkins, Aron Wallaker and Jeffrey Liu from IBM Toronto gave an Introduction to Ajax Technologies to a full house, comparing Ajax to alternative RIA solutions and reviewing in-depth the available toolkits. For more questions about these, please contact Dennis Cecic at d.cecic@ieee.org

Dielectrics & Electrical Insulation Chapter by Jody Levine

This is a joint chapter between the sections of Toronto, Kingston, Kitchener-Waterloo, Hamilton, and London. During 2008-09, the chapter held meetings and lectures in: 1.) Grist for the Rumour Mill III: Holiday Networking Event and Informal Panel Session on Testing 2.) Metalized Film Capacitor Technology! If you are interested in volunteering in Dielectrics and Electrical Insulation chapter or need more information, contact the Chapter Chair Jody Levine at jlevine@ieee.org.

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- 42.2% are IEEE members for more than 15 years while 22.2%, 15.6%, 11.1% & 8.9% are members for, 2 – 5 yrs, 5 – 10 yrs, 10 – 15 years & less than a year respectively.
- 42.5% of the members belonged to Computer Chapter while 30%, 25% & 12.5% of the members belonged to Communications, Power Engineering & Industry Applications Chapters respectively. Further, there is a strong indication that members belonged to more than one society.
- 35.6% members did not attend any event in the past year. 24.4% attended 1 event while approximately 30% attended more than 1 event.
- 33.3% of members found 2 events of to them while approximately 50% found more than 3 events of interest to them.

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Vahab Kamranpoor (Industrial Relations, GOLD, TS), Prize Winner (iPOD), Maral Seraji (Event Coordinator, GOLD, TS)

Electromagnetics & Radiation Chapter by George Eleftheriades

This is a joint chapter of the following three societies: Microwave Theory & Techniques, Antennas & Propagation, and Electromagnetic Compatibility. The chapter has been active by organizing technical lectures presented by distinguished speakers from academia, industry, and research organizations. The meetings provide an open forum for discussion, as well as a place to network with fellow engineers. During the past year it held lectures in: 1.) Microwave Imaging for Breast Cancer Detection 2.) Design Optimization via Surrogate Modeling and Space Mapping: The Why, the When, and the How 3.) Planar 2D Leaky-Wave Antennas (Conventional and Metamaterial) 4.) Dispersive Pulse Propagation: History, Theory, & Applications 5.) Global Stability Analysis and Stabilization of Power Amplifiers - *an IEEE Microwave Theory and Techniques Society (MTT-S) Distinguished Lecture* 6.) A Methodology for Fast, Fully Coupled Electro-Mechanical Modeling of RF-MEMS Capacitive Switches - *an IEEE Microwave Theory and Techniques Society (MTT-S) Distinguished Lecture* 7.) Recent Progress in Switched Beam Single Element Antennas 8.) X-Parameters: Revolutionary Paradigm for Interoperable Measurement, Modeling, and Simulation of Nonlinear Microwave and RF Components - *an IEEE Microwave Theory and Techniques Society (MTT-S) Distinguished Lecture* 9.) Reconfigurable Multifunctional Antennas - *an IEEE Antennas and Propagation Society Distinguished Lecture* 10.) UWB Antennas and Channel Characteristics. For more questions about these, please contact George Eleftheriades at gelefh@ieee.org

Engineering & Human Environment Chapter by Bayo Awoyemi

It is a joint chapter representing the Education Society, Engineering Management Society, Professional Communication Society, Reliability Society, and the Society on Social Implications of Technology. During the past year it held Seminars and lectures in: 1.) Investigating Safety Culture in the Chemical and Petroleum Industries in Ontario - Joint Conference/Forum organized by the IEEE Toronto Engineering and Human Environment Chapter, the ISA Chemical & Petroleum Industries and Management Divisions, and the Association of Polish Engineers in Canada 2.) WiMAX: The Future of Ubiquitous Broadband Wireless Internet Access 3.) Engineering Forum for Nuclear Technology in Ontario - Joint IEEE Toronto/Association of Polish Engineers in Canada Conference. For more questions about these, please contact Bayo Awoyemi at bayo_awoyemi@ieee.org

Industry Applications Chapter by Ehsan Behboudi

Under the section leadership of Ehsan Behboudi, the chapter has a vision for the advancement of the theory and practice of electrical and electronic engineering in the development, design, manufacture and application of electrical systems, apparatus, devices and controls to the processes and equipment of industry and commerce; the promotion of safe, reliable and economical installations; industry leadership in energy conservation and environmental health and safety issues; the creation of voluntary engineering standards and recommended practices; and the

professional development of its membership. During the past year it held the following seminars and lectures: 1.) A Look Inside Digital/Cell-phone Cameras 2.) Grid Connected Solar Photovoltaic Systems & Details for Commercial/Residential Installations 3.) Modern Wind Power Technology 4.) The Threat to Canada's Electrical Safety. For more questions about these, please contact Ehsan Behboudi at ebehboud@ieee.org

Power Engineering Chapter by Mario Germani

Mario Germani took over the helm of the chapter leadership from Dr. Rong-Liang Chen and continues to add value to the mission of the chapter in being the leading provider of scientific information on electric power and energy for the betterment of society and the preferred professional development source for our members. PES members are involved in the planning, research, development, construction, installation, and operation of equipment and systems for the safe, reliable, and economic generation, transmission, distribution, measurement, and control of electric energy. During 2008-09 it held seminars and lectures in: 1.) Distributed Generation - Overview 2.) Grid Connected Solar Photovoltaic Systems & Details for Commercial/Residential Installations 3.) Industrial Revolution for Protection and Control Systems in Electric Utilities 4.) Toronto Hydro's Conservation Demand Management Initiatives - Talk and feedback session 5.) Recent Applications and Developments in Digital Protective Relaying. For more questions about these, please contact Mario Germani at m.germani@ieee.org

Instrumentation & Measurement Chapter by Albert Man

Albert Man took over the helm of the chapter from Frank Aloe in 2009 and is providing value to the section by executing the mission of the chapter in measurement systems and science in the theory, methodology, and practice of measurement, including, but not limited to, primary metrology, measurement uncertainty, and traceability; in the design, development and evaluation of measurement systems, or any of their components, involved in generating, acquiring, conditioning and processing signals for the purpose of measuring quantities and phenomena of interest; in the analysis, representation, display, and preservation of the information obtained from a set of measurements so as to best meet the needs of the end-user, whether human or machine; and through the establishment and maintenance of related technical standards. During the past year it held the following seminars and lectures: Test Challenge and Solution in High-speed IO. For more questions about these or if you are interested in volunteering, please contact Albert Man at albert.man@ieee.org

Signal Processing Chapter by Sridhar Krishnan

The signal processing chapter of Toronto Section is one of the five such chapters in Canada (Region 7) and it currently has around 120 members. In the past two years the chapter held technical meetings with topics covering a wide spectrum of signal processing theory and practices in communication systems, medical technologies, multimedia systems, biometrics, and nanotechnologies. The chapter is led under the stewardship of Sridhar Krishnan as Chapter chair and Karl Martin &



Group Photo of Women In Engineering Event "*Becoming a Successful Engineer*". In the picture Firoozeh Khalily - Director of Small Business Product Management, Rogers Canada, Lynn McNeil - Director, Quality and Information Technology, Gennum Corporation, Kasia Wtorek - Product Engineer, Gennum Corporation

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- 74.4% of the members are willing to pay a nominal administrative fee of \$5 for refreshments to attend these small workshops and lectures
- 59.1% of the members prefer free small workshops and lectures while 27.3% & 13.6% prefer conferences and Professional Networking events respectively
- 75.0% of the respondents found Some Value in Technical meetings while 61.1% , 66.7%, 52.8% & 63.9% of the respondents found Tutorials, Workshops/Seminars, career issue Topics, Career Issue Topics and Professional Issue Topics respectively
- 74.4% did not attend an IEEE webinar and 71.1% prefer to attend a webinar from home rather than their office. further, 61.8% of the respondents found both time & distance to be issue for them to attend an eventcontinued on page 7

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Behnaz Ghoraani as the vice chairs (http://toronto.ieee.ca/chapters/s_ci.htm). During the past year it held the following seminars and lectures in: 1.) Semantic Content Analysis and Indexing for Personal and Social Applications 2.) Acoustic Signal Processing for Next-Generation Multichannel Human/Machine Interfaces - an IEEE Signal Processing Society Distinguished Lecture 3.) Micro engineered hydrogels for stem cell bioengineering and tissue regeneration 4.) The QR Decomposition and the Decision Feedback Detectors: Applications to Block Data Transmission Systems 5.) Address-Event-Representation (AER)-based Vision Processing. For further information or interests in the chapter bookmark and monitor http://toronto.ieee.ca/chapters/sig_proc.htm or contact the Chapter Chair, Sridhar Krishnan (sri_krishnan@ieee.org) who invites proposals from practitioners & academics who have interesting material ready for delivery.

Signals & Computational Intelligence Joint Chapter by Anna Lawniczak

This joint chapter is comprises of 8 IEEE societies namely - IEEE Computational Intelligence Society, IEEE Control Systems Society, IEEE Geoscience and Remote Sensing Society, IEEE Information Theory Society, IEEE Intelligent Transportation Society, IEEE Oceanic Engineering Society, IEEE Ultrasound, Ferroelectrics, and Frequency Control Society and IEEE Vehicular Technology Society. The chapter under the stewardship of Anna Lawniczak as Chair and Azadeh Kushki & Bruno Di Stefano as vice chairs held the seminars and lectures in : 1.) Cognitive Radio: Research Challenges - Lecture and Online Webinar 2.) WLAN Positioning: Applications & Theory - Online Webinar 3.) Artificial Intelligence Stops the Car (so you don't have to) 4.) Cognitive Dynamic Radio Tracking 5.) Sensor Networks in Two Keywords: In-Network Processing for Data-Centric Applications 6.) Linguistic Variables: Clear Thinking with Fuzzy Logic 7.) Photo-realistic 3D Model Reconstruction. For future events stay tuned to the chapter website http://toronto.ieee.ca/chapters/sig_proc.htm. If you are interested in volunteering for the chapter, please contact the Chapter Chair using the following email address: a.lawniczak@ieee.org

Engineering in Medicine and Biology Chapter by Benjamin Mak

IEEE EMBS chapter under the strong leadership of Benjamin Mak as the Chair and Brian Courtney, Kristiina McConville and Barry Vuong as vice chairs has been providing exceptional value to the section while upholding the mission of the society for advancing the application of engineering sciences and technology to medicine and biology, promoting the profession, providing global leadership, for the benefit of its members and humanity by disseminating knowledge, setting standards, fostering professional development, and recognizing excellence. During 2008-09 it held the following seminars and lectures in: 1.) "IEEE Milestone - First External Pacemaker" series for 2009"Repairing the Diseased Heart: The Impact of Medical

Engineering" (Wine and Cheese reception) 2.) Innovation in a Cold Climate 3.) Micro engineered hydrogels for stem cell bioengineering and tissue regeneration 4.) EMBS Annual Wine & Cheese 5.) Adventures at the interface of medicine and technology: The challenges and triumphs of pursuing medical training, research and entrepreneurship

From Our Affinity Groups

The Section's three affinity groups offer complementary (often non-technical) programs to address some of the wider aspects of the engineering profession – the challenges for and interests of recent graduates, women engineers and retired.

GOLD Affinity Group by April Khademi

Graduates of the Last Decade - GOLD Affinity Group focuses primarily on young professionals' career needs, interests, and leadership opportunities for enthusiastic volunteers within IEEE. However, we would like to emphasize that GOLD meetings are open to all IEEE members regardless of membership level, their co-workers, friends and family members! April Khademi took over the helm of the stewardship of the Affinity group from Aleksandra Jeremic. April along with her enthusiastic leadership team of Danoush Hosseinzadeh (Vice Chair), Vahab Kamranpoor (Industrial Relations), Raymond Phan (Secretary), Maral Seraji (Event Co-ordinator), Omar Falou (Treasurer) and Jose Reyes (Membership Development) held the seminars and lectures in : 1.) IEEE GOLD's Graduation Social Event 2.) Innovation in a Cold Climate 3.) Professional Engineering Licensing in Ontario 4.) What is my invention? Performing Your Own Preliminary Patentability Searches 5.) Panel Session with GOLD Members 6.) Project Management – Completing Projects with Success

IEEE GOLD offers many opportunities for volunteering to help organize events for everyone in IEEE and bring new life to the electrical, electronics and computer engineering community - GOLD members are future leaders of IEEE. Please help us serve you better with your suggestions, ideas, and volunteer initiatives by contacting at akhademi@ieee.org

Women In Engineering Affinity Group by Behnaz Ghoraani

IEEE Toronto Women in Engineering is the local affinity group of the IEEE Women in Engineering Committee (WIEC) which is appointed by, and reports directly to, the IEEE Board of Directors. Last year Behnaz Ghoraani took over the stewardship of affinity group from Visda Vokhshoori and continues to deliver on the exceptional path that Visda has developed for WIE in Toronto. During the 2008-09 WIE has held the meetings and seminars in: 1.) Becoming a Successful Engineer 2.) Why I became an Engineer? 3.) IEEE Member Only Event 4.) Winning in Life – including an Update on IEEE/WIE, and Networking with other Women Engineers 5.) Getting Organized Once and for All 6.) Are You Living The Life You Want? Success is your Birthright! 7.) Symposium on Alternate Energy and Global Synergy

- 88.4% of the respondents said that they get enough information about the IEEE Toronto Section events. However, they also prefer to get reminder about the events one day earlier
- 62.8% are members of other professional engineering association such as PEO in addition to being IEEE members
- 67.4% of respondents are not reimbursed for their IEEE membership reflecting on the positive value IEEE provides them
- 34.9% of the respondents were not aware of the value added membership benefits of the IEEE when they renewed their membership
- 76.7% of respondents felt that investing in the membership is a valuable investment when they renewed their membership

- 52.5% of respondents are interested in IEEE, its publications, conferences and societies as a source of Information for Industrial and Practical Application of Academic Research. While only 12.5% used it for specifically for Academic Research.
 - 79.1% felt that the IEEE membership has had a positive impact their your professional development while 20.9% replied that it has had no impact
- Overall 58.5% felt that the IEEE Toronto Section has served them satisfactorily. However, 14.6% replied “poorly “ and 26.8% replied “good”

8.) The Art of Presentation.

Here’s a special message from Behnaz

Greetings; I am very delighted to be the chair of IEEE Women in Engineering (WIE) Toronto Section. Our goal in WIE is to create a community of women and men, who inspire, engage, encourage, and empower diversity in engineering. By joining IEEE WIE, you receive our free Magazine and you can take part in all our meetings and seminars. WIE Toronto team invites you to get involved with IEEE WIE activities, and help us to meet the increasing dream of women in engineering in Canada. In 2008 and so far in 2009, we accomplished to organize several events, including soft skills trainings, technical symposium and panel discussions. For more information on WIE activities, please visit our website, <http://toronto.ieee.ca/wie/>, or contact me, Behnaz Ghoraani at bghoraani@ieee.org. I look forward to working with you.

Behnaz Ghoraani, PhD Candidate

Life Members Affinity Group by Pelle Westlind

IEEE Life Members are IEEE members (all grades) who have reached 65 years of age and whose “age plus years of IEEE membership” equals or exceeds 100 on January 1. There are more than 180 Life Members (“LMs”) in the IEEE Toronto section. Despite their retirement Pelle Westlind Chair (Acting), Patrick Finnigan (Vice Chair), Sim Murthy (Vice Chair), Ian Dutton (Secretary), John De Groot, Joe Karnas and Bob Alden bring their vitality to the group and during 2008 – 09 the affinity group held a very successful event Toronto Hydro’s Conservation Demand Management Initiatives. We look forward to seeing more discussion and email from the internet-enabled LMs. If you are interested in volunteering with our LM Affinity group, please contact

Patrick_Finnigan@ieee.org.
Also, checkout the “blog” for the IEEE Toronto LMs at <http://ieeetorm.blogspot.com>

Here’s a special message from Pelle the Chair:

Dear fellow Life Members. It has been my pleasure to serve as your chair. Thank you all for helping out and contributing to the LM Toronto Section and the world of IEEE. I first started to volunteer for IEEE in the early 70’s and now when I have reach the “September of my years” I have decided to slow down and spend more time with my grandchildren. It may not be a

slower task than serving as a volunteer but it is time for me to reward myself with life’s little pleasures. I now ask other Life Members to step forward and offer their services. If we share the work, it is not a big burden, as all efforts will add tremendously to the value of IEEE and a sense of accomplishment. Trust me on this one!

Thanks again and a very special thank you to Patrick Finnigan who has always stepped up to the task that has lead to great success for the Affinity Group and the Toronto Section.

Happy 125th anniversary!

Pelle Westlind

LM Chair 2007-2009

Educational Activities by Dennis Woo

The Toronto Section offers a regular program of short courses, tutorials, and workshops. Some of these are offered in conjunction with IEEE technical societies or with neighboring sections. If you have suggestions regarding future courses, please contact our Education Activities Chair, Dennis Woo, by e-mailing to dwoo@kpmg.ca

During the 2008-09 Educational Activities arm of the section has conducted the following courses in

- 1.) "Wireless Communication Engineering Technologies (WCET) Training" by Javan Erfanian and Luis Blanco
- 2.) "Do I Have a Job Tomorrow?" by Matthew Xie, and Edward Poon
- 3.) "Wireless Communication Engineering Technologies (WCET) Training" by Javan Erfanian and Luis Blanco
- 4.) "Building USB Applications with Libusb" by Dennis Cecic
- 5.) "Building USB Applications with Libusb" by Dennis Cecic
- 6.) "Project Management – Meeting those Pesky Requirements" by Celia Desmond
- 7.) "Overhead Conductor Tension and Sags, and Guying of Poles" by Wallas H. Khella
- 8.) "Project Management – Meeting those Pesky Requirements" by Celia Desmond



Your 2008-2009 Section Officers (L to R):

Wai Tung Ng - Vice Chair

Alex Bot - Chair

Marcelo Mota - Secretary

Pelle Westlind - Treasurer

2009 IEEE Toronto International Conference – Science and Technology for Humanity TIC-STH 2009

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Topics of Interest

Aerospace and Electronic Systems
Biomedical Engineering
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Recovery Education
Electronic Design Automation
Emerging Scientific Methods and
Technologies
Engineered & Natural Complex
Systems: Modeling, Simulation &
Analysis

Enterprise Architecture
Geomatics
High-Performance Computing
History and Advances in the
Pacemaker
Human Factors and Ergonomics
Human and Socio-Cultural Service
Oriented Computing
Information and Knowledge
Management in the Health Sector
Information Assurance in Security and
Privacy

Knowledge Management
Nanotechnology
Quantitative Methods in Managing
Scientific and Technology Projects
Sensors
Superconductivity
Sustainable Development
Sustainable Energy Availability
Systems and Control
Technology Management
Intelligent Transportation Systems in
a Large City

Success Secrets of Managing Enterprise Architecture Projects Integrated Use of Rational Unified Process, Unified Modeling Language, Zachman Framework, The Open Group Architecture Framework (TOGAF)

Attend onsite – 245 Church St. (Ryerson University), Toronto

Attend online – web conferencing option available

Speaker: Vitalie Temnenco is an enterprise / solutions architect and methodology consultant with a versatile background and extensive projects portfolio. He currently provides architectural mentoring on several implementation projects and helps project managers and teams embrace RUP and the Enterprise Architecture concepts. His experience includes architecting and building solutions for clients in a variety of business domains, such as banking, finance, insurance, retail, and telecommunications.

For details and to register visit www.tic-sth2009.org/tutorials

Attend this TUTORIAL at the IEEE TIC-STH 2009 and earn 3 PDU's

Thanks for Reading.....

Naresh Kurada, MSEE, P.Eng, MBA
Newsletter Editor – IEEE Toronto Section



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