



Celebrating 125 Years
of Engineering the Future

Uplink

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Special points of interest:

- IEEE Victorian Section Student Conference Paper Presentation Travel Grant is now on! See the website for more information.
www.ieeevic.org
- GOLD Student and young professionals night 23/4/09
<http://www.ieeevic.org/events/getdetails.php?id=239>
- The IEEE Welcomes Elya Joffe the President of the IEEE EMC Society in late May 2009

Report from the Chair

As this is the first time in a long time to produce a Bi-monthly newsletter, it is my pleasure to thank the members who have worked tirelessly to put the first issue out. It is therefore in order that I include some of the most important events and activities that have taken place in the section during the last 12 months.

The success achieved is a result from collective efforts by volunteers in the IEEE Victorian section executive committee, Societies, Chapters, Women in Engineering (WIE), Graduates of the last Decade (GOLD) and Student branches. Many events including the 25th section anniversary were successfully ran across the section chapter jurisdictions in addition to all other domestic and international activities such as our Monthly committee meetings, the R10 Annual meeting in India, IEEE section congress in Quebec, Canada, the Australia Council meetings and University and Industry functions followed by the R10 Annual meeting in Hanoi, Vietnam.

These meetings provide an opportunity to gain information and training skills from many sources readily accessible at the officially designated venues. Personally, I have been able to network and build relationships with other volunteers within the IEEE community drawn from many chapters, sections, councils and regions.

IEEE meetings serve as forums for Section representatives and other local leaders, enabling them to publicise (on behalf of the collective membership) the

ideas, issues, and recommendations which will impact on the development and growth of the IEEE throughout the world, reinforcing its vitality and relevance to those it serves.

There has been success in conference bids in the section as we were able to secure the 2013 International Conference on Image Processing (ICIP) earmarked for hosting in Melbourne under the auspices of the Signal processing society. This bid was very strongly supported by the Melbourne Convention and Visitors Bureau (MCVB) with whom we should build strong Professional Co-operation in strategic bidding undertakings.

We have expressed our interest in hosting the 2014 section congress and are bidding for ISCAS 2013. We participated and supported student competitions ran in domestic as well as International Universities and we supported student member participation in international conferences.

The Section committee executive unanimously endorsed the formation of the IEEE Tasmania sub-section and official confirmation of its inception was delivered in February this Year.

A good number of our members are actively involved in IEEE conferences bids; journal and magazine paper reviews and many are continuing to be on conference organizing committees whereas others are volunteering to be technical session chairs.

It is also to be noted that one of our members was voted R10 winner of the prestigious volunteer of the region. Another International award has been given to the current Chair of Women in Engineering. In addition, a member of the current executive committee has been elected the Australia Council Secretary.

This indeed has been a busy year where a united front of our executive committee is fostering the membership recruitment drive from new graduates and practicing professionals whom we hope will continue to pursue the aims and objectives of the IEEE activities in the state, in the country, in the region and at an International level.

I hope you will enjoy reading all the articles in this issue and all the issues to follow.



Dr Horace L KING,
Senior Member IEEE,
MIEAust, (Vic Section Chair)



Dr. Ross Kelso

In a key election promise, the Rudd Government committed up to \$4.7 billion in funding support for optical fibre in the access network.

Seventy at lively SSIT broadband discussion

SSSIT (IEEE Social Implications of Technology) had an exciting final technical meeting for 2008 on Broadband policy.

Around 70 people attended a lively discussion led by Dr Ross Kelso (www.rosskelso.com), who recently completed a PhD into the relationship between government telecommunication policy, architecture, and next generation broadband.

The meeting took place one week after the deadline for proposals to build a National Broadband Network (NBN) for delivering data speeds of at least 12 Mb/s to 98 per cent of Australian homes and businesses, using fibre-to the node or fibre-to-the home architecture and providing open access to wholesale broadband services.

In a key election promise, the Rudd Government committed up to \$4.7 billion in funding support for optical fibre in the access network. Ross argued that this creates the opportunity for a significant change – the potential to end the scarcity of communications bandwidth available to small to medium enterprise and residential customers, heralding the arrival of a veritable cornucopia of services. Given the right settings, an NBN could significantly assist in further developing Australia's networked information economy

and improving our international competitiveness.

Ross has more than 30 years as an engineer and manager in the telecommunications industry, and recently completed doctoral studies at Queensland University of Technology in Brisbane. Until mid 2002, he was a Senior Research Fellow at the Centre for International Research on Communication and Information Technology, CIRCIT@RMIT in Melbourne. He then joined the National Office for the Information Economy to work on the report of the Broadband Advisory Group. In his view the proposed National Broadband Network is predicated on a new policy and regulatory framework yet to be devised; and so far there has been a distinct lack of transparency of process.

Meeting participants represented a cross-section of views in the debate. These ranged from advocates of rapid implementation of a commercial service ("just give us a good service") through to those who see the process could sound the death-knell of effective competition in Australian telecommunications. The meeting focused on whether the National Broadband Network is in the best interests of end-users.

A key issue in discussion was the role of commercial

infrastructure investment, with some arguing that investors must have guaranteed returns in order to risk their capital within a relatively short timeframe. Ross put forward an alternate view that basic infrastructure development such as a local road would never be built if it relied solely on a short term business case.

Ross viewed the broadband architecture/policy debate as more fundamental than the "Internet neutrality" debate (regarding whether telcos should be able to set tariffs based on the communication purpose). If the architecture of the broadband services was not designed to give each home significant bandwidth (both as an information consumer and producer), then other possibilities of creative and productive use of broadband are frozen out.

Ross currently serves on the boards of the Internet Society – Australian Chapter (ISOC-AU) and the Consumers' Telecommunications Network (CTN) of which he is also the Chair.

IEEE VIC 25 Celebration Dinner at Santino's Restaurant, Carlton



SSIT Upcoming Events

The next SSIT event is the May Forum: WOW, they're uncontrollable: Online games, censorship and the crisis of control.

The speaker Dr. Jeffrey E. Brand, Associate Dean and Head of School, Communication and Media, Faculty of Humanities and Social Sciences, Bond University will present discussions on age appropriate censorship or lack thereof in the Australian computer game industry.

The forum will be held on Wednesday the 13th of May at 6:00 - 7:30pm at Melbourne University, Carlton. The public is welcome there is no entry charge.

See the SSIT website for more information <http://ssit.ieeevic.org/upcoming.php>

IEEE Sections Congress 2008 (Quebec, Canada)

Sections Congress 2008 was attended by the Chair (Horace King) and myself as Vice-Chair on behalf of the IEEE Victorian Section.

The event coincided with the 400th year anniversary of Quebec City, the 25th anniversary of our Victorian Section and was also used to launch IEEE's 125th year anniversary next year (www.ieee125.org).

As a delegate, Sections Congress is a forum for sharing knowledge with IEEE volunteers and staff facing common issues worldwide. The common themes were:

- Encouraging member and student participation
- Better access to global IEEE resources
- Increasing the relevance of IEEE within the industry

The theme for Sections Congress was "Celebrating Volunteer Achievements Worldwide". The formation of the Member and Geographic Activities

(MGA) Board replaces the Regional Activities Board (RAB) as the organisation responsible for member development. MGA will focus on better access to tools for local sections.

and all our volunteers and members should be aware of the Member Benefits when discussing IEEE with non-members. Section Chairs are being encouraged to be the key point of contact for their members.



R10 delegates attending the IEEE Section Congress in Quebec, Canada 2008

A strong message was to approach Strategic Planning as a Section. The initiatives discussed in this report will be used as a catalyst for discussion in the strategy meeting in February 2009. The key topics are:

- IEEE 125th Year Celebration
- Industry & Government Partnerships
- Encouraging Student Memberships
- Marketing Strategy
- Membership Development
- Humanitarian Projects
- Website Development
- Budget Planning 2009

Sections Congress 2008 also hosted the first GOLD Summit (Graduates of the Last Decade). GOLD is seen as being of increasing importance in the strategy of tracking the member through the stages of their career. The main theme was bridging together regional GOLD groups to discuss common issues.

Sections should focus on making IEEE a personal experience for each and every member in the local section,

Sections Congress is a valuable training ground and introduction to the IEEE. I strongly support the attendance of Sections Congress by young volunteers with ambitions to become Executive Committee members in future.
Paul Kubik

IEEE Vic-25 Celebration

To mark the twenty fifth anniversary of the formation of the IEEE Victorian section, a celebration branded Vic-25 was planned and delivered by a subcommittee of the IEEE Victoria. This event was spread over the first week of September 2008, from the 29th of September to the second of October.

Technical seminars were delivered in the evenings and at lunch meetings at RMIT University and Melbourne University.

Professor Fred Harris delivered well attended lectures and a workshop on multi-rate signal processing.

Professor Dalma Novak spoke on the path from Academia to small business.

Professor Roma Rinkeviciene gave a lecture on the European power grid and also Women in Engineering in the EU. Roma is one of the few female Deans of Engineering in the EU, being Dean of Electronic Engineering at Vilnius Technical University. Significant sponsorship to the event was given by SEW Eurodrive and the CMG Group as well as several other local companies.

Joint support was also provided by ISSPA, a sensor research group funded by the federal government. CMG, an important sponsor gave a lecture on new initiatives in motor

efficiency.

The celebration dinner was held on the Monday night and was well attended. A folk group, Rant was an enjoyable addition to the dinner.

The dinner gave an opportunity for Industry members and Academia to meet and discuss areas of mutual interest. IEEE Victoria would like to thank the Vic-25 celebration sponsors, NICTA, SEW -Eurodrive, CMG Group, Aquamill and Covey Consulting for their sponsorship of the IEEE Vic 25 celebration.



Photograph to the right: Past and Present IEEE Victorian Chairs (Back: Dylan Radcliffe, Robin Court, Horace King, Peter Wills, Enn Vinnal, Anthony Gascoigne. Front: Robert Slaviero, Dalma Novak, Harry MacDonald)



ElectroRem 09

For enquiries
and further
information please
visit the
conference website
at [http://
ewh.ieee.org/conf/
electrorem/](http://ewh.ieee.org/conf/electrorem/)

The Reverend John Flynn was no ordinary pastor, he was a very practical man as well as being determined. In 1925 he drove thousands of kilometres around the outback in a Dodge truck conducting radio transmission experiments, and was made a member of the Wireless Institute of Australia for this work. (Regular radio broadcasts had then only just commenced in Sydney and Melbourne).

In 1929, the legendary *pedal-powered radio* was developed by Flynn's German-born assistant, Alfred Traeger, and inland radio communications became a reality.

Flynn's other landmark achievement, the Aerial Medical Service (later the Royal Flying Doctor Service) had already been inaugurated at Cloncurry the previous year.

Although today's outback communities do not suffer the privations of the early settlers, they nevertheless face many challenges and difficulties unknown to their urban counterparts. There is arguably a need for new initiatives to meet these continuing needs, no less committed than Flynn's purposeful approach, although obviously differing in detail.

The IEEE Conference on Advanced Electrotechnology For Remote Areas (*ElectroRem '09*) to be held in Melbourne later this year will have such a focus. This conference will explore the potential contribution of EE technologies of every type in the remote community setting.

But this is not to be a simple recitation of notional technical possibilities, rather, we want to search out economical, practical and genuinely people-friendly solutions that enhance community life without intrusive side effects, and without unrealistic dependence on supporting skills and infrastructure.

A Conference for Bushies

In telecommunications and IT, we will be seeking to demystify the technology (and the nerd-speak) and go in search of the genuine, practical, reliable, and user-friendly options. In energy systems, water supply and basic services, we will be asking questions like, "Are there radical but simple solutions we haven't even thought of yet?" In any case, all modern utilities require reliable communications, control and telemetry for efficient operation, and there are boundless opportunities for innovation in these areas.

One of the topics for discussion in the Education field is the One Laptop per Child initiative pioneered in the USA and now active in Australia. Far from being just "a computer in a box", this program aims to put computer technology at the service of primary school children as an effective learning aid, not a toy.

We are very conscious here of the particular needs of the indigenous community. And as a related issue, we would like to have the involvement of indigenous professional engineers in *ElectroRem '09*. The number of indigenous engineers is still small but steadily growing, and they will no doubt make a significant contribution to their profession in the future.

A topic of current interest is the preparedness of remote communities for natural disasters - fire, flood, cyclone, earthquake, and effective counter measures for such events.

In the areas of sports, recreational activities, hobbies, and cultural pursuits, we will again be looking for creative new approaches.

Could music lovers in Newman, WA, be made an interactive "virtual part" of the Perth audience at a performance of the WA Symphony Orchestra?

Could junior footballers in a remote area receive hands-on (haptic) coaching in kicking skills from an AFL star in Adelaide?

In community support services we will be looking for ways to enhance civic amenities that we take for granted in the city, but which are often in chronically short supply in remote areas: libraries, citizens advice, employment services, childcare, short courses, adult education.

These are, of course, ambitious objectives, but we see no reason to moderate them. Perhaps *ElectroRem '09* will help create a new vision for inland and remote-area Australia no less prescient than that of the remarkable Dr Flynn. Perhaps we will soon see some new all-Australian solutions to this very Australian problem.

The first Call For Papers for *ElectroRem '09* has now been circulated to all IEEE Sections in Australia and to various public and private organisations. We welcome contributions of all types within the terms of reference of the conference as well as general expressions of interest.

For enquiries and further



information please visit the conference website at [http://
ewh.ieee.org/conf/electrorem/](http://ewh.ieee.org/conf/electrorem/)

Read my Lips

I imagine speaking silently to a computer and having the words come up on the screen, no more touch-typing. This dream of the future is one step closer to become reality thanks to RMIT University graduate Wai Chee Yau, who investigated computer-based lip-reading as part of her PhD.

Dr Yau, of Carlton, who completed her PhD in Biomedical, Telecommunication and Electronic Engineering, said this type of communication was more efficient than talking to computers as it took out any problems caused by background noise. Its potential uses include car radio control, defense applications, speech control in noisy environments and computer use for disabled people.

"As part of my PhD I developed a computer-based lip-reading technique that recognizes

utterances using video recordings, without evaluating the sound signals," Dr Yau said.

"With the help of my senior supervisor, Associate Professor Dinesh Kant Kumar, I developed a prototype lip-reading system to classify speech based on images and mouth movement recorded using an inexpensive webcam.

I have tested the proposed system using a set of English speech sounds and obtained promising performance." Originally from Kuala Lumpur, Malaysia, she has published her research in one book chapter, three journal papers and a number of conference papers.

Dr Yau spent part of the second year of her studies at BA-University, Germany for a research placement. Dr Yau was also the Chair of RMIT's IEEE Women-in-

Engineering Student Affinity Group from 2007 to 2008. Wai had been involved in encouraging more women and girls to study engineering through RMIT IEEE WIE.

Dr Yau was also one of the 2007 Australia and New Zealand Google Anita Borg's Scholarship finalists and recently presented a speech on her findings in the field of computer based lip reading using motion templates on behalf of the IEEE Signal Processing Society.

To find out more about this event and the IEEE Signal Processing society and go to <http://www.ieeevic.org/chapters/sigproc/>



Dr Wai Chee Yau

IEEE Newsletter Editorial

This first publication of a newsletter for over ten years aims to keep IEEE Victoria members better informed than previously.

Our modest aim is to have two editions this year with news and articles covering past and future events. I would like to thank Fleur Stephens for her work in turning the articles into a coherent document and in particular an attractive newsletter.

A specific aim is to target a greater audience for technical seminars hosted by IEEE Victoria. Therefore, members who are hosting seminars are urged to let me know of upcoming seminars or events.

Distribution is by email with a modest print run for publicity purposes. I commend this edition to you and look forward to your contributions in the future. From little acorns, mighty oak trees grow!

Alan L. Harvey
Circuits and Systems Chapter Chair



Celebrating 125 Years
of Engineering the Future

To submit an article for publication in the next edition of Uplink or an expression of interest please email

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