



IEEE Victorian Section Annual Report, 2007

1. Section Chair Report

1.1 Highlights

The IEEE Victorian Section has had another active year thanks to the efforts of the volunteers in the section and in its chapters, affinity groups and student branches. During the year the section ran over 40 events for its members (detailed in Appendix A) across its 17 Chapter, Affinity groups and student branches.

In March the Victorian Section Women in Engineering (WIE) affinity group were awarded with an Honourable Mention in the 2006 review of the best IEEE WIE groups worldwide. The award was presented by the IEEE WIE chair, Professor Karen Panetta, at a WIE reception in Melbourne. Congratulations to Irena Atov and the rest of the WIE committee for this impressive and highly deserved achievement.

In May the Victorian Society for Social Implications of Technology (SSIT) Chapter received endorsement from the President of SSIT to form a joint Australian chapter spanning the Victorian, New South Wales, Western Australia, Australian Capital Territory, South Australia and Queensland Sections. I would like to extend my congratulations to Greg Adamson and the SSIT chapter committee for their work in bringing together professionals from around the country to engage in this growing field.

In June a delegation from the IEEE Electro-magnetic Compatibility (EMC) Society visited Australia and was hosted by the Victorian EMC chapter. The chapter, first established in 2006, used this occasion to hold its formal inauguration meeting which was regarded as a very interesting and successful event. On behalf of the Section I would like to thank Malcolm Mulcare and the rest of the EMC committee for their work in organising this event as well as EMC Technologies for their generous sponsorship of a venue.

Under the new chairmanship of Alan Harvey the Circuits and Systems Chapter has been rejuvenated. After reforming the chapter in the second half of this year two events were held both attracting substantial and interested audiences. Many thanks to Alan for his work this year.

The other chapters: Signal Processing, Lasers and Electro-Optics (LEOS), Engineering in Medicine and Biology (EMBS), Power, Computational Intelligence, Engineering Management (EMS), Antennas and Propagation/Microwave Theory & Techniques (AP/MTTS), Communications Society and Computer Society all provided members with a large range of quality seminars and other events covering a diverse range of topics. I would like to formally thank all of the Chapter chairs and other committee members who volunteer their time and effort year after year to provide such an impressive programme to Victorian IEEE members.

The RMIT and Melbourne University student branches both had active years as did the associated RMIT Women in Engineering (WIE) student group. These student volunteers have shown great commitment and effort over the year give hope that the future leadership of the IEEE is in safe hands.

In November the IEEE Region 10 Awards Committee announced that the Victorian Section's Immediate Past Chair, Enn Vinnal, had been awarded the IEEE Region 10, 2007 Outstanding Volunteer Award in recognition of the significant contribution he has made to the IEEE for over 20 years. On behalf of the IEEE Victorian Section I congratulate Enn on this achievement.

1.2 Awards

The Victorian Section continued sponsorship of a number of student awards and prizes throughout 2007. These included the best paper prize at RMIT's Post graduate conference, a prize at Melbourne University's Endeavour 2007 and the La Trobe Hooper(check?) prize.

The section also participated in the judging of the 2007 Australia Council prize for best student branch prize. Many thanks to Laurie Cahill for his work in judging this prize.

1.3 EEEVic

The Victorian Section continued its involvement with EEEVic in 2007 providing its contribution of two technical events. EEEVic is an informal co-operative agreement between four professional bodies in Victoria: Engineers Australia, the Institution of Engineering and Technology (IET) Victorian Branch, the Telecommunications Society of Australia and the IEEE Victorian Section. The EEEVic programme comprises ten technical talks throughout the year with the organisational responsibility being shared across the member societies.

1.4 Member Communications

The IEEE Victorian Section has maintained its online presence as the main form of member communications throughout 2007. All upcoming events are posted online (<http://ieeevic.org>) and emailed to members through IEEE's mass-email mailout system. This year we added an RSS feed to our website that allows members to be notified of new events appearing on the site. The URL for this RSS feed is: <http://ieeevic.org/rss.php>

Many thanks to the section secretary, Paul Kubik, for his professional management of member communications throughout the year and to our webmaster, Jason Gao, for his work on the website.

2. Financial Report

Below is a consolidated financial statement for the Victorian Section covering the year as prepared by 2007 Section Treasurer Tony Gascoigne.

Consolidated Cash Statement for 2007

Opening Bank Balances, 01/01/07

| | | |
|----------------------------|---------|----------------|
| Section accounts | 125,253 | |
| Comsoc Chapter accounts | 24,268 | |
| All other Chapter accounts | 3207 | 152,728 |

Income

| | | |
|----------------------------------|--------|---------------|
| IEEE HQ rebates (2006 and 2007) | 21,930 | |
| IEEE HQ special grant | 233 | |
| IEEE Book Broker (Tencon '05 CD) | 16,129 | |
| Income from operations | 163 | |
| Bank interest and miscellaneous | 5000 | 43,455 |

Expenditure

| | | |
|---|--------|-----------------|
| Section events (including DL program) | --- | |
| Chapters/Branch events | 5900 | |
| Prizes and grants | 1130 | |
| Final expenses - Tencon '05 | 8312 | |
| R10 share of Tencon '05 surplus (30%) | 18,533 | |
| Australia Council dues | 756 | |
| Support for outside conferences/workshops | 1668 | |
| Special loans and advances | 1804 | |
| Miscellaneous expenses | 500 | (38,603) |

Closing Aggregate Bank Balance, 31/12/07

157,580

3. Chapter and Affinity Group Reports

3.1 Circuits and Systems

The activities of the IEEE Circuits and Systems Chapter consisted of two technical meetings as well as monthly meeting attendance.

The first seminar was given by Dr Peter Radcliffe on a new single line microprocessor bus protocol with applications particularly in communications. The second was presented by Dr Robert Brown on "Exploding Capacitors and Equivalent Circuits. Both seminars were successfully delivered to an appreciative audience. Further seminars could have been presented but it was decided to hold them over until early next year.

Dr Alan Harvey: Chair, Circuits and Systems Chapter

3.2 Communications Society

The ComSoc Chapter ran two events in 2007. The first was a pilot Internet based presentation by Raj Jain of Washington University on "Internet 3.0: ten problems with current generation architecture and solutions for the next generation". This was broadcast to several ComSoc chapters around the Asia Pacific.

The second was a presentation from Stan Skafidas of NICTA on "Gigabit Wireless Systems at Millimetre Wave Frequencies".

Peter Wills (an ex-Chair of the Victorian ComSoc Chapter) has been participating in the IEEE ComSoc task force to develop a certification program in wireless communication engineering technologies. We look forward to a presentation from Peter early in 2008 on the progress of this work.

Craig Skinner: Chair, Communications Society Chapter

3.3 Computer Society

The Computer Chapter held one technical seminar during 2007.

3.4 Education Society

The Education Chapter was inactive during 2007.

3.5 Electromagnetic Compatibility Society

The EMC Chapter held an EMC Symposium in 2007 as well as two other technical meetings.

It also held its official inauguration event to coincide with a visiting delegation from the IEEE EMC Society.

3.6 Engineering in Medicine & Biology Society

The EMBS Chapter held one technical seminar during 2007.

3.7 Engineering Management Society Chapter

From the outset, the EMS Chapter has planned to engage speakers that can raise awareness of members in the following areas of

- Management decision-making
- Intellectual property rights management
- Start-up companies success and failure stories
- R&D management

as set out in <http://ieeovic.org/chapters/ems/ems.mission.php>.

I am glad to report that a majority of our targets has been made in 2007 as can be seen by the events held and listed on <http://ieeovic.org/chapters/ems/>. A total of 6 talks cum dinners were organised and they have all been well attended by IEEE and EMS Chapter members in particular.

Yeu-Wen Mak: Chair, Engineering Management Chapter

3.8 Graduates of the Last Decade (GOLD)

The GOLD affinity group was inactive in 2007.

3.9 Lasers & Electro-Optics / Electron Devices Society

The LEOS Chapter held five technical seminars during 2007.

3.10 Microwave Theory & Techniques / Antennas & Propagation Society Chapter

The AP/MTTS Chapter held two technical seminars during 2007.

3.11 Power Engineering Society

The PES Chapter held two technical seminars in 2007.

Brief report on chapter activities for IEEE PES Chapter, Victorian Section - 2007

Victorian PES chapter activities for 2007 were focused on energy utilization, greenhouse-friendly technology and plant life extension.

One of our highlights was the workshop revolving around the IEEE distinguished Lecturer Scott Rouse from Energy@Work in Canada. This Energy Efficiency workshop was very well timed as far as the local industry is concerned in Australia, as there is now a much greater awareness of the "Triple Bottom Line Plus One" concept as described by Scott Rouse - this incorporates the benefits of:

- * Reduced environmental impact
- * Increased profitability

* Enhanced shareholder value

PLUS

* Increased security

The workshop attracted an audience of 16 very attentive participants - with the majority coming from the "energy user" industry sector.

The chapter also ran a site visit plus lecture in relation to a major power transformer research facility in Victoria: the TransformerLIFE Centre, which is co-located with Monash University. This centre has received substantial support from both major and minor sponsors, along with large research contracts from Australia and overseas. The major focus of the centre is intelligent monitoring and plant life extension. The event was well attended, with 25 persons attending.

Unfortunately one other event in our schedule (a presentation on trends in energy markets worldwide) had to be cancelled as a result of speaker difficulties - it is planned that this event will be rescheduled into early 2008.

Dr. Robin Lisner

Chairman IEEE PES, Victorian Section.

3.12 Signal Processing Society

2007 was the sixth year of operation for the Signal Processing Society Chapter which was formed in December 2001. The Chapter was chaired by Robert Slaviero. The Chapter was responsible for organising seven activities consisting of six technical lectures by international and local experts, as well as contributing to the organization of the Third International Conference on Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP'07).

15 March 2007

Current Measurement Techniques

By Dr Sandy Williams, Woods Hole Oceanographic Institute, USA

18 June 2007

Satellite Groundstations for Remote Sensing

By Gary Quinn, Chief Engineer of Environmental Systems & Services Pty Ltd

10 July 2007

MIMO-OFDM System Implementation on Platform FPGAs

By Dr Chris Dick, DSP Chief Scientist, Xilinx, Inc., USA

10 July 2007

Tunable Bandwidth Digital Filters

By Prof fred harris, San Diego State Uni, USA

28 Sept 2007

Coherent Optical OFDM for Long-haul Fiber-optic Transmission Systems

Dr Sander Jansen, KDDI Labs, Tokyo

15 October 2007

The Monitoring, Evaluation and Management of Environmental Noise - Especially Aircraft Noise

By Dr Keith Adams, Lochard Ltd.

3 - 6 December 2007

The Third International Conference on Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP'07)

Various international and local speakers.

The Signal Processing Society chapter website was maintained under the IEEE Victorian Section website (www.ieee.org/vic) and was regularly updated with the latest information. Together with Section emailouts and features on the main website of upcoming talks, local members were kept well informed. A feature of the chapter website is that information, including presentation slides, for past events are (presenter willing) made available on the website.

Robert Slaviero – Signal Processing Society Chapter Chair

3.13 Society for the Social Implications of Technology (Greg Adamson)

The Australian chapter of the Society on Social Implications of Technology had a productive second year of existence, finishing with a lively annual dinner in Carlton in late November. Highlights of the year were:

- Two technical meetings in Melbourne
- One technical meeting in Sydney
- One technical meeting in Wollongong
- One technical meeting in Beijing!
- Two national newsletters
- A new web site
- Monthly national teleconference meetings of the committee
- Accreditation as the Australian chapter

3.14 Women in Engineering

The WIE affinity group held

3.15 Nominations and Appointments

During 2007, I have carried out the duties relating to Nominations and Appointments relating to the Section. Next year, it will be the Victorian's Section turn to administer the IEEE Australia Council

Outstanding Student Branch Competition.

Professor Laurie Cahill, Chair, Nominations and Appointments

4. Student Branch Reports

4.1 Melbourne University Student Branch (Peng Hao)

The student branch organized three events in 2007. The first was Helping Refugees with Computer Techniques, co-working with an organization of CFR (Connectivity For Refugees), after several meetings with them, we held a mobilization talk on 6th, Aug in Melbourne, around twenty volunteers finally were selected, this event last for four months.

And second event was the staff-student soccer match and New Semester Welcoming BBQ on 22nd Aug, including one female staff and staff team finally won, more than thirty students and staff enjoyed watching the game. The BBQ was followed after the match. After this event, two people were invited to join the new committee to do some assistant work.

The student branch was involved in Endeavour Exhibition 2007 on 24th Oct. During that day, we introduced IEEE and the student branch. Many students showed their interest.

Peng Hao: Chair, IEEE University of Melbourne Student Branch

4.2 RMIT Student Branch (Fleur Stephens)

The RMIT IEEE Student branch organized several functions throughout 2007, they include

1) The RMIT IEEE Social Lunch held on the 3rd of April attracted 23 students plus 2 special guests from the Victorian IEEE Section, Dylan Radcliffe and Alan Harvey.

It proved an excellent opportunity to promote the IEEE to RMIT students as many of the students present were not IEEE members and knew little about the organization or the benefits of membership.

2) A 3hr MATLAB workshop designed for beginner and intermediate users of Matlab proved a great success, held on the 12th of April, we had a maximum capacity of 20 people. The final number of attendees was 24 as notebooks were arranged to accommodate the extra numbers.

The MATLAB workshop was a learning experience as our team discovered attendees would have preferred more practical work and slightly less theory. We intend to incorporate this feedback into future workshops.

RISB Committee elections

As our committee consisted of mostly final year PHD students, we were left with only one

permanent committee member. Since the mid year election we have gained another three committee members, together we have planned a committee membership drive to be implemented at the start of 2008.

3) The RMIT IEEE Student branch participated in the postgraduate conference proceedings held on the 24th of September. IEEE sponsorship provided three prizes for the best paper and presentations on the day.

The RISB Committee attended the postgraduate conference and used it as a committee recruitment opportunity. After speaking at the postgraduate lunch we gained 2 team members and garnered much interest in IEEE membership. Approximately 19 students attended the postgraduate luncheon.

4) Recently we hosted a seminar entitled How to apply for an Australian Postgraduate Research Scholarship, presented by Dr Arnan Mitchell on the 18th of October. 31 Students attended and the lecture proved an excellent opportunity to advertise the benefits of IEEE membership to postgraduate candidates.

The RISB Committee had huge financial growth in the first half of the year, due primarily the Matlab workshop, the second half of the year has shown no growth and a small portion of our balance has been used for marketing and refreshments for free student events we have provided. Our Total Balance stands at \$657.44.

We would like to thank the Branch Counselor Arnan Mitchell for his support and providing the committee with many wonderful events. And we wish to give our branch mentor a special thanks for his continued support and advice, he has proven to be an incredible mentor and is extremely appreciated by the RISB Committee.

Our team has exciting plans for the new year, set to inspire new memberships and increase the number of committee participants.

Fleur Stephens: Chair, IEEE RMIT Student Branch

4.3 RMIT Women In Engineering Student Group (Wai Chee Yau)

RMIT student WIE has organized two events in 2007. The first event is a luncheon that was held on 3rd April 2007 at RMIT City Campus. The lunch was well attended by approximately 30 people. All female and male students were invited to this event. Dylan Radcliffe (Chair of IEEE Victorian Section) and Irena Atov (Chair of WIE Victoria) talk about IEEE and WIE respectively in the luncheon. Various IEEE and WIE promotional items were distributed to the students. This social event increased the visibility of the newly formed WIE group at RMIT and the attendees were able to find out more about WIE and IEEE.

The second event was a seminar on Australian Synchrotron held on 17th April 2007. Anton Tadich from La Trobe University was invited to give a presentation on Australian Synchrotron. 20 people from RMIT's engineering and physics department had attended this seminar.

Wai Chee Yau, Chair of IEEE RMIT WIE

5. Appendix A: List of Section Events for 2007

| Date | Event | Chapter/Group/Branch |
|----------|--|-----------------------|
| 06/01/07 | Fusion a future base load power source Nuclear Fission 600 V/m radar pulse testing for immunity of automotive | SSIT |
| 12/02/07 | components | EMC |
| 12/02/07 | Optimal Network Design: An Application in Underground Mining | LEOS |
| 21/02/07 | Negative Refractive Index Materials | AT/MTTS |
| 27/02/07 | Engineering Management – What worked (and what didn't) | EMS |
| 09/03/07 | IEEE Women in Engineering Reception and Talk | WIE |
| 15/03/07 | Current Measurement Technology | Signal Processing |
| 22/03/07 | WAN-in-Lab, and an overview of networking research at Caltech | LEOS |
| 27/03/07 | Shape recovery and recognition from single shaded views Nonlinear System Identification using Structured Kernel | LEOS |
| 29/03/07 | Techniques | CIS |
| 03/04/07 | RMIT and RMIT WIE Luncheon | RMIT WIE |
| 12/04/07 | Leadership in Action | EMS |
| 12/04/07 | MATLAB workshop | RMIT Branch |
| 17/04/07 | The Australian Synchrotron | RMIT WIE |
| 19/04/07 | “The role of Academy in the Australian Scene” | EMS |
| 09/05/07 | Internet 3.0: Ten Problems with Current Internet | Comsoc. |
| 09/05/07 | Building a Machine with Visual Thinking Capabilities | CIS |
| 09/05/07 | A Green Internet | LEOS |
| 22/05/07 | Gigabit Wireless Systems at Millimetre Wave Frequencies | Comsoc. |
| 24/05/07 | GHz Shielding on the PCB | EMC |
| 18/06/07 | Satellite Ground Stations for Remote Sensing | Signal Processing |
| 19/06/07 | Decision-Making in Conditions of Uncertainty | EMS |
| 26/06/07 | EMC Society Delegation Visit | EMC |
| 27/06/07 | Applications of Optical Resonance to Biological Sensing and Imaging | LEOS |
| 04/07/07 | Transcranial Magnetic Stimulation in the Treatment of Neuropsychiatric Disorders | EMBS |
| 10/07/07 | Tunable Bandwidth Digital Filters MIMO-OFDM System Implementation on Platform FPGAs: | Signal Processing |
| 10/07/07 | Architecture, Design Flow and Real-time Testbeds | Signal Processing |
| 13/07/07 | Compression and Transfer of Spectral Images Time Independent Asynchronous Communications applied to | Computer |
| 15/08/07 | Microprocessors | Circuits and Systems |
| 25/07/07 | The Technologist and Internet Security and Privacy Practices | SSIT |
| 06/08/07 | Mobilization talk with “Connectivity for Refugees” | Melbourne Uni. Branch |
| 22/08/07 | IEEE staff/student soccer match | Melbourne Uni. Branch |
| 28/08/07 | It's always been done that way: women and change in the profession | WIE |
| 12/09/07 | EMC Symposium 2007 | EMC |
| 17/09/07 | Energy Efficiency – Profit and Climate Change | Power |

| | |
|---|-----------------------|
| 19/09/07 Outreach Program for High School Girls and Students at RMIT | WIE/RMIT WIE |
| 24/09/07 RMIT Postgraduate Conference (IEEE Sponsorship) | RMIT Branch |
| 27/09/07 Engineers, Water and Social Responsibility | SSIT |
| Coherent Optical OFDM for Long-haul Fiber-optic Transmission | |
| 28/09/07 Systems | Signal Processing |
| 03/10/07 Exploding Capacitors and Equivalent Circuits | CAS |
| The Monitoring, Evaluation and Management of Environmental | |
| 15/10/07 Noise - Especially Aircraft Noise | Signal Processing |
| 18/10/07 How to apply for an Australian Postgraduate Research Scholarship | RMIT Branch |
| 24/10/07 IEEE Booth at Melbourne University Endeavour | Melbourne Uni. Branch |
| 27/10/07 Social implications of national security workshop | SSIT |
| 15/11/07 Terahertz Technology in Outer and Inner Space | AT/MTTS |
| 22/11/07 Desktop Trade-offs: Privacy, Liberty and Security | SSIT |

6. Appendix B: 2007 Section Office Bearers

Dylan Radcliffe - Chair, Victorian Section
Dr Horace King - Vice Chair, Victorian Section
Tony Gascoigne - Treasurer, Victorian Section
Paul Kubik - Secretary, Victorian Section

Greg Adamson - Society for Social Implications Of Technology Chapter Chair
Dr Irena Atov - Women-in-Engineering Affinity Group Chair
Dr Iouri Belski - Education Society Chapter Chair
Prof Laurie W. Cahill - Nominations and Appointments and Student Branch Contest Judge
Dr Robin P. Lisner - Power Engineering Society Chapter Chair
Dr Brian Lithgow - Engineering in Medicine & Biology Society Chapter Chair
Yeu-Wen Mak - Engineering Management Society Chapter Chair
Dr Nallasamy Mani - Computational Intelligence Society Chapter Chair
Kamran Ghorbani - Antennas & Propagation / Microwave Theory & Techniques Societies
Chapter **Malcolm Mulcare** - Electromagnetic Compatibility Society Chapter Chair
John Papandriopolous - GOLD Affinity Group
Dr Malin Premaratne - LEOS/EDS Chapter Chair
Dr Ron van Schyndel - Computer Society Chapter Chair
Craig Skinner - Communications Society Chapter Chair
Robert Slaviero - Signal Processing Society Chapter Chair
Enn Vinnal - Immediate Past Chairman, Victorian Section

Student Branch Officers

A. Baten - The University of Melbourne Student Branch Chair
Kimberly Teo - The University of Melbourne WIE Student Affinity Group Chair
Mohammad Amin Dallaali - Monash University Student Branch Chair
Surendran Devadoss - RMIT Student Branch Chair (06/07)
Fleur Stephens - RMIT Student Branch Chair (07/08)
Wai-Chee – RMIT WIE Student Affinity Group Chair