

### 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 Aleksandra Jeremic

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! During the past year it held the following seminars and lectures: ■ First 2007 General Interest Meeting of IEEE GOLD - Graduates of the Last Decade ■ Failure is Not an Option! — Rescuing Failed or Failing Projects.

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 Aleksandra Jeremic at [aleksandra@ieeetor.org](mailto:aleksandra@ieeetor.org).

#### Women In Engineering Affinity Group by Visda Vokshoori

IEEE Toronto Women in Engineering is our local affinity group of the IEEE Women in Engineering Committee (WIEC) which is appointed by, and reports directly to, the IEEE Board of Directors. The scope of interest is to: (i) Gather and disseminate information regarding the status of women and initiatives for, by and on behalf of women in engineering and science, (ii) Enable mentoring and education programs within IEEE and make available information regarding gender related educational issues which may improve the entry into, and the retention of women in engineering programs, (iii) Increase the participation of women within IEEE and (iv) Address ways to improve the climate for women in IEEE and the workplace.

During the past year it offered the following lectures and seminars: ■ Hybrid Cars ■ Personal Colours ■ Reliability of Distribution Systems ■ 28<sup>th</sup> Annual Orchid Show ■ A celebration of Engineering ■ Student Networking Event ■ Net Zero Energy Healthy Housing ■ Student Networking Event ■ Networking Get-together ■ Professional Practice Examination (PPE) Study Group.

#### Life Members Affinity Group by Pat Finnigan

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.

Twenty five LMs and a guest participated in a tour of the GTAA and its very impressive Co-Gen facility. A group of LMs also had an exciting tour of the technology behind the new interactive exhibits at the Ontario Science Centre May 17, 2007. We had fun with the experiments in the "high school" area and also took in an exciting IMAX movie and had a behind-the-scenes look at the projection facility. All in all, quite a fascinating afternoon.

The IEEE History Committee has graciously extended the deadline for our proposal, and we are happy to report that with the help of IEEE members Inçi Saglam, and Ron Pott (Region 7 LM Chair) and Bert de Kat from the Hamilton section, the submission is now complete for the *Development of the First External Electronic Cardiac Pacemaker with Internal Electrodes for Surgery*. Once approved, this plaque will be unveiled at Queen's Park.

The PEO and IEEE Toronto have teamed up to present an outstanding lecture and play about the life and work of Nikola Tesla, the remarkable electrical (and all around) genius, on Friday September 21, 2007 at the Islington Golf and Country Club. Guests are welcome. Full details are posted at the IEEE Toronto website.

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 the Chair [Patrick.Finnigan@ieeetor.org](mailto:Patrick.Finnigan@ieeetor.org). Also, checkout the "blog" for the IEEE Toronto LMs at <http://ieeetorlm.blogspot.com>.

#### Educational Activities by Bruno Di Stefano

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, Bruno Di Stefano, by e-mailing to [b.distefano@ieeetor.org](mailto:b.distefano@ieeetor.org).

A series of 2-hour workshops by Image, Communication and Quality Specialist, Ayla Tezcan has been organized:

- "Etiquette in Networking: Netiquette" – September 20, 2007  
*Registration deadline: September 14, 2007*
- "Attention! Your Body is Talking: Body Language & Communication Image" – September 27, 2007  
*Registration deadline: September 21, 2007*
- "Your Color Vitamins: Personal Colors and Effects on People" – October 18, 2007  
*Registration deadline: October 12, 2007*
- "Invited to a Party? – Please RSVP! : Dining & Wining Protocol and Etiquette" – October 25, 2007  
*Registration deadline: October 19, 2007*

Registration Fees for each workshop (GST included):  
IEEE Member: Early Bird: \$31.80 / Regular: \$84.80  
Non-IEEE Member: Early Bird: \$53.00 / Regular: \$116.60

**Project Management – Meeting those Pesky Requirements** by Celia Desmond B.Sc., M. Eng ([c.desmond@ieeetor.org](mailto:c.desmond@ieeetor.org)), President of World Class Telecommunications

- A Two-Day Seminar November 5 & 6, 2007  
*Registration deadline: October 20, 2007*

Please, make your check payable to "The IEEE Toronto Section" and mail it to the Section Treasurer:  
IEEE Toronto Section, c/o Pelle Westlind  
2855 Bloor Street West, Suite #615  
Toronto, ON, M8X 3A1

# The IEEE Toronto Section Annual Connection The Year 2006-7 in Review, and Looking Ahead to 2007-8

### Greetings from our Section Chair

It is a distinct pleasure and privilege to serve you as the Chair of the largest IEEE Section in Canada. This has been made possible by you - active members and committed volunteers. I am pleased to note that the section continues to be strong in membership, adapts itself with the societal needs by forming new technical society chapters and endeavors to increase the number of technical and social meetings. Looking forward to next year, the section volunteers are involved in organizing the flagship IEEE Canada conference and working harder to serve the membership with value added services. I look forward to continue to work with you for the betterment of the members as well as the society. May I also wish you and your family a happy, healthy and prosperous new year. Thank you very much.

Alagan Anpalagan, SMIEEE  
Chair - IEEE Toronto Section

### Current Section Executive Committee

<b>Officers</b>		
Chair	-	Alagan Anpalagan
Vice Chair	-	Alex Bot
Treasurer	-	Pelle Westlind
Secretary	-	Marcelo Mota
<b>Committee Chairs</b>		
Audit	-	Al Wallis
Awards and Recognition	-	Pelle Westlind
Education	-	Bruno Di Stefano
Conferences/Conventions	-	Alain Tabue
History	-	Bruno Di Stefano
Industrial Relations	-	Fasih Masood
Membership Development	-	Dimitri Androutsos
Nominations (Section Past Chair)	-	Kostas Plataniotis
Publications	-	Bob Alden
Student Activities	-	Wai Tung Ng
<b>Affinity Group Chairs</b>		
GOLD	-	Aleksandra Jeremic
Life Members	-	Patrick Finnigan
Women In Engineering	-	Visda Vokshoori
<b>Chapter Chairs</b>		
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	-	David Xu
Instrumentation & Measurement	-	Frank Aloe
Power Engineering	-	Ron Chen
Signals & Comput. Intelligence	-	Bruno Di Stefano
Signal Processing	-	Sridhar Krishnan
Solid State Circuits	-	Dustin Dunwell
<b>Additional Members</b>		
IEEE Canada 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 many IEEE Toronto members who were recognized in various ways in 2006-07.

- Dr. Bill Chisholm, Principal Engineer at Kinectrics, was inducted into the Class of 2007 IEEE Fellow for his contributions to *extra high voltage transmission line performance assessment*.
- Dr. George Eleftheriades, Professor of Electrical and Computer Engineering at the University of Toronto and the Electromagnetics and Radiation Chapter Chair, has been awarded 2008 IEEE Kiyo Tomiyasu Award, a prestigious IEEE Technical Fields Award.
- Dr. Sridhar Krishnan, Chair of Electrical and Computer Engineering Dept. at Ryerson University and Signal Processing Chapter Chair, was presented with the Engineers Canada Young Engineer Achievement Award.
- Dr. C. Andre T. Salama and Mr. Bruno N. Di Stefano were elevated to the grade of Fellow of the Engineering Institute of Canada for their exceptional contributions to engineering in Canada.
- Celia Desmond was recognized with the 2007 IEEE Canada W. S. Read Outstanding Service Award for her outstanding service to the profession and to the society, in Canada and abroad.

Three members received awards at the 2006 Toronto Section Annual Awards Banquet:

- "IEEE Toronto Section Chapter Chair of the Year" award recipient was Sridhar Krishnan, Signal Processing Chapter Chair.
- "Appreciation of Service to IEEE Toronto Section" awards were presented to Visda Vokshoori, WIE Group Chair & Vice-Chair, Computer Chapter, and Wai Tung Ng, Student Activities Chair.

### Memberships

Our section has been recognized by IEEE Regional Activities Board with 2006 Sustained Membership Growth Award. 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 2006-07 (from September 2006 to June, 2007): Roger E. Jones, Majid Khademi, Brent Kimberley, Sam Roweis, Sue Treki, Dennis Woo, Syed Firasat Ali Zaidi, Stefano Bomben, Francis Dawson, Dale Finney, Qusay Mahmoud, Vasilis Papanikolaou, Kam-Pui Tang, Jakov Vico, Drew Baigent, Keith Brown, William Franklin, Emanuel Gianni, Iliia Voloh, Wilson Wang, Syed Haqqi, Ming-Kin Law, Kristiina McConville, Gomaa Hamoud, Roger Berube, Daniel Fischer, Les Hajagos, David Murray, Visda Vokshoori, Antonio Carreira, Brian Mitsuki, Michael 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@ieeetor.org](mailto:dimitri@ieeetor.org).

### 2007 Annual General Meeting

The 2007 Annual General Meeting (AGM) of the Section will be held on Saturday, October 27, 6-9 pm in the Old Mills Restaurant. The featured guest speaker is Dr. Dembo, CEO of ZeroFootprint.

### Nominations for Office 2008 – 2009

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	Alexei Botchkarev
Vice Chair	Wai Tung Ng
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, 2007. Please contact Kostas Plataniotis, Nominations Committee Chair, at: 416-946-5605 or [k.n.plataniotis@ieee.org](mailto:k.n.plataniotis@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 2006: IEEE Toronto Section, Bruno N. Di Stefano Scholarship: Mark Liang (University of Toronto); IEEE Toronto Section, Wallas Khella Scholarship: Raymond Phan (Ryerson University); IEEE Canadian Foundation, Dr. Robert T. H. Alden Scholarship (jointly with IEEE Toronto Section): Ramnesh Bansal (Ryerson University); IEEE Toronto Section Scholarships: Da Wang (University of Toronto), Yanfeng Zhang (Ryerson University), Adam Hodgins, Robin Collop, Andrea Lemhenyi, Matt McDonalds (Seneca College), Min Xue and Mike Davies (Centennial College).

### 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 2006-07, the section volunteers were involved in organizing International Conference for Multimedia and Expo, International Symposium on Microwaves and Photonics in Access Networks and Electrical Power Conference.

The Toronto section along with sections in the Central Area is currently involved in organizing the 21st Annual IEEE Canadian Conference on Electrical and Computer Engineering (CCECE) to be held in Niagara Falls during May 4 to 7, 2008 under the leadership of Dr. S. Krishnan. CCECE'08 will feature 8 mini-symposia covering all areas of Electrical and Computer Engineering, tutorial sessions in leading topics, plenary talks from senior executives in industry and academia, around 90 technical sessions, special sessions in hot topics, social programs, IEEE Canada Awards and Banquet night, best student paper awards luncheon, and industrial exhibitions. Information on submission of technical papers, tutorial proposals, special sessions proposals are in the following weblink: [www.ccece08.org](http://www.ccece08.org).

### Sparks in the Section

Each of our 14 Chapters is associated with one or more of IEEE's 39 Technical Societies. Two new chapters – Engineering in Medicine and Biology Society (EMBS) and Aerospace & Electronic Systems Society (AESS) – were formed in 2006-07. 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

This is a new chapter officially formed in June 2007 under the leadership of H. Kojori and E. Behboudi. Please visit the website <http://toronto.ieee.ca/chapters/aess/> for more information and upcoming events.

#### 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. Recently, our chapter has hosted the visits of Professor Sergio Cova, a LEOS Distinguished Lecturer from the Politecnico di Milano, and Professor Kohzo Hakuta, from the University of Electro-Technologies Tokyo. Both guests have given very successful lectures. Professor Cova described recent developments in the field of single-photon detectors, using avalanche photo-diodes. These detectors form an essential part in the quantum key distribution systems that are now being introduced. Professor Hakuta has presented his work on trapping atoms near optical fibres, bringing the advantages of fibre-optics technologies to the fields of single-atom physics.

For the near future, our chapter will continue its series of distinguished lectures of its four societies, as well as other technical seminars. Also in the planning stage are lectures on the use of light in medicine. For more questions about these, please contact Emanuel Istrate at [e.istrate@ieee.org](mailto:e.istrate@ieee.org).

#### Communications Chapter by Xavier Fernando

The IEEE Communications Society is privileged to be one of the largest societies in IEEE and plays a significant role to the profession and the society. The communications industry has evolved significantly recently, transforming from a voice-centric approach to multimedia services, media broadcasting, imaging and even power industries are getting merged with the communications industry. During the past year it held the following lectures: Multi-user Detection in Dynamic Environment - An IEEE communications Society Distinguished Lecture

- Reducing the Complexity of Graphical Models via Cycles
- Multi-resolution Images Mosaicing
- Distributed Source Coding: Theory and Algorithms
- Special Workshop to Honour the Contributions of Prof. Pas S. Pasupathy.

#### Computer Chapter by Dennis Cecic

The chapter organized a series of seminars this past year that included

- Grid Computing
- The Cell Broadband Engine
- Source Code Analysis
- C++0x Support for Generic Programming.

And highlight of seminars was a seminar by Jack Ganssle titled "BETTER FIRMWARE FASTER" "Firmware is the most expensive thing in the universe". With this statement, embedded firmware guru Jack Ganssle kicked off his "Better Firmware ... Faster" seminar for IEEE CompSoc members on April 19 and 20, 2007. The sessions were attended by over 60 embedded software engineers, and were held at the Microchip Technology Regional Training Centre in Mississauga.

Mr. Ganssle discussed common causes of late firmware projects (bugs, poor scheduling etc.), and provided simple techniques for the attendees on how to effectively decompose a project, enabling more accurate estimates of project complexity.

#### Dielectrics & Electrical Insulation Chapter by Jody Levine

This is a joint chapter between the sections of Toronto, Kingston, Kitchener-Waterloo, Hamilton, and London. On December 21, 2006, the chapter held the Grist for the Rumour Mill: Holiday Networking Event and Informal Panel Session on Equipment Standards. And the panelists were DEIS Chapter Executive R. John Densley and Jody Levine, along with Mark Fenger, Howard Sedding, and others! If you are interested in volunteering in Dielectrics and Electrical Insulation chapter, contact the Chapter Chair Jody Levine at [jlevine@ieee.org](mailto:jlevine@ieee.org).

#### 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:

- Multi-Level Modeling for Complex Microwave/High-Speed Design
- Electromagnetic Bandgap Materials
- Overview of Nonlinear Inverse Scattering
- Negative-Refractive-Index Transmission-Line Metamaterials and their Applications.

#### 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. Bayo Awoyemi took over the leadership of this Chapter from Ed Lovrek in Jan. 2006. During the past year it held the following Seminars and lectures:

- Measure of Passenger Service Dependability in Communication-Based Transit System: A Statistical Approach
- Reactor Designs for the Upcoming Nuclear Stations Worldwide (Joint IEEE Toronto/Canadian-Polish Engineers Association Conference)
- If This Was Easy, Someone Else Would Be Doing It – Project Management for Engineers.

#### Industry Applications Chapter by David Xu

During the past year it held the following seminars and lectures:

- Advanced Power Conversion Methods for More Electric Aircraft
- High-Power Converters and Applications in Drive/Wind/Utility Industries
- A Tutorial on Advanced Methods of AC and DC Arc Fault Detection and Protection (AFDP)
- Panel Discussion: Future Research Trends in Energy, Micro, and Multimedia Systems
- IGBT Converters and SCR SwitchGear for Efficient and Secure Wind Power Generation and Transmission Grid Interconnection.

#### Power Engineering Chapter by Ron Chen

Dr. Rong-Liang Chen is the Chair for the Power Engineering Chapter while Mario Germani and Charles Sao are the Chapter Vice chair and Secretary respectively. During the past year it held the following seminars and lectures:

- High-Power Converters and Applications in Drive/Wind/Utility Industries
- Ontario Wind Turbines - Testing of Electrical Safety.

#### Instrumentation & Measurement Chapter by Frank Aloe

Frank Aloe is the Chair for the Instrumentation and Measurement Chapter. During the past year it held the following seminars and lectures:

- Printed Circuit Board Design Trends
- Embedded Passives.

#### Signals & Computational Intelligence Chapter by B. Di Stefano

This chapter ([http://toronto.ieee.ca/chapters/s\\_ci.htm](http://toronto.ieee.ca/chapters/s_ci.htm)) is a joint chapter

of eight societies. During the past year it held the following seminars and lectures:

- Matrix Converters for Direct AC-AC Power Conversion
- Biometrics: Solution for Security & Authentication?
- From risk management of financial options to risk management of physical options
- A Tutorial on Advanced Methods of AC and DC Arc Fault Detection and Protection (AFDP)
- Phase Locked Loop for Converter Synchronization and Synchronized Sampling Application
- Monitoring Cell Phone Movement to Interpolate Traffic Speed
- Minimum Noiseless Description Length (MNDL)
- Active vs. Passive Means of Power Quality Improvement In Aerospace Applications
- Estimating Roadway Traffic Conditions Via Anonymous Tracking of Cell Phones
- IGBT Converters and SCR SwitchGear for Efficient and Secure Wind Power Generation and Transmission Grid Interconnection
- Biometrics & Authentication Technologies

For further information or interests in the chapter bookmark and monitor [http://toronto.ieee.ca/chapters/s\\_ci.htm](http://toronto.ieee.ca/chapters/s_ci.htm) or contact the Chapter Chair, Bruno Di Stefano ([b.distefano@ieee.org](mailto:b.distefano@ieee.org)) who invites proposals from practitioners & academics who have interesting material ready for delivery.

#### 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 around 20 technical meetings with topics covering a wide spectrum of signal processing theory and practices in communication systems, medical technologies, multimedia systems, biometrics, and nanotechnologies. Some of the seminar topics are:

- Recent Advances in Image and Video Recovery
- Distributed Source Coding: Theory and Algorithms
- Estimating Roadway Traffic Conditions Via Anonymous Tracking of Cell Phones
- Panel Discussion: Future Research Trends in Energy, Micro, and Multimedia Systems
- Statistical Signal Processing for MIMO Communication Channels
- Segmentation and Quantitative Analysis of the Tissue Content of the Tumor Mass in Neuroblastoma
- Ubiquitous Multimedia Computing and Communication: Challenges and Future Trends
- Security in Black and White

For future events, stay tuned to the chapter website [http://toronto.ieee.ca/chapters/sig\\_proc.htm](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: [sri\\_krishnan@ieee.org](mailto:sri_krishnan@ieee.org)

#### Solid State Circuits Chapter

The new chapter chair is Dustin Dunwell while Dr. Khoman Phang and Raj Mahadevan are the chapter Vice chair and Secretary respectively. During the past year it held the following seminars and lectures:

- The Use of Feedback in Common Gate LNAs for Multi-standard Terminals
- Single-Stage Low Power Quadrature RF Receiver Front-End: The LMV Cell.

#### Engineering in Medicine and Biology Chapter by Benjamin Mak

The EMBS chapter launched the 2007 Imaging Series - A New Format in Lecture Delivery. From April to June, 2007, we teamed with the Western Greater Toronto Area Convergence Centre in delivering its 2007 Imaging Series. Strong cutting edge research has been centered around medical imaging in the Greater Toronto Area and in Hamilton. These two associations developed the 2007 Imaging Series in order to create a forum so that local industry and academia can access this research. To this end, these two associations developed a 3-part imaging series, held at different locations in the Mississauga area. The following lectures were delivered as a part of the series:

- Part 1 - Magnetic Resonance Technologies: fMRI and MRS in the Clinic (April'07) by Dr. Simon Graham and Dr. Michael Noseworthy.
- Part 2 - Micro-ultrasound in the Land of Bioresearch (May'07) by Dr. Stuart Foster.
- Part 3 - Cardiac MRI Technologies (June'07) by Dr. Graham Wright.