

IEEE VICTORIAN SECTION

# Annual Report 2010

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Advancing Technology  
for Humanity

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Victorian Section

The Institute of Electrical &  
Electronics Engineers, Inc. ,  
Victorian Section

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Above: ANZSCON 2010 Dinner Event

Cover photo: Southbank, Melbourne

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## From the section chairman




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*Paul V. Kubik*

*Section Chair*

The calendar year draws to a close and we all have time to reflect on our professional and personal achievements over the past twelve months. The end of the year gives us a short reprieve to ask ourselves whether we have achieved what we set out to achieve. How should we reflect on the achievements of the IEEE Victorian Section and the IEEE mission statement of *Advancing Technology for Humanity*? In 2010 the local Section held fifty technical talks and seminars focusing on the big issues such as the National Broadband Network, the impacts of Social Media and the debate on Renewable Energy. We have focused on the recognition of IEEE Senior Members in our community that made a significant contribution to their field. We held the inaugural Student Congress (ANZSCON'2010) attended by the IEEE President-Elect 2011, Gordon Day, to identify the future leaders of tomorrow. The professional volunteer community today is enthusiastic and vibrant, and the new initiatives in place intend to improve the value to our membership and the community.

The IEEE Victorian Section consists of twenty Sub-units (ie. Chapters, Student Branches, Affinity Groups) including the IEEE Tasmanian Sub-Section, and membership grew to exceed two thousand active members in 2010. The Section's role is to coordinate the planning of Chapter and Branch events with access to improved facilities and quality local and international speakers. Our inaugural Strategy Planning workshop was held in January to define milestone achievements that we would set the agenda over the coming years. The common themes were to improve the value proposition for IEEE Members, build on the relationship between IEEE and local Industry and connect with the international IEEE community

The planning activity has set a good precedent for coming years. Several of the outcomes from this workshop were a twelve month Activity Plan, the appointment of a Membership Development Officer, and a Student Sub-committee (becoming the ANZSCON'2010 committee). Improvements to the tools, strategy and procedures have been necessary to help the Section scale past its current size with the volunteer capacity available. The Activity Plan,

Financial Operations manual, improvements to the website and mail-out system have all simplified the administrative side of organising local IEEE events and communication to members.

IEEE Victorian Section continues to be a strong advocate of University activity by sponsoring the Endeavour Program, EnGenious Award, Hooper Memorial Prize, SECE Award and IEEE Victorian Student Paper Competition 2010. The highlight of the year was hosting Australia & New Zealand Student Congress (ANZSCON'2010), a combination of leadership workshops, networking and future employment opportunities. The Congress was a showcase of talent from Universities across Australia and New Zealand, and organised by local Student Branches that secured funding from the Industry and IEEE. Distinguished guests Joe Lillie, IEEE Treasurer, and Gordon Day, IEEE President-Elect 2011 praised the high standard of quality of the Congress.

A few of the technical event highlights of the year were *Copyright versus Community* by Richard Stallman, *Wikipedia - does it work? Can it work?* by Brian Salter-Duke and Dr Andre Oboler, *The Cyborg Experiments* by Kevin Warwick. Another cornerstone event was the 9<sup>th</sup> annual *EMC Symposium 2010* hosted by Chairman, Mark Mifsud. The Section has continued publishing several editions of Uplink magazine a year, thanks to editors Fleur Stephens and Alan Harvey. This was the first year that hard-copy has been sent to all members in combination with an invitation to the Annual General Meeting.

Australia has had a strong representation internationally, with both local members being elected to senior roles in the IEEE and delegations from the USA attending local conferences. Two appointments of our local members to senior positions in the IEEE community include Greg Adamson (Board of Governors, SSIT) and Dr Irena Atov (Chair, IEEE Women in Engineering Committee). We also continue to promote our local members through the IEEE Senior Membership program and access to the necessary resources to submit an application. Senior Membership is a way for the IEEE to recognise those members that have made a significant contribution to their profession.

A lot of hard work has been put in this year, and a lot of high profile praise has been received from the global IEEE community. The energy of the volunteers deserves all the credit for the growth of the past twelve months. It continues to be a privilege to work with industry professionals, leaders in their respective fields, who have chosen to act as volunteer in the Engineering community. This year was a year of new initiatives to push the value proposition to our members. I look forward to the continued success of the IEEE Victorian Section in the coming years. •

PAUL KUBIK

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## Section activities

### Election report

Nominations were held for the IEEE Victoria Section 2011 Executive Committee in September 2010. This year no position received more than one nomination, so there will not be formal elections. The positions and nominees who will serve on the Executive Committee in 2011 are:

- Chair – Paul Kubik
- Vice-Chair – Greg Adamson
- Secretary – Kam Ho
- Treasurer – Anthony Gascoigne
- Membership Development – Amit Goel
- Webmaster – Graham Gordon

Congratulations to each of the successful candidates, and many thanks to the 2010 Executive Committee for their service over the past year.

### Sponsorship activities

The following events were sponsored by the Section over the past twelve months

- Endeavour Program, University of Melbourne
- EnGenious Award, RMIT
- RMIT SECE Award, RMIT
- Hooper Memorial Prize, La Trobe University
- IEEE Victorian Student Paper Competition 2010
- Australia & New Zealand Student Congress (ANZSCON 2010)

The IEEE Section continues a strong tradition of supporting academic excellence through the allocation of grants and awards based on academic merit in our local education system.

### Technology improvements

The IEEE Victorian Section has been without a webmaster for several years. This year, Graham Gordon took up the challenge of upgrading the technology used by the local Section. The top priority was to reduce the delay for sending email to the IEEE Victorian Section Members from several days down to hours. The past process for mail-outs required volunteers to submit requests to IEEE HQ via a web form for processing. This process could take as long as five days and notices about events could arrive in members email after the event had occurred.

An improved system has been developed to use the IEEE Membership Database, taking into consideration members anti-spam preferences, to generate a mailing list and send the email with IEEE Victorian Section Committee approval. Emails can now be sent within hours, instead of several days. Using the IEEE Membership Database means that a member only needs to edit her contact information in one place for both IEEE Global and Victorian Section communications.

The second improvement to our online capabilities was to create a system that would allow event organisers from different chapters to avoid scheduling multiple events on the same day. The system uses the existing form for creating events on the IEEE Victorian website and Google Calendar. Whenever an event is submitted to the website, the calendar is automatically checked and the event organiser is notified if any conflicts are found. Lastly, the event registration box on the event details page allows potential attendees to request an email reminder to be sent on the day before an event, or for the registration box to be suppressed completely.

The Victorian Section would like to thank Graham for his efforts in bringing the local Section into the 21st Century in terms of our online membership support capabilities.

## Membership development

The Membership Development role is focused on developing the benefits of IEEE membership for our members.

This year a Membership Development team and sub-committee was organized. Members consist of Annie Tchung, Amit Goel and Greg Adamson. The team is focused on recruiting new members at all levels, elevating members to more senior membership levels, promoting the IEEE Brand, and improving services provided to members. Membership Development Events are in the planning stage for 2011, such as the Membership Development Network. Membership for the MD Network is open to any IEEE Member. Student Branch chairs are encouraged to nominate a member from the committee to act as Membership Officer.

## Student paper awards

Sorrell Grogan from Monash University was the winner of the IEEE Victorian Student Paper Travel Grant 2010, for his paper entitled "High Quality Voltage Regulation of a Five- Level Current Source Inverter". Sorrell Grogan is a Masters Degree student at Monash University and his supervisor is Prof Grahame Holmes. The Grant amount is \$950 to attend the International Power Electronics Conference (IPEC) Sapporo 2010.

## IEEE International

This year, two of our local members have been elected to senior roles in the IEEE and two conferences have received international attention from the professional Engineering community

- **Dr Greg Adamson** has been elected to Board of Governors, SSIT. Greg is the IEEE SSIT Australia Chair and IEEE Victorian Section Vice-Chair. The IEEE SSIT Australian Chapter has generated an active following and volunteer community around Australia
- The IEEE SSIT Australian Chapter held ISTAS 2010 in Wollongong Australia, an international conference focusing on the human factors of technology development. The conference was attended by University

of Wollongong Pro-Vice Chancellor Judy Raper, IEEE Division VI Director Mark Montrose, and SSIT Past President Janet Rochester.

- Dr Irena Atov has continued her work on the world-wide IEEE Women in Engineering Committee (WIEC) where she has served since 2008. This year she was appointed by the IEEE Board of Directors as Chair of the IEEE WIEC.
- Australia and New Zealand Student Congress, ANZSCON'2010, Melbourne was attended by students from Australia, New Zealand and IEEE delegates from Region 10 and IEEE USA including President-Elect 2011, Gordon Day and IEEE MGA Past-Chair 2010, Joe Lillie

## IEEE Australia

The national industry and research community plays an important role in the organisation of activities. National activities are co-ordinated through IEEE Australia Council. During the year the following national contributions have been made by the local Section.

- The IEEE EMC Society Victorian Chapter hosted the ninth annual EMC Symposium in Melbourne
- The IEEE SSIT Australian Chapter hosted by Victoria, continues to deliver high-quality speakers and events nationally on the social implications of technology.
- IEEE Victorian Section Chair, Paul Kubik has continued his role in IEEE Australian Council in the position of Secretary.
- The section hosted Australia and New Zealand Student Congress, ANZSCON'2010, which was attended by students from states and territories.

## Awards & nominations

The following members of the IEEE Victorian Section Nominating Committee were tasked with handling the election of Officers of the Section for 2011:

- Prof Laurie Cahill

- Graham Gordon
- Dr Alan Harvey
- Rob Slaviero
- Dr Ajay Tikka
- Peter Wills.

### **Joint events**

This year the Victorian Section continued its involvement with external organizations; namely the Institution of Engineering and Technology Australia (IET Aust) and Engineers Australia (EngAust) to promote engineering in Australia. The IEEE Victorian Section held the following three joint events:

- IET: Herding Cats - Leadership Insights for Technical Professionals. Held on the 5th of September 2010. Speaker: Mr Cameron Smith. The event provided a free 90 minute seminar focused on leadership and management skills within the workplace.
- IET: Airservices Australia. Held on the 19th of September 2010. The event incorporated a tour of Airservices Australia and a presentation covering how engineering and IT fits into aviation and traffic control.
- EngAust: Sustainability and Engineering: The Value Proposition. Held on the 17th of September 2010. Speaker: Terence Jeyaratnam. A discourse on the change in values placed on engineering in a climate of increasing population and pollution.●

## Financial report

Victorian Section financial results at a glance are shown in the table below. For further details, please refer to the Interim Consolidated Accounts found in Appendix B. Section financial results for 2010 were satisfactory and gave a consolidated operating surplus of approximately \$9700, an increase of 65% over the corresponding result for 2009.

Group activities were dominated by one major event, ANZSCON 2010, which had a substantial (non-recurrent) impact on the operating Statement. ANZSCON contributed about 40% of total revenue and required 59% of total expenditure. Nevertheless, conventional technical activities continued at a strong level in many of our specialist areas and required total funding support of approximately \$8400.

Bank interest earnings increased sharply due to the upward trend of interest rates during 2010. In a less favourable light, the Section rebate received from IEEE HQ, which is paid in US dollars, declined by about 5% due largely to the strength of our local currency.

The Section balance sheet remains strong and our cash reserves increased by approximately \$6000 (4%) in the 12-month period. The Section does not have loans or other non-current liabilities.

ANTHONY GASCOIGNE

Section Treasurer

Item	Amount \$	% Change from 2009
Revenue	41,096	+67 (*)
Expenditure	31,387	+68 (*)
Operating surplus	9709	+65
Cash reserves	163,000	+4
Bank interest earned	9187	+69
IEEE HQ rebates received	12,612	-5

*IEEE Victorian Section financial results at a glance.*

*(\*) Abnormal (non-recurrent) increases due to ANZSCON*



## ANZSCON 2010 in overview

THE IEEE Australia-New Zealand Student Congress (ANZSCON) was held in Melbourne from 24-26 November 2010. This inaugural event was designed to promote networking and interaction between IEEE student members from Australia and New Zealand.

Distinguished guests included Joseph V. Lillie, IEEE Treasurer and Executive Committee member, and Gordon W. Day, IEEE President-Elect for 2011. Lillie delivered the Keynote Address to the opening plenary session and both executives made significant contributions to the scheduled program.

At the welcoming cocktail reception on Wednesday evening 24/11, we were pleased to welcome many delegates from interstate and overseas in a friendly and informal atmosphere. This set a positive mood that was maintained throughout the congress.

The Congress opened the following morning at 9:25am. Attendances at that stage were recorded as 62 Students and 10 Guests.

The official welcome was delivered by the presiding ANZSCON Chair and endorsed by the IEEE Victorian Section Vice-Chair. We were then eased into the day's business with a fun "icebreaker" session requiring delegates to build towers with drinking straws.

After morning tea, Joe Lillie gave his Keynote Address on the subject "IEEE – For You and the World". He was followed by two University presentations (Melbourne and RMIT respectively). In the afternoon, Darrel Chong from the IEEE Region 10 Student Activities Council described the impact that IEEE membership can have on the career of a young professional, based on his personal experiences.

Later in the day there was another feature event, a "Three-Minute Thesis" competition, won by John Quinn from Queensland. John was also runner-up in the Poster competition.

At the Congress dinner held that evening there were 96 in attendance. This number included many invited guests from Industry, Universities, and IEEE Victorian Section. During the evening two Students received awards from the IEEE Australia Council.

On Day Two there were many interesting presentations, not least that of Dr Paulo De Souza of CSIRO ICT Centre in Hobart, who described his involvement in the NASA *Mars Rover* project.

Later feedback showed that this was a particular favorite of the students.

Gordon Day, IEEE President-Elect, and Amarnath Raja, IEEE Humanitarian Technology Coordinator, gave a joint presentation on the humanitarian issues currently being addressed by IEEE corporate strategies.

Industry representative Terry Polkinghorn then spoke on the topic "Entrepreneurship – Networking for Success".

After lunch we split into three parallel sessions in a more informal environment. There was a Poster/Project competition attracting fourteen (14) entrants, an Employers Forum with seven industry representatives, and a total of five breakout sessions.

Overall, ANZSCON 2010 was deemed a great success. A detailed report is being prepared and will be presented to the IEEE Victorian Section Committee early next year. On present indications such an event is likely to run again in some form or other, at a location to be determined.

My thanks to all my colleagues on the organising committee for their energy and commitment in bringing this pioneering event to fruition. •

JULIA M. GIBNEY

Chair, ANZSCON 2010

## Tasmanian Sub-Section

The Tasmanian Subsection hosted three technical talks in 2010; the third combined with our Subsection AGM on 1 December. The talks were:

- (1) Prof. Byeong-ho Kang: "Study on Social Network Impact Analysis with Web Monitoring Systems".
- (2) Mr Adrian Inch: "National Broadband Network Rollout in Tasmania".
- (3) Dr Greg Timms: "Wireless Sensor Networks for Environmental Monitoring".

These interesting talks (well at least the first two were interesting!) were well-attended and generated many questions. In fact, the discussions following the second talk went on so long that I had my first experience of politely asking our members to leave around 45 minutes later. I'd like to thank both Byeong-ho and Adrian and we appreciate their contribution in helping build the Subsection.

After two years as Chair of the Subsection, I decided not to nominate for the position in 2011 to encourage other local members to take a leading role. I would like to thank the members in Tasmania for their support over the past two years, particularly the members of our local committee, Phil Jones, Ajay Maharaj (who sadly for us moved to Darwin in August), Daniel Smith and Peter Wiehe. I also appreciate the continued support of the Victorian Committee, with special thanks to Paul Kubik, Anthony Gascoigne, Rob Slaviero and Kam Ho.

Our call for nominations for 2011 office bearers received one nomination for each position, hence the following members were elected unopposed for 2011:

- Paulo de Souza – Chair,
- Phil Jones – Vice Chair,
- Daniel Smith - Secretary,
- Greg Timms – Member at Large and
- Peter Wiehe – Member at Large

During our first committee meeting, we will decide on whether Peter or I take on the Treasurer role for 2011.

As always, there are things we could do better next year. A key goal will be to run an event in the north or north-west of the state in 2011 (despite our best intentions, all 2009 and 2010 events were in Hobart). I wish Paulo de Souza all the best as he leads the Subsection next year, and look forward to the new ideas that I'm sure he will bring to the IEEE in Tasmania. •

GREG TIMMS  
Chair, Tasmanian Subsection

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## Chapter & Group Reports

### Circuits & Systems /Solid-State Circuits chapter

Three (3) events were held during the year, as follows.

- (1) "Low Power Asynchronous Microprocessor Design", Held on 2010-12-02 Speaker: Dr. Bah-Hwee Gwee
- (2) "Promising Low-Power Reusable Solutions: Application-Specific Instruction Set Processors". Held on 2010-2-17. Presenter: Prof. Myung H. Sunwoo, Distinguished Lecturer of the IEEE Circuits and Systems Society
- (3) Co-organisation with RMIT IEEE Student Branch of the Synchrotron Field Excursion held on 2010-9-27.

ALAN HARVEY, Chapter Chair

### Computational Intelligence chapter

The CIS Chapter ran two (2) events in 2010. The first was part of the Singularity Summit AU held at RMIT in September. Kevin B. Korb presented on "The Ethics of AI" on 11 September before joining Hugo de Garis in a panel discussion of the future directions of AI research.

The second event was a public lecture by IEEE Distinguished Lecturer Prof. Xin Yao (University of Birmingham) on the topic "Evolutionary

Optimisation and Constraint Handling", on 24 November, organised by Dr Xiaodong Li (CIS Chapter Vice-Chair). Both events were well attended and well received.

KEVIN B. KORB, Chapter Chair

### Computer chapter

In 2010 the Chapter has been very active. This is the result of an enlarged committee of highly effective volunteers. Besides myself, the committee includes Baden Hughes (Secretary), Ron van Schyndel (immediate past chair), and Amit Goel (who is also Chair of RMIT Student Branch). Erik Petersen also assisted in planning the year before moving overseas.

The computer Society is the largest society in IEEE (in Victoria and globally) and we welcome members input and involvement both at committee level and through one off contributions to help run event. Please be in touch if you are interested in becoming an active volunteer.

Our activities this year included:

- **Towards Green ICT:** In early June we hosted a talk titled "A Total Sustainability Indicator for Green ICT", presented by Amit Tiwary, an enterprise solution architect working in the utilities industry. The talk focused on how an architectural framework - the physical, logical and strategic architecture layers of an organisation - can aid the development of a roadmap to enterprise environmental sustainability.
- **Experiences with WordPress:** In late June we organised an introduction to the popular open source content management system, WordPress. The session was presented by Anthony Cole, a well known WordPress developer who has been actively involved in the global WordPress community for several years and has co-organised WordPress conferences both in New Zealand and Australia.
- **Richard Stallman Event:** In September, we jointly organised and co-sponsored an address by Richard Stallman of the Free

Software Foundation. Over 200 people attended the event which was run in partnership with the IEEE RMIT Student Branch, the RMIT School of Computer Science and Information Technology and the System Administrator's Guild of Australia (SAGE-AU). Stallman's address focused on the long history of copyright, from the invention of the printing press in the 1400s through to the 21st century and he argued that the copyright system does not apply well to computer software.

- **Wikipedia – What Works and What Doesn't:** In October, in partnership with the Australia-wide IEEE Society for Social Implications of Technology (SSIT), we organised a panel discussion on Wikipedia, the largest and most comprehensive Encyclopaedia in human history. The panel included myself and Brian Duke, a founder of Wikimedia Australia and an administrator of the English language Wikipedia. The panel provided an insightful discussion covering issues of quality, the collaborative process, content development, the implications of the writing and publishing model, and the impact of Wikipedia on information production and consumption.

ANDRE OBOLER, Chapter Chair

### Education chapter

We held one (1) event during the year:

"Current Quality Improvements in Australian Engineering Education". Held on 2010-07-14. Lecturer: Emeritus Professor Robin King

IOURI BELSKI, Chapter Chair

### Electromagnetic Compatibility chapter

The Chair of the IEEE Victorian EMC Society Chapter for 2010 was Malcolm Mulcare. The EMC Society Chapter works closely with the Electromagnetic Compatibility Society of Australia (EMCSA), a technical society of the Institution of Engineers

Australia (Engineers Australia). The Chapter operates to promote the science and practice of electromagnetic compatibility in Australia. The main event held was the 9th annual EMC Symposium 2010 in Melbourne in collaboration with the EMCSA, hosted by Chairman, Mark Mifsud.

The workshop topics and presenters included *Fundamentals of Printed Circuit Board Design and Layout to Achieve EMC Compliance* by Mark Montrose and Franz Schlagenhauer, *Modelling and Simulation in EMC Applications* by Alireza Baghai-Wadji, *Fundamentals of Grounding and Shielding for System Level Noise Reduction* by Mark Montrose, *Functional Safety with regard to EM Influences* by William A Radasky.

The committee thanks Technical Chair Franz Schlagenhauer and his team of reviewers for their work in preparing the technical paper program. Some highlights of the technical program were:

- The keynote presentation, given by William Radasky on: HPEM Threats to the Power Industry, Communications Industry and Commercial Facilities.
- Interference Issues at Co-located Base Stations and an Adaptive Cancellation Solution: Shabbir Ahmed – winner of the EMCSA Student Travel Award.
- Component Performance Associated with Power/Return Plane Bounce Using Board Edge Termination: Mark Montrose.
- EMC Regulation in Australia: Colin Payne of the ACMA.

For the past nine years the EMCSA has held an annual EMC Symposium in September. In 2011 the Symposium moves to Perth Western Australia and will be held on 9-11 November 2011.

MALCOLM MULCARE, Chapter Chair

### **Engineering in Medicine & Biology chapter**

We held three (3) events during the year, as below.

- (1) "Turning Thoughts into Action - Brain Computer Interfaces to Restore Movement in Humans with Paralysis". Held on 2010-02-08.
- (2) "Objective Measures for Temporal and Spatial Perceptions of Human Brain". Held on 2010-02-19. Lecturer: Zahra Moussavi.
- (3) "Low-Power Analog Front-End Circuits for Health Care Systems and Telemetry Devices". Held on 2010-07-28. Lecturer: Prof. Shuenn-Yuh Lee.

JOHN FANG, Acting Chapter Chair

### **Microwave Theory & Techniques / Antennas & Propagation chapter**

We held one (1) event this year:

"Using Terahertz and Millimetre-Wavelengths to See Through Materials". Held on 2010-07-14. Speaker: Dr Greg Timms

KAMRAN GHORBANI, Chapter Chair

### **Power and Energy Society chapter**

In 2010, the Victorian Power and Energy Chapter's activities embraced diverse areas such as renewable power generation and electric motors.

During the year, highlights included an evening seminar on the results of a major study into the feasibility and costs associated with a transition to a zero carbon power infrastructure for Australia. This seminar, presented by Patrick Hearps, Technical Director of Beyond Zero Emissions, focused on currently available technologies which lend themselves to implementation on a large scale, as part of a transition to zero-carbon power generation. The presentation also addressed the all-important question of baseload power generation from renewable energy sources, based on concentrated solar thermal technology incorporating thermal storage.

Although some renewable energy technologies suffer from limitations in terms of energy availability (again, the baseload power issue), it was

interesting to note that:

- \* In the next 5 years, Spain will install enough solar thermal power generation to provide the equivalent of Western Australia's electricity needs.
- \* Denmark will meet 50% of its electric power needs from wind power by 2025.
- \* Pilot plants based on concentrated solar thermal power generation with storage capability are already providing electrical power 24 hours a day.

Beyond Zero Emissions (BZE) is a not-for-profit think-tank which has drawn together a team of engineers and scientists, working towards practical approaches for a zero carbon Australia. BZE recently released the results of their study "Zero Carbon Australia 2020". This study incorporates a fully costed detailed blueprint outlining a ten-year transition to a zero-emissions economy. The seminar discussed how, with proven technologies, Australia could move towards 100% renewable energy over a ten-year period.

A Site visit and presentation on electric motor manufacturing in Australia was organised in collaboration with CMG Electric Motors who hosted the presentation at their design and manufacturing facility, featuring state of the art equipment for medium-volume motor manufacturing. Attendees also learned about exciting new directions being pursued by CMG and its partner, Regal Beloit, in relation to advanced electric motors including axial flux permanent magnet motors with inbuilt electronic control. CMG is a long-established Australian designer and manufacturer of electric motors, transmissions and drive systems. CMG commenced operations in Australia 60 years ago, and has grown steadily over the intervening period, to the point where it is now the largest manufacturer of electric motors in Australia. CMG also has a strong international presence, with sales and distribution facilities in UK, Africa, The Middle East and Asia. CMG recently merged with Regal Beloit, further strengthening CMG's R&D capabilities and international presence.

The PES technical seminar program for 2011 is currently in planning.

ROBIN LISNER, Chapter Chair

## Lasers & Electro-Optics Society Chapter

Eight (8) technical events were held during the year, as below.

- (1) "Recent Advances in Optical MEMS Technologies For Electrically Tuneable Multi-Spectral Infrared Sensors and Arrays". Held on 2010-01-13. Speaker: Professor Lorenzo Faraone
- (2) "The Future of Silicon Photonics". Held on 2010-03-15. Speaker: Prof. Thomas L. Koch.
- (3) Photonic Band-Gap Materials: Light-Trapping Crystals. Held on 2010-03-31. Speaker: Professor Sajeev John.
- (4) "Unification of MOS Compact Models with the Unified Regional Modelling Approach". Held on 2010-08-02. Speaker: Professor Xing Zhou.
- (5) "More Than Moore Era: Convergence of Bio-Nano-Information Technologies". Held on 2010-08-02. Speaker: Professor Ramgopal Rao.
- (6) "Electrostatic Discharge Challenges in Modern and Future Integrated Circuits". Held on 2010-08-02. Speaker: Professor Jun Liou
- (7) "New Insight of Resistive Switching in MIS Nano-scale Devices". Held on 2010-08-02 Speaker: Professor Kin Leong Pey
- (8) "Modelling Focussed Electromagnetic Waves Beyond the Paraxial Approximation". Held on 2010-09-07. Speaker: Professor Miguel Alonso.

MALIN PREMARATNE, Chapter Chair

## Technology Management chapter

We held one (1) event during the year:

"How to make your brand GREAT". Held on 2010-03-04. Presenter: Tim Pethick

KEDAAR KALE, Chapter Chair

## Signal Processing chapter

2010 was the ninth year of operation for the Signal Processing Society Chapter which was formed in December 2001. We organised or co-organised four (4) activities during the year, as summarised below.

**29 March 2010:** "FPGA Implementation of a Near-ML Sphere Detector for 3G LTE and 802.16e

Broadband Wireless Systems”, by Dr Chris Dick, DSP Chief Scientist, Xilinx, Inc., USA.

**19 April 2010:** “Advanced Software Solutions for Signal Processing Applications using MATLAB®”, by Dr Daryl Ning, Senior Applications Engineer, MathWorks Australia.

**18 October 2010:** “Graphical Processor Units: a Future Trend in Processing”, by Bruce Burns, Digicor, Melbourne, Australia.

**6 December 2010:** “Biological Applications of Signal Processing”, by Dr Dinesh Kumar, Associate Professor, RMIT University.

The Signal Processing Society chapter website was maintained under the IEEE Victorian Section website ([www.ieee.org/vic](http://www.ieee.org/vic)) and was regularly updated with the latest information. Together with Section email notices on the main website, local chapter members were kept well informed.

The chapter website contains an archive of past events, including presentation slides (where these are available).

ROBERT SLAVIERO, Chapter Chair

## Society on Social Implications of Technology Chapter

2010 has been SSIT Australia's busiest year yet. Our membership has grown from under 100 to 130, our mailing list is more than double that, and our committee has expanded to fifteen (15) members. During the year we collaborated with several other organisations including Engineers Without Borders, the Singularity Summit, and National Science Week, and we had a highly successful ISTAS international symposium in Wollongong in May. The latter event was covered in more than fifty (50) press reports.

As has become our established routine, we commenced with a planning session held in January and this set the pace for the year ahead. The agreed priorities this year were ISTAS, collaborating with other technology groups with shared interests, achieving a broader Australian geographic base for our activities, and increased engagement with the wider IEEE. The following is a summary of how we went in relation to these targets.

**ISTAS:** “The Cyborg Experiments”, held in March with Professor Kevin Warwick from the University

of Reading, foreshadowed interest at ISTAS2010. This is SSIT's annual global conference and was held in Australia for the first time in May. Its focus was Emerging Technologies with particular reference to implantable technology. The conference drew a good attendance and created huge media attention. One presentation, a Socratic dialogue on Privacy and Surveillance with Dr Michael Arnold and myself, was repeated in December as the final activity for the year.

**Collaboration:** Our first joint activity was during National Science Week in August. Dr Brian Davidson from the University of Melbourne spoke on “Beyond Engineering - The Value of Water & Natural Resources”, and made a significant contribution to bridging the economist-engineer divide. In September, we provided two speakers to the first Australian Singularity Summit (Slade Beard and myself). In October, we collaborated with the IEEE Computer Society Chapter for a discussion on “Wikipedia - does it work? Can it work?” Speakers were Dr Brian Salter-Duke from Wikimedia and Dr Andre Oboler, who had extensive subject knowledge through his research. In November, Dr Kerry Hinton from the University of Melbourne addressed IEEE ANZSCON on “Energy consumption of the Internet”, on behalf of SSIT. Also in November, I addressed the Engineers Without Borders national conference on the subject “Latest Technology versus Appropriate Technology”.

**A broader geographic base:** In September we held our first Sydney meeting since 2007. The topic was “ISP-Level Internet Filtering: The Path to Deep Packet Inspection?” Speakers were Professor Vijay Varadharajan from Macquarie University and Alana Maurushat for the Cyberspace Law and Policy Centre. We held our first ever Canberra meeting in October, when Richard Stallman spoke on “The Danger of Software Patents”. And following last year's successful meeting in Perth, in November we organised a Perth lecture on a new topic for SSIT, “3D Stereoscapy”.

**Engagement with the wider IEEE:** In September we were pleased to be addressed by Mark Montrose, Director of IEEE Division VI (which includes SSIT) and a member of the SSIT Board of Directors. Mark spoke on the topic “Surviving as Engineers in the 21st Century”. He later met with some of our committee members to provide background on how SSIT fits within the wider IEEE organisation.

Subsequently, in the elections for the SSIT Board of Governors, I was elected to the Board for a term of three years commencing in January 2011.

**Our committee:** This year our organising committee has been fortunate to have the involvement of many highly skilled people: from Canberra, Dr Anna Yang; from Melbourne, Dr Michael Arnold, Slade Beard, Dr Martin Gibbs, Mary Hawkins, Gabriele Hermansson, Kam Ho, Cam Kiley, Dr Jan Newmarch, Enn Vinnal; from Sydney, Dr Lyria Bennett Moses; from Perth, Valerie Maxville; from Wollongong, Dr Katina Michael, Dr Holly Tootell.

**Challenges for 2011:** Our next national planning session is scheduled for January 2011. Currently identified items for discussion are: Coordinating SSIT Across Region 10; and Ways to Organise a Growing Community of Interested Volunteers.

GREG ADAMSON, Chapter Chair



*ISTAS 2010 (l to r): Program Chair Katina Michael; SSIT Past President Janet Rochester; IEEE Division VI Director Mark Montrose; Organising Chair Holly Tootell; SSIT Australia Secretary Michael Arnold; SSIT Australia Chair Greg Adamson; Conference Committee Chair Gene Hoffnagle*

## Graduates of the Last Decade (GOLD) affinity group

The GOLD Affinity Group held three (3) events during the year, as below.

- (1) IEEE GOLD Entrepreneur™s Breakfast. Held on 2010-05-04. Lecturer: Melis Senova
- (2) IEEE Students & Young Professionals Dinner & Social Event. Held on 2010-07-27. Speaker: Paul Kubik
- (3) IEEE GOLD/JCI: Young Entrepreneur Series – joint with Australian British Chamber of Commerce. Held on 2010-08-25 Speaker: Matt Braxby.

RUPERT BAILEY, Chair, GOLD Affinity Group

## Women in Engineering affinity group

The IEEE Victorian Section Women-in-Engineering Affinity Group ran three (3) events in 2010.

**8 March 2010:** The first event was a planning and networking dinner meeting which also marked a symbolic occasion - International Women's Day. It was held at the Restaurant Berth, 45 New Quay Promenade, in Docklands.

**23 March 2010:** Here we helped organise an educational outreach program titled "Women in Engineering and Science", held at the Faculty of Health, Engineering and Science, Victoria University. The presenters included Professor Richard Thorn, Head of the School of Engineering and Science at VU, Dr Irena Atov, Chair of the IEEE Women-in-Engineering Committee, Maria Youssef, a recent Electrical and Electronic Engineering (Robotics) graduate, and Dr Juan Shi, WIE&S coordinator of the VU School.

**26 November 2010:** On this occasion we sponsored a WIE Breakout Session at ANZSCON 2010. WIE Committee Chair Dr Irena Atov was an invited speaker.

The WIE group maintains an attractive and frequently updated website at:

<http://wie.ieeevic.org/>

IRENA ATOV, Chair, WIE Affinity Group. •



## Student branch reports

### Monash University student branch

The Monash University Student Branch started again in 2010 with a new and enthusiastic committee. The Student Branch held their first BBQ event for the year at Monash University. The event was held under the IEEE & ECSE department name. The event went well and was attended by approximately 100 people.

The IEEE Monash Branch held a second laser tagging event at Darkzone Laser Games. There was good attendance from Student Members and an people were able to have an enjoyable time in a social atmosphere

Monash University was able to sponsor three students to attend ANZSCON 2010 which was well received by Student Members. The committee looks forward to another productive year in 2011

XIAOFEI SHI, Monash Student Branch Chair

### RMIT University student branch

RMIT Student Branch has been very active throughout 2010 and a digest of events and activities is given below.

**25 February 2010:** For the first time in the history of IEEE RMIT, the School of ECE invited us to speak about IEEE at their School Orientation. Around 200 students and 10 staff were present including the Head of School. Student Branch Chair Amit Goel delivered the presentation introducing IEEE RMIT and urged engineering students to join IEEE and participate in the benefits of membership.

**12 March 2010:** This was an "e-Recycling" event, organised jointly with RUSU Environment Department and RUSU Furniture Collective. Over 200 students attended, and a particular for attendees was access to free electronics equipment and parts. The SECE staff and IEEE Volunteers helped in testing and tagging items for electrical safety. Emma Henderson and Shaun Taliana from RUSU were present during the event.

**30 Apr 2010:** By popular demand, we organised a second e-Recycling meeting at the end of April. The event was again highly successful with 200+ students attending.

**26 March 2010:** Pizza Night. This was an enjoyable social event where everyone socialised with each

other. A second Pizza Night was held in mid-June.

**14 April 2010:** Matlab workshop. This event was a good learning experience in which students learned how to use Matlab and gained a good working knowledge of applications.

**16 September 2010:** Richard Stallman, President of OSF Foundation and an iconic figure in open-source software, spoke on "Copyright and Community". The event was organised jointly with the IEEE Computer Chapter, RMIT School of CSIT, and SAGE-AU. We had 25 enthusiastic IEEE volunteers helping to organise this even. There were over 400 attendees, some from as far away as Geelong.

**27 September 2010:** Field Trips to the Synchrotron Research Facility in Clayton. Organised jointly with IEEE Circuits & Systems Chapter. Two separate tour groups were organised (a.m. & p.m. respectively). These visits enabled students to inspect a large and unique research facility in detail.

**30 September 2010:** Presentations at the ACTS 2010 Conference. Over 100 people from Europe, US, AU, NZ attended this conference. The Chair of RMIT IEEE Student Branch along with RUSU Environment Officer Shaun Taliana made presentations. RMIT Student Branch was mentioned in regard to its e-Recycling activities.

**5 October 2010:** Scholarship Seminar. We had four invited speakers: Arnan Mitchell from RMIT SECE, Caitlin Raynor from RMIT SGR, Emily Rose from RMIT International and Inger Mewburn from RMIT SGR. About 120 students were present and we had four sessions covering different aspects of Postgraduate Scholarships. The event attracted a lot of interest from students and staff and was a good branding exercise for IEEE RMIT Student Branch.

AMIT GOEL, RMIT Student Branch Chair

### RMIT University WIE affinity group

The AGM for the RMIT WIE Student Affinity Group was initially scheduled for the 30<sup>th</sup> of November. Due to Final year semester ending and many WIE committee members being international students, it was decided to re-convene in February when all committee members are present in Australia. There were ten (10) expressions of interest from members willing to take some role in the 2011 committee.

JULIA M. GIBNEY, Chair, WIE/RMIT •



## Appendix A: Section and chapter officers 2010

**Mr Paul Kubik** - Chairman, Victorian Section, Email: [paul.kubik@ieee.org](mailto:paul.kubik@ieee.org)

**Dr Greg Adamson** – Vice-Chair, Victorian Section, Email: [g.adamson@ieee.org](mailto:g.adamson@ieee.org)

**Mr Anthony Gascoigne** - Treasurer, Victorian Section, Email: [aeg@teksupport.net.au](mailto:aeg@teksupport.net.au)

**Mr Enn Vinnal** - Assistant Treasurer, Victorian Section / Mentor, RMIT and VU Student Branches, Email: [e.vinnal@ieee.org](mailto:e.vinnal@ieee.org)

**Mr Kam Ho** - Secretary, Victorian Section, Email: [kam.ho@fse.org.au](mailto:kam.ho@fse.org.au)

**Dr Greg Timms** – Chairman, Tasmanian Sub-Section, Email: [greg.timms@ieee.org](mailto:greg.timms@ieee.org)

Chapter Officers:

**Dr Greg Adamson** - Society for Social Implications Of Technology Chapter Chair, Email: [g.adamson@ieee.org](mailto:g.adamson@ieee.org)

**Dr Irena Atov** - Women-in-Engineering Affinity Group Chair, Email: [i.atov@ieee.org](mailto:i.atov@ieee.org)

**Dr Iouri Belski** - Education Society Chapter Chair Email: [iouri.belski@rmit.edu.au](mailto:iouri.belski@rmit.edu.au)

**Dr Robin P. Lisner** - Power Engineering Society Chapter Chair Email: [lisner@eng.monash.edu.au](mailto:lisner@eng.monash.edu.au)

**Dr Brian Lithgow** - Engineering in Medicine & Biology Society Chapter Chair, Email: [brian.lithgow@eng.monash.edu.au](mailto:brian.lithgow@eng.monash.edu.au)

**Dr Kedaar Kale** - Technology Management Council Chapter Chair, Email: [KedaarK@optiscan.com](mailto:KedaarK@optiscan.com)

**Dr Kevin Korb** - Computational Intelligence Society Chapter Chair, Email: [kbkorb@gmail.com](mailto:kbkorb@gmail.com)

**Dr Kamran Ghorbani** - Antennas & Propagation / Microwave Theory & Techniques Societies Chapter Chair, Email: [kamran.ghorbani@rmit.edu.au](mailto:kamran.ghorbani@rmit.edu.au)

**Dr Malcolm Mulcare** - Electromagnetic Compatibility Society Chapter Chair, Email: [malmulcare@pacific.net.au](mailto:malmulcare@pacific.net.au)

**Mr Rupert Bailey** - GOLD Affinity Group Chair, Email: [rupert.bailey@team.telstra.com](mailto:rupert.bailey@team.telstra.com)

**Dr Malin Premaratne** - Photonics/EDS Societies Chapter Chair, Email: [malin@ieee.org](mailto:malin@ieee.org)

**Dr Andre Oboler** - Computer Society Chapter Chair, Email: [andre@oboler.com](mailto:andre@oboler.com)

**Mr Craig Skinner** - Communications Society Chapter Chair, Email: [c.a.skinner@ieee.org](mailto:c.a.skinner@ieee.org)

**Mr Robert Slaviero** - Signal Processing Society Chapter Chair, Email: [r.slaviero@ieee.org](mailto:r.slaviero@ieee.org)

**Dr Alan Harvey** - Circuits and Systems / Solid-State Circuits Societies Chapter Chair, Email: [harvey@rmit.edu.au](mailto:harvey@rmit.edu.au)

Other Officers including Student Branch Officers:

**Mr Amit Goel** - RMIT Student Branch Chair / Membership Development Officer, Email: [amit.goel@ieee.org](mailto:amit.goel@ieee.org)

**Miss Julia Gibney** - RMIT Women-in-engineering Student Affinity Group Chair, Email: [julia.gibney@ieee.org](mailto:julia.gibney@ieee.org)

**Mr K.S.Vijayalayan** - The University of Melbourne Student Branch Chair, Email: [ksv@csse.unimelb.edu.au](mailto:ksv@csse.unimelb.edu.au)

**Mr Shabbir Ahmed** - Victoria University Student Branch Chair, Email: [shabbir.ahmed@live.vu.edu.au](mailto:shabbir.ahmed@live.vu.edu.au)

**Mr Xiao Fei Shi** - Monash University Student Branch Chair, Email: [xiaofei.shi@monash.edu](mailto:xiaofei.shi@monash.edu)

Other Executive Officers:

**Dr Prof Laurie W. Cahill** - Nominations and Appointments, Email: [L.Cahill@latrobe.edu.au](mailto:L.Cahill@latrobe.edu.au)

**Mr Peter Wills** - Returning Officer, Victorian Section, Email: [peter.wills@ieee.org](mailto:peter.wills@ieee.org)

**Mr Craig Skinner** - Membership Development Officer, Victorian Section, Email: [c.a.skinner@ieee.org](mailto:c.a.skinner@ieee.org)

**Dr. Horace King** - Immediate Past Chairman, Victorian Section, Email: [horace1@ieee.org](mailto:horace1@ieee.org)

**Mr Graham Gordon** – Webmaster, Email: [graham.gordon@ieee.org](mailto:graham.gordon@ieee.org)

**Appendix B: Financial overview 2010****I. Consolidated Operating Statement (calendar year)<sup>(1,2)</sup>**

<b>Income</b>	(Actual 2009, \$)	(Est. 2010, \$)
IEEE HQ rebates	13,231	12,612
Sections Congress '08 - HQ subsidy	1944	0
Other receipts from HQ & IEEE Societies	692	923
Receipts from IEEE Region 10	1296	691
Meetings & social	1444	950
ANZSCON 2010:		
- Sponsorship	-----	11,722
- Registration fees	-----	4545
Bank interest	5427	9187
Miscellaneous income	488	466
	<b>\$24,522</b>	<b>\$41,096</b>
<b>Expenditure</b>		
Meetings & social	12,140	8395
Travel & accommodation	1278	451
Sections Congress '08 expenses	0	0
Grants & awards	2825	1900
ANZSCON 2010	-----	18,653
Other student activities	734	0
Australia Council levy	793	907
Postage supplies & miscellaneous	858	1081
	<b>\$18,628</b>	<b>\$31,387</b>
<b>Operating Surplus (Deficit) for Year:</b>	<b>\$5894</b>	<b>\$9709</b>

**II. Balance Sheet as at 31 December**

<b>Assets</b>	(Actual 2009)	(Est. 2010)
Cash at bank		
- Section accounts	127,378	132,000
- Comsoc Chapter accounts	26,597	28,000
- All other subunit accounts	2810	3000
	<b>156,785</b>	<b>63,000</b>
<b>Liabilities</b>		
Sundry debits & accounts payable	838	500
<b>Net Assets:</b>	<b>155,947</b>	<b>162,500</b>

**NOTES**

1. These are interim un-audited accounts containing a number of estimated values for 2010
2. All income and expense items are ex-GST.

## Appendix C: List of section events for 2010

- 2010-12-14 [IEEE VIC Section AGM 2010 \(Dinner\)](#)
- 2010-12-10 [Control of Beams and Pulses in Nonlinear Photonic Lattices](#)
- 2010-12-06 [Biological Applications of Signal Processing](#)
- 2010-12-02 [Low Power Asynchronous-Microprocessor Design](#)
- 2010-12-01 [Critiquing Privacy, Defending Surveillance: A Socratic Dialogue](#)
- 2010-12-01 [Wireless Sensor Networks for Environmental Monitoring](#)
- 2010-12-01 [IEEE Site Visit and Presentation - The Future of Electric Motor Manufacturing in Australia](#)
- 2010-11-30 [HSV - Holden Special Vehicles Site Visit](#)
- 2010-11-18 [Unlocking the Secrets of the Patents System \(Event by IP Australia\)](#)
- 2010-11-24 [Evolutionary Optimisation and Constraint Handling](#)
- 2010-11-25 [Australian and New Zealand Student Congress 2010 \(ANZSCON2010\) Formal Dinner](#)
- 2010-10-27 [Wikipedia - does it work? Can it work?](#)
- 2010-10-18 [Graphical Processor Units: A Future Trend in Processing](#)
- 2010-10-05 [Timing Synchronization Issues of Cooperative Wireless Communications](#)
- 2010-10-05 [RMIT PhD Scholarships Seminar - Organised by IEEE RMIT Student Branch](#)
- 2010-09-30 [ISP-Level Internet Filtering: The Path to Deep Packet Inspection?](#)
- 2010-09-28 [National Broadband Network Rollout in Tasmania](#)
- 2010-09-16 [Copyright vs Community in the Age of the Computer Networks](#)
- 2010-09-12 [Singularity Summit 2010](#)
- 2010-09-07 [Surviving as Engineers in the 21st Century](#)
- 2010-09-07 [Modelling Focussed Electromagnetic Waves Beyond the Paraxial Approximation](#)
- 2010-08-25 [IEEE GOLD/JCI: Young Entrepreneur Series - With Australian British Chamber of Commerce](#)
- 2010-08-19 [IET: Airservices Australia](#)
- 2010-08-18 [Beyond Engineering - The Value of Water & Natural Resources](#)
- 2010-08-17 [IEAust: Sustainability and Engineering: The Value Proposition \(CHANGE OF VENUE\)](#)
- 2010-08-10 [Towards a Zero-Emission Future for Australia](#)
- 2010-08-05 [IET: Herding Cats - Leadership Insights for Technical Professionals](#)
- 2010-08-02 [Electrostatic Discharge \(ESD\) Challenges in Modern and Future Integrated Circuits](#)
- 2010-08-02 [New Insight of Resistive Switching in MIS Nano-scale Devices](#)
- 2010-08-02 [Unification of MOS Compact Models with the Unified Regional Modeling Approach](#)
- 2010-08-02 [More than Moore Era: Convergence of Bio-Nano-Information Technologies](#)
- 2010-07-28 [Low-Power Analog Front-End Circuits for HealthCare System and Telemetry Devices](#)
- 2010-07-27 [IEEE Students & Young Professionals Dinner & Social Event](#)
- 2010-07-14 [Using Terahertz and Millimetre-Wavelengths to See Through Materials](#)
- 2010-07-14 [Current Quality Improvements in Australian Engineering Education](#)
- 2010-06-29 [Experiences with WordPress](#)
- 2010-06-02 [Total Sustainability Indicator for GREEN ICT](#)
- 2010-05-04 [IEEE GOLD Entrepreneur's Breakfast \(May\)](#)
- 2010-04-28 [Study on Social Network Impact Analysis with Web Monitoring Systems](#)
- 2010-04-19 [Advanced Software Solutions for Signal Processing Applications using MATLAB^r](#)
- 2010-03-31 [Photonic Band Gap Materials: Light Trapping Crystals](#)
- 2010-03-31 [Photonic Band Gap Materials: Light Trapping Crystals](#)
- 2010-03-29 [FPGA Implementation of a Near-ML Sphere Detector for 3G LTE and 802.16e Broadband Wireless Systems](#)
- 2010-03-24 [The Cyborg Experiments](#)
- 2010-03-15 [The Future of Silicon Photonics](#)
- 2010-03-08 [WIE Evening Planning & Networking Meeting](#)
- 2010-03-04 [How to make your brand GREAT](#)
- 2010-02-19 [Objective Measures for Temporal and Spatial Perceptions of Human Brain](#)
- 2010-02-18 [Modern Technological Concepts and Trends in Car Operation](#)
- 2010-02-17 [How Mobile Computing and Telecommunication inspires Advances in Automotive](#)
- 2010-02-17 [Promising low power reusable solutions: Application Specific Instruction set Processors](#)
- 2010-02-08 [Turning Thoughts into Action - Brain Computer Interfaces to Restore Movement in Humans with Paralysis](#)
- 2010-01-13 [Recent Advances in Optical MEMS Technologies For Electrically-Tuneable Multi-Spectral Infrared Sensors and Arrays](#)

[NOTES]

