



## Annual Report 2014



IEEE  
VICTORIAN  
SECTION



**ENGINEERS AT WORK: Trainees and tutors at the Wearable Electronics Workshop convened by IEEE Victorian Section Women in Engineering (see Page 8) PHOTO: EE HUI LIM**

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## From the Section Chairman



'we have good reason to be confident about our prospects in 2015'

At this 32nd Annual General Meeting of IEEE Victorian Section, I am pleased to report on the highlights of 2014.

The year started on a high note with presentations in Hobart and Melbourne by Professor Malcolm Heron, Distinguished Lecturer of the IEEE Oceanic Engineering Society. Several months later we held a second Distinguished Lecture in Hobart, this time our visitor was Professor Jovica Milanovic of the University of Manchester. And in October, we hosted a three-part seminar led by Professor Henry Duh of the University of Tasmania. This was the first time that UTAS researchers have presented to an IEEE audience in Melbourne.

In April, our newly formed Systems, Man & Cybernetics Chapter commenced operations and has since held nine (9) technical meetings on a wide range of professional topics. This is a notable achievement for a Chapter not yet 12 months old!

SMC Chapter is based at Deakin University, Waurn Ponds campus, and joins the recently formed Deakin University Student Branch at the same location. These are the first Victorian sub-units to operate outside Metropolitan Melbourne and they will pave the way for similar initiatives elsewhere in the State, consistent with our Section development strategies.

Our new Life Members Affinity Group is another successful venture. It was formed mid-year and has since pursued a lively program of activities of interest to its members and outsiders alike. In fact, the energy displayed by our older members in supporting the LMAG initiative is encouraging indeed!

The Section performed well in the IEEE Australia Council Awards and both La Trobe University and The University of Melbourne Student Branches were honoured for their outstanding performances. There were also several individual Student winners. To add further to the honours list, the University of Melbourne Student WIE Affinity Group received the "Best in World, 2013" award of the IEEE Women in Engineering Global Committee.

In May, the senior Women in Engineering Affinity Group ran a very successful multi-speaker seminar marking the 30th anniversary of the Symposium on Women in Engineering & Computer Science - a pioneering event organised jointly with Engineers Australia and held in Melbourne in August 1983.

Our WIE Group has shown commendable initiative in its program of activities throughout 2014, culminating in December with the successful launch of a Wearable Electronics Workshop - depicted on the front cover of this Annual Report. Similar instructional workshops will be run during 2015.

The Section continues to play a significant role in IEEE affairs beyond our geographic boundaries, notably in the IEEE Australia Council and IEEE Region 10. This is exemplified by our ongoing involvement in ANZSCON, the biennial Australia-New Zealand Student Congress. Victorian Section was one of the founding partners of this event and was well represented at the 2014 Congress held in Brisbane. We have undertaken to produce a Rules & Guidelines document to guide the bidding and selection processes for future Congresses.

The major International event of the year was the worldwide Sections Congress held in Amsterdam, Netherlands and we sent two delegates to this event. We also participated in a number of national and regional conferences, some organised in collaboration with neighbouring Sections.

In the year ahead we will continue working on the long-term development of the Section in several well-defined areas - in our technical chapters, in our student branches, in our regional areas, and in our ongoing working relationships with universities and industry.

In closing this brief survey of 2014 Section activities, I draw attention to the remarkable level of commitment and unstinting service displayed by many of our officers and volunteers throughout the year. I am greatly indebted to them for their support, and it is this same spirit of adventure and purpose that will take us far in the future.

As an IEEE Section, we have good reason to be confident about our prospects in 2015!

Anthony E. Gascoigne  
Chair, IEEE Victorian Section  
*a.e.g.@.ieee.org*

## Review of Activities & Operations, 2014

### SECTION ELECTIONS

NOMINATIONS were called for the Section Executive Committee in September 2014. Since none of the positions were contested, the 2014 incumbents retain their existing positions for a further 1-year term, with the exception of Secretary Golnar Khomami, who resigned due to academic commitments. No nominations were received for the positions of Secretary and Assistant Treasurer. The elected officers for 2015 are thus as follows:-

**Chair** - Anthony E. Gascoigne

**Vice-Chair** – Alan L. Harvey

**Secretary** – (vacant)

**Treasurer** – Enn Vinnal

**Asst. Treasurer** – (vacant)

In accordance with the Section constitution, the vacant positions will be filled by resolutions of the incoming 2015 Section Committee. Thanks are due to all outgoing members of the 2014 Committee for their valuable service during the past year. Thanks also to the Section Nominations Committee, ably chaired by Dr Ee Hui Lim.

### ANNUAL GENERAL MEETING

THE Annual General Meeting IEEE Victorian Section was held at the Metropolitan Hotel, William Street, Melbourne, on 4th December 2014. Fifty-nine (79) persons attended, including IEEE Members and their partners and invited Guests. Roughly one-third of the attendees were IEEE Student and Graduate Student Members and their partners. We were also pleased to have the company of Professor Yousef Ibrahim of Federation University, Victoria's (and Australia's) youngest accredited research university. Prof. Ibrahim gave a brief outline of his professional interests and described features of a forthcoming conference on Mechatronics with which he is associated.

Another highlight of the evening was a brief recital by Ms Harmony Yu, a postgraduate student at La Trobe University, playing an *er hu*, a two-stringed traditional Chinese instrument. This performance was very well received and Ms Yu has agreed to perform

again at appropriate Section events in future.

In accordance with established custom, Cash Awards were presented to the two winners of the Student Paper Travel Grant Competition (see details under Student Paper Awards, overleaf). Also, Certificates of Commendation were presented to outstanding Student volunteers and others who made a notable contribution to section affairs during 2012. Special thanks are due to all who assisted in the organisation and running of the AGM, and especially Ee Hui Lim and Mehrnaz Shoustarian.

### MEMBERSHIP DEVELOPMENT

THE Section continued to grow at a steady rate during 2014. Final membership statistics are now being analysed and will be used to develop our publicity and recruitment strategies in the coming year. We are particularly keen to recruit more members from Industry and particular strategies to achieve this objective will be implemented during 2015. The preliminary membership tallies as at 31 December 2014 are shown in the Table below.

We are pleased to note that the number of IEEE Fellows in the Section will increase substantially from 1st January 2015, with five (5) new members in this grade, including Prof. Jean Armstrong, our first female Fellow. These 2015 grade elevations were announced late in 2014 but are not shown in the table.

MEMBER GRADE	2013	2014	% Change
Fellow	16	16	0
Senior Member	150	154	+2.7
Member	1470	1493	+1.6
Grad.Stud.Mem.	327	323	-1.2
Assoc. Member	46	38	-17
Stud. Member	108	109	+0.9
<b>TOTALS:</b>	<b>2117</b>	<b>2133</b>	<b>+0.8</b>

## CHAPTERS

THE general activity level of our technical chapters increased markedly over that of the previous year. There were 67 events in total compared with 47 in 2013 - an increase of 40%. Details are given in a later section of this annual report and only a few highlights are noted here.

The successful launch of the new SMC Chapter has already been mentioned in the Chairman's Report and this early success augurs well for the future of the Chapter. Among our established chapters, Computer, Signal Processing, Communications and Power and Energy have all performed well and retain their leading positions in our array of subunits.

We now have a total of fifteen (15) chapters in the Section, including the Society on Social Implications of Technology geographic joint Chapter. The Section is also a partner in the Oceanic Engineering Society Joint Chapter, which is managed by the IEEE Australia Council.

## AFFINITY GROUPS

The Women in Engineering Affinity Group was particularly active during the year and displayed commendable initiative in its program of activities. Not least was the inaugural Wearable Electronics Workshop launched in November 2014. The aim of this workshop was to provide basic training in the new field of "wearables" using the Arduino LilyPad circuit board with embedded microcontroller, in a setting that is particularly attractive to females. Trainees were shown how to program the microcontroller, attach the board to fabric, "wire-in" LEDs and other peripherals using flexible conductive thread, and test the completed system. The Group plans to run similar workshops at regular intervals during 2015.

The GOLD (Young Professionals) Affinity Group held three events several 2 joint deemed a notable success. The YP's have planned a more comprehensive program for 2014. Preparations are underway for the formation of a Life Members Affinity Group (LMAG). We expect the latter initiative to proceed during the coming year.

Similar comments apply to the new Life Members Affinity Group, although in this case the formalities

have yet to be completed because of unexpected delays in the IEEE administrative system. Nevertheless, the Group will continue to function as an "affinity group in formation" until these matters are resolved.

## STUDENT BRANCHES

PREPARATORY work for an IEEE Student Branch at Deakin University in Geelong was completed during 2013. We have recently received approval for formation of this new unit. Monash University Student Branch was deemed our Outstanding Student Group for the year, but in fact all Branches have exhibited very high levels of commitment and initiative.

An informal dinner for Student Officers was held in Melbourne in September 2014. This is now a regular calendar event that allows volunteers from the various student branches to become better acquainted. Also, students have an opportunity to discuss their activities with senior members of the Section Committee, in a low-key social environment.

There are now seven (7) Student Branches active in Victorian Section. Student activities are covered in greater detail in a later section of this Annual Report.

## CONFERENCES

Several IEEE Conferences and Symposia were held in Melbourne during 2014, outline details as follows.

*ISCAS 2014.* The International Symposium on Circuits & Systems was held in Melbourne from 1-5 June at the Melbourne Convention Centre. Approximately 650 delegates attended and there was a good technical and social program. This year, two visiting professors gave technical seminars, both at RMIT University.

*ICIMIC 2014.* The 6th International Conference on Modelling, Identification & Control was held in Melbourne from 3rd -5th December 2014.

*AMS 2014.* The First Australian Microwave Symposium was held at RMIT University, Melbourne, from 26th-27th June 2014. There were 55 registrants at this inaugural event. It is now planned to run this symposium biennially.

*IC3e.* The Third International Conference on e-Learning, e-Management and e-Services was held at Swinburne University of Technology, Hawthorn, Vic. campus, from 10th-12th December 2014. This three



day event was organised jointly by the Computer Chapters of IEEE Victorian and Malaysian Sections. It was the first of the series to be held in Australia.

Further details of the foregoing conferences are given in a later section of this annual report.

### SECTION WEBSITE

In September, our website was disabled by a virus or other malware from an unknown source, causing a complete shutdown on the instructions of the hosting service. This added to pre-existing problems following the unauthorized access and tampering incident of the previous year. We have since moved to a new overseas-based hosting service and started the task of rebuilding the whole site, which is still only partly functional with much further work remaining to be done. Inevitably, there has been considerable disruption to our normal web publicity and other features and caused a great deal of inconvenience. The Section Officers are presently considering various ways of expediting this work.

### STUDENT PAPER AWARDS

THE Student Paper Travel Grant competition provides financial support to IEEE Student Members and Graduate Student Members who present accepted papers at IEEE (or approved non-IEEE) conferences. In 2014 there were two such competitions held, one in each half-year. The successful lead-authors were Chichin of Swinburne University of Technology for a paper titled " " and Fatemeh Jalali of The University of Melbourne for a paper titled " "

The standard of papers submitted continued at the commendably high level of recent years.

### SPONSORSHIP & PRIZES

ALTHOUGH the Section is not by its nature and constitution a grants-giving body, we are pleased to make limited contributions in selected areas wherever our Bylaws and available financial resources permit. During 2013 we continued our support of the Endeavour program at the University of Melbourne, the EnGenius exhibition at RMIT University, the Hooper Memorial Prizes at La Trobe University, and similar awards at Swinburne University of

Technology. We expect to continue our sponsorship of these events during the coming year.

### UPLINK

Three (3) issues of the Section newsletter *Uplink* were published during 2014. This publication is one of our main channels of publicity and communication for significant IEEE events. We also publish articles on technical, professional and historical topics likely to be of interest to Victorian Section readers.

*Uplink* is edited by Alan Harvey and produced by Peter Barrett and other volunteers. Regular and occasional contributions to this publication are always in demand, and photographs of local events of interest to IEEE members are particularly welcome. Contributed material should be sent to Dr Harvey at the contact email address given at the end of this Annual Report.

### PERSONNEL

THERE have been a number of changes in key volunteer positions in the Section during 2014.

In April, EMBS Chapter Chair Dr Saman Haghgooei resigned to take up a position in the USA and Dr Mehrnaz Shoustarian was appointed in his place. Mehrnaz has continued in her earlier role as Chair of the Women in Engineering Affinity Group, but Dr Ee Hui Lim will take over as WIE Chair in 2015.

Following the resignation of Dr Nasir Uddin as Computer Chapter Chair, Ms Annick Boghossian has been elected Chair in his place. Annick was previously Treasurer of the chapter. She is also active in the WIE group.

In April, Professor Saeid Nahavandi was appointed as founding Chair of the new SMC Chapter. Saeid is Alfred Deakin Professor of Engineering at Deakin University and Director of the Centre for Intelligent Systems Research. He is based at the Waurn Ponds campus in southwest Geelong.

In May, Dr Keith Adams was similarly appointed as Convener and interim Chair of the Life Member Affinity Group. Keith has extensive experience in academia and industry, both in Australia and overseas, and is a Director of

In June, Mr Claudio Insurralde joined the Section

Committee as a member-at-large and has since been instrumental in restoring the Technology Management Chapter to 'active' status after several years of inactivity..

In accordance with the Section Constitution, all Chapter and Affinity Group Chairs are also members *ex officio* of the Section Executive Committee. We extend a warm welcome to our newly elected and appointed committee members, as above.

### **IEEE REGION 10**

THERE were two meetings of IEEE Region 10 in which the Section participated during 2014, the regular Annual General Meeting held in Kuching, Malaysia in March and the Extra-Ordinary General Meeting held in Amsterdam, Netherlands, in August. The latter event was convened immediately prior to Sections Congress 2014 and was held in the same venue.

One plus two delegates

Both meetings were largely routine in nature but there were a some lighter aspects to compensate. At Kuching we were treated to a gala dinner in the evening at which Malaysian dancers dressed in traditional garb entertained us in a very colourful (and noisy!) routine. In Amsterdam, we were eased into our business day with an introductory presentation by local business identity Radboud Molijin title, "Amsterdam is Water". This was a very interesting historical vignette on the city's age-old battle with the North Sea and the means of keeping it out of the low-lying land behind the Netherlands coastline.

### **IEEE GLOBAL**

The major global activity of 2013 was the IEEE iSection Congress held in Amsterdam, as mentioned above. Sections Congresses are convened every three (3) years and provide an opportunity for worldwide collaboration and interaction between IEEE Sections from all over the world. Also, many delegates benefit from the range of plenary meetings, workshops and discussion groups held at these forums. .

## Section Finances

This year, we sent two delegates to Sections Congress in Amsterdam, several of our Chapters hosted conferences, and we have had three Distinguished Lecturer visits. We have strongly promoted activities in Tasmania and a held a very extensive program of technical and social activities throughout the Section.

At this level of operations, it is perhaps not surprising that our gross outlays during the year have reached an all-time high!

Interim Section financial results for 2014 show a \$14,578 operating deficit, which has been financed from cash reserves. On a GST-exclusive basis, Total Expenditure for the year was \$57,447, the major items being \$33,396 in support of member events and activities and \$11,569 for Section administration. Spending on student activities was \$7,391 and Sponsorship & Prizes totalled \$5,018.

Total Revenue was \$42,869. The major sources of income were the IEEE Headquarters rebate of \$12,623, a \$4,221 subsidy from IEEE Region 10, \$6,152 interest earned from our bank deposits, \$14,981 earned by chapters and \$3,748 in supporting grants from IEEE Technical Societies.

The Section has been assigned a Reserve Allocation Expense of \$13,072 as our notional contribution towards IEEE Pension Plan Fund liabilities. This is essentially a book entry in the Section accounts, but the stated amount is encumbered in the sense it cannot be disposed of by the Section.

In summary, at year-end the Section had cash reserves of \$174,968 and unencumbered reserves of \$161,896, with allowance for the Reserve Allocation item.

*Enn Vinnal*  
Section Treasurer.

Item	Amount \$ (*)	Change from 2013
Ordinary revenue		
Ordinary expenditure		
Ordinary operating surplus		
Extra-ordinary revenue (**)		
Aggregate cash at bank		
Bank interest earned		
IEEE HQ rebates received		
IEEE Reserve Allocation		

(TBC)

## Tasmanian Sub-Section

Two technical lectures were held in Tasmania during 2014, both being presentations by visiting IEEE Distinguished Lectures.

In February, Professor Malcolm Heron, Research Fellow at James Cook University in Townsville, presented on the topic "HF and VHF Coastal Ocean Radars".

In August, Professor Jovica Milanovic of the University of Manchester, UK, spoke on "Possible Solutions to the Dynamics and Control Challenges of Future Power Networks".

Both of the foregoing events were held at The University of Tasmania in Hobart. The Heron lecture was repeated on the following evening in Melbourne.

In October, Professor Henry Duh of The University of Tasmania, ICT Faculty, visited Melbourne with two associates for a three-part

seminar on research at the UTAS Human Interface Technology Laboratory in Launceston. This presentation was made to a meeting of the IEEE Computer Society Chapter of Victorian Section. It was the first recorded occasion on which UTAS researchers have presented to a Melbourne audience.

In the coming year we will proceed further with plans for an IEEE Student Branch at the University of Tasmania. We also hope to establish a local Women in Engineering group, closely associated with our main WIE Affinity Group in Melbourne.

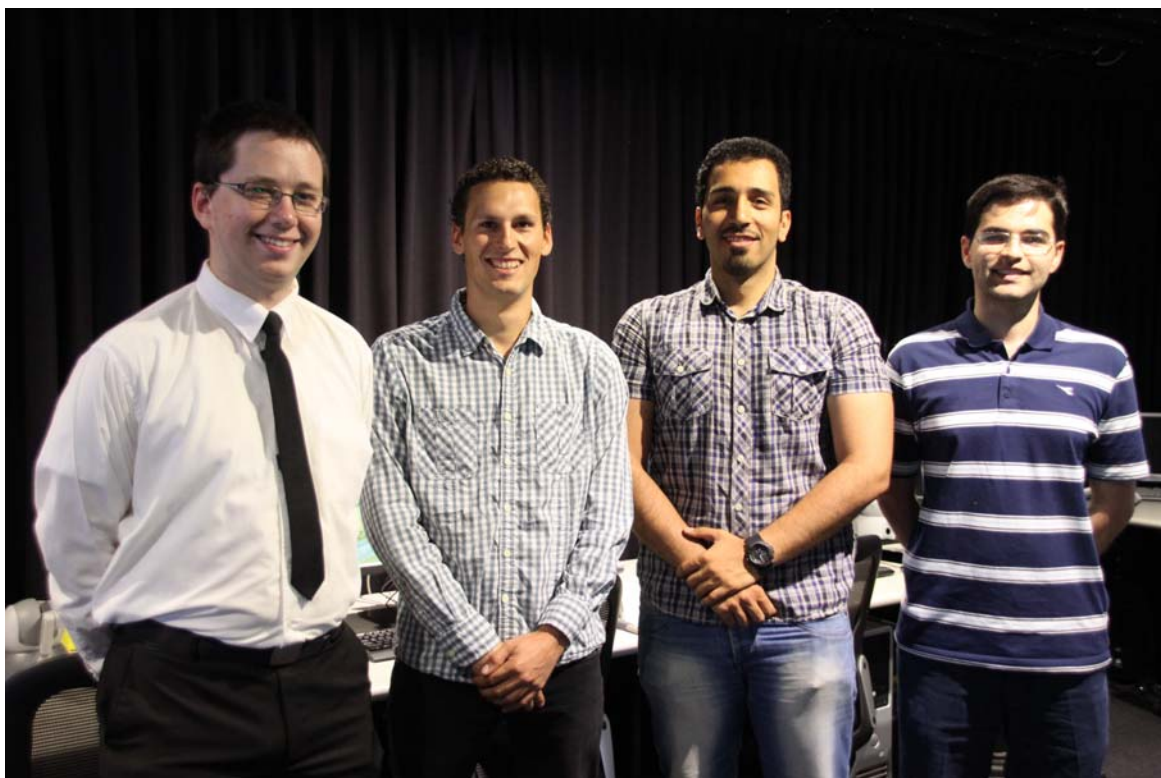
. All IEEE members resident in Tasmania are invited to join us in these ventures, and in the general renewal of Tasmanian Sub-Section activities. If you are interested in contributing in any way, please advise us by email to [contact@ieeovic.org](mailto:contact@ieeovic.org).



Newly elected Computer Chapter Chair, Annick Boghossian



La Trobe University graduate student Harmony Yu performs on her *er hu*, December 2014



**Deakin University Student Branch leaders (L-R), Samuel Jones (Secretary), Kristan Marlow (Chair),  
Housyar Asam (Vice-Chair), Reza Mohajerpoor (Treasurer)**



At the Victorian Section Annual General Meeting , December 2014





Victorian Section Executive Committee members take a break during the 321st committee meeting

## Chapters & Affinity Groups

### CIRCUITS & SYSTEMS/SOLID STATE CIRCUITS CHAPTER

During 2014 we organised two technical seminars and two industrial visits. The chapter also assisted in the organisation and running of the ISCAS 2014 Symposium held in Melbourne in June (see earlier report on Conferences).

**2014-06-02:** Talk by Professor Myung Sunwoo, Of Ajou University, Suwon, Korea, on “Low Power Motion Estimation Specific Instruction-set Processors : Novel design challenge for the nano technology era” This event was held at RMIT. There were 6 attendees. (Joint with SP Chapter).

**2014-06-04:** Talk by Professor Gerald Sobelman, University of Minnesota, titled, “Recent Research Activities in VLSI for Communications”. The venue was RMIT University. There were 21 attendees. (Joint with SP Chapter).

**2014-08-20:** Our first industrial visit was to Dyne Industries Pty Ltd in Bayswater, Victoria. Managing director and owner Frank Smit gave us an interesting tour of the plant. We were shown all the steps in small and medium size transformer and magnetic component manufacture, including toroidal transformers.

(Joint with Life Members Affinity Group)

**2014-11-26:** Our second visit was to Wilson Transformer Co. in Glen Waverley. The company manufactures large power transformers, up to 550MVA rating. The plant employees several hundred people and has some quite impressive facilities. (Joint with PES Chapter and Life Members Affinity Group)

ALAN HARVEY, CAS Chapter Chair

### COMMUNICATIONS CHAPTER

In 2014 the chapter organised six technical seminars. Outline details are given below:

**2014-04-02:** Ms. Trish Messiter, CEO and Director

of Business Development for Clarinox Technologies delivered a talk on “Short Range Wireless Technologies for the Internet of Things Era”. Ms. Messiter focused on the development of new products and the refinement of existing short range wireless products in support of the 'connectivity' requirements of the Internet of Things. (Joint with SP Chapter; EEEVic event). **2014-08-10:** Mr. Stephen Howell, National Manager - Radio Network Development, Telstra Mobile Evolution, presented a talk titled, “Taking LTE the next step to 5G”. This talk provided an operator's perspective of the next steps in the development of 4G, including the standardisation of 5G technologies and moves to the more data-intensive and 'ubiquitous' world ahead. (attendance)

**2014-10-02:** A second talk on developing wireless technologies gave the researcher's perspective. Professor Stephen Hanly of Macquarie University spoke on, “5G Wireless Networks: Small-Cells, Massive MIMO and New Spectrum Opportunities”. Professor Hanly holds the CSIRO-Macquarie University Chair in Wireless Communications. He described the research being undertaken by his group at Macquarie and provided insights into unresolved problems in system design and operation, with some insightful examples.

**2014-10-15:** Dr. Dr. Sandro Scalise of the German Aerospace Center (DLR), Munich presented on “The Role of Satellite Communications within Future M2M Systems”. This talk examined the theoretical and experimental work being undertaken at the German Aerospace Centre, particularly the use of satellites in M2M systems. Emerging applications typically involve the sporadic transmission of short messages from/to remote sensors or mobile devices. This will provide a new usage for satellite communication systems, in addition to the classical uses of TV broadcasting and telephony, as an alternative and adjunct to terrestrial wireless networks.

**2014-11-11:** We were delighted to host a talk by the visiting IEEE Communications Society Distinguished Lecturer Prof. Anura Jayasumana, Dept. of the Electrical & Computer Engineering

Colorado State University. The title of Professor Jayasumana's talk was "Network Aware Nodes: A Localization-Free Self-Organization Approach for Internet of Things". In this talk he discussed many of the problems for node location in the Internet of Things. The Internet of Things will see massive-scale networks deployed in 2D and complex 3D spaces and workable solutions to the problems of self-organization, routing and tracking in such networks will be required. Professor Jayasumana described some approaches that he has been pursuing as part of his research program at Colorado State University and also in collaboration with his partners.

**2014-11-27:** The IEEE through the P2413 Group is undertaking development of standards for the Internet of Things. A talk entitled "Towards a Universal Architecture for the Internet of Things: IEEE Standard P2413" was presented by Mr Rob Gillian is the CTO of dZhON Pty Ltd located in Melbourne and also Chair of the Networking subgroup of the IEEE P2413. This talk presented background on the establishment and aims of the IEEE P2413 group and the Networking subgroup in particular. The talk provided some important and intriguing insights into the requirements and timeframes that the subgroup face in order to deliver an industry and application agnostic standard.

Lastly, since I am now stepping down as Chapter Chair, I wish my successor every success in 2015 and beyond.

PAUL FITZPATRICK, ComSoc Chapter Chair 2014.

## COMPUTATIONAL INTELLIGENCE CHAPTER

CIS Chapter ran two technical meetings in 2014, outline details as below.

**2014-02-06:** Data-Driven Evolutionary Complex Engineering Optimisation CIS DL Professor Yaochu Jin University of Surrey (RMIT).

**2014-02-07:** Morphogenetic Self-Organisation of Swarm Robots (Monash).

**2014-06-03:** Causal Modelling with Unmeasured Variables for the Social Sciences Professor Richard Scheines Carnegie-Mellon University Pittsburgh (Monash)

KEVIN KORB, CIS Chapter Chair

## COMPUTER CHAPTER

During 2014, the Computer Society Chapter organised eight (8) events in total. The following is a brief outline of our program.

**2014-02-06:** This was a well-attended talk on "Data-driven Evolutionary Complex Engineering Optimisation" by Prof. Yaochu Jin. The event was held at Monash University and there were 55 attendees. (Joint with CIS Chapter).

**2014-06-26:** Chapter Chair Annick Boghossian presented on the topic, "Programming Applications: from Automation to Wearable Microcontrollers". The event was held at RMIT University. There were 20 persons present. (Joint with WIE Affinity Group).

**2014-08-21:** At this joint meeting held at the University of Melbourne, Dr Andre Oboler spoke on the topic, "Social Media & Cyber-Racism". There were 13 attendees. (Joint with UniMelb IEEE Student Branch)

**2014-10-08:** This was a talk on "The Future of Software Engineering in Australia" by Professor John Grundy (Swinburne University of Technology). The event was held at Swinburne's Hawthorn campus. There were 29 attendees.

**2014-10-08:** prior to/following (check) the above lecture, Professor Grundy was presented with the Distinguished Education Award of the IEEE Technical Council on Software Engineering. Dr. (prof.) Karl Reed made the formal presentation and gave a lively overview of Prof. Grundy's many achievements in software education.

**2014-10-23:** This was a technical lecture on "The Internet of Things" by Dr. Arkady Zaslavsky. The event was held at La Trobe University. There were 17 attendees. (joint with La Trobe Student Branch).

**2014-10-29:** This was a three-part seminar titled, "Current Research Work at the Human Interface

Technology Laboratory, Australia”, a research unit of the University of Tasmania. Professor Henry Duh opened with a general overview of the HIT Lab functions and facilities. He was followed in turn by Dr. Winyu Chinthammit and Dr. Zhifeng Bao, who each described aspects of their current research work. This seminar was held at RMIT University. There 18 attendees..

**2014-12-10 to 2014-12-12:** “IC3e 2014” was the third in a series of regional conferences organised jointly with the Computer Chapter of IEEE Malaysia Section and the first to be held in Australia. Conference scope, speakers and papers. There were over 45 Registrants at this three-day event, which was convened at Swinburne University of Technology in Hawthorn. The conference dinner was held at the Metropolitan Hotel, William Street, Melbourne.

The next conference in this series will be held in Malaysia, further details are available at [contact@ieeevic.org](mailto:contact@ieeevic.org).

ANNICK BOGHOSSIAN, CS Chapter Chair

### EDUCATION CHAPTER

There were two meetings of the Education Society Chapter during 2014, both hosted with other local organisations.

**2014-05-12:** Invited technical lecture, "Disciplinarity and Threshold Concepts in Biomedical Engineering Education". The speaker was ES Chapter Chair, Paul Junor. Threshold Concepts Theory is a relatively new way of dealing with the multi-disciplinary strands of biomedical engineering and assisting in course design. This event was held at the University of Melbourne as part of the Biomedical Engineering seminar series. Attendance 25 (approx.)

**2014-10-08:** Seminar/Workshop: “Linking Discipline-Based Research and Teaching to Benefit Student Learning”, by Higher Education Consultant and Researcher Professor Mick Healey, University of Gloucestershire. This interactive presentation explored the complex (and often controversial)

relationship between research and teaching. The event was held in conjunction with the La Trobe University Scholarship of Learning and Teaching Research Network. Attendance 30 (approx.)

PAUL JUNOR, Ed. Chapter Chair

### ELECTROMAGNETIC COMPATIBILITY CHAPTER

EMC Chapter had no reported activities during 2014. (Ed.)

### ENGINEERING IN MEDICINE & BIOLOGY CHAPTER

We held three (3) technical meetings during 2014, details as below.

**2014-03-05:** Dr William Woods, Swinburne University of Technology, gave an "Overview of Swinburne's Neuro-imaging Facility". The venue was EA Auditorium, North Melbourne. There were 31 attendees. (Joint with Signal Processing Chapter).

**2014-03-19:** Professor Mike Smith, visiting from the University of Calgary, Canada, presented a lecture titled, "Magnetic Resonance Imaging - The Magic Playground for BME & DSP Applications". There were 34 persons present. (Joint with Signal Processing Chapter).

**2014-12-02:** Professor Zahra Moussavi, from the University of Manitoba, Canada, presented on the topic, "Application of Novel Virtual Reality Technologies in Neuroscience and Diagnosis of Neurodegenerative Disease. This was an invited DL lecture. Attendance 23. Joint with Signal Processing Chapter).

MEHRNAZ SHOUSTARIAN, EMBS Chapter Chair

## MICROWAVE THEORY & TECHNIQUES/ANTENNAS & PROPOGATION CHAPTER

During 2014 our chapter organised one technical event and one symposium. Brief details are given below.

**2014-06-24:** "EBG-Inspired Antennas and Other Electromagnetic Structures"

**2014-06-26/27:** The First Australian Microwave Symposium, AMS 2014, was held at RMIT and was jointly sponsored by RMIT and IEEE MTT Society. Victorian MTT Chapter was the principal organiser and other Australian chapters also participated. The quality of the papers submitted was commendably high. There were 55 registrants at this inaugural event. It is now planned to run the symposium biennially.

KAMRAN GHORBANI, Chair, MTT/AP Chapter.

## PHOTONICS CHAPTER

Our Chapter had no activities during 2014.

MALIN PREMARATNE, Chair, Photonics Chapter.

## POWER & ENERGY CHAPTER

PES chapter ran five lectures and one site visit during 2014. Outline details are given below.

**2014-05-02:** "Safe Use of Electromagnetic Energy and Standards Development Activities of the IEEE/International Committee on Electromagnetic Safety (ICES)". This seminar was presented by Mr Tan Dovan, who has extensive experience in Standards development. He reviewed the risks and safety considerations associated with DC & power-frequency applications, also of electromagnetic fields up to 300 GHz. This presentation was held at RMIT University and attracted 38 attendees.

**2014-07-17:** "Turning Electric Current into Light". This technical lecture was delivered by Mai Yeung from Beca Consultants. Ms Yeung traced the

evolution of electric lighting, from incandescent lamps to fluorescent tubes to the latest-generation LEDs. She discussed the whole- of-life aspects of lighting design. She also mentioned the various backup, emergency and redundancy power supply requirements in airport and railway environments. This presentation was held at RMIT University. There were about 37 attendees. (Joint with WIE Affinity Group)

**2014-08-11:** "Possible Solutions to Dynamics and Control Challenges of Future Power Networks ". This was a presentation by PES Distinguished Lecturer Professor Jovica Milanovic, visiting from the University of Manchester, UK. Prof. Milanovic spoke of the diverse range of power technologies that will be incorporated into future power systems, many having inherent temporal uncertainty. There will be a need for flexible hierarchical control structures and high reliance on the use of global rather than local signals for system control. This event was held at The University of Tasmania, Sandy Bay campus. There were 36 attendees.

**2014-09-08:** "Current Regulation and Active Damping for Grid Connected Converters with LCL Filters". The presenter was RMIT PhD candidate Stewart Parker. Current regulation is one of the key functions of grid-connected power electronic converters in achieving power quality, dynamic performance, and system stability. Stewart first reviewed the basics of linear current regulation. He then described an active-damping current regulator that suppressed unwanted oscillations without using lossy damping resistors. The presentation was held at RMIT University. There were 19 attendees.

**2014-09-25:** This was a technical lecture by Mr Ian Cook of Metro Trains Melbourne, titled "Emerging Technologies for a More Efficient Passenger Electric Railway System". Ian has extensive experience in electric railways and is currently with Metro's Network Strategy & Development Department. Railways have an inherent advantage as a form of mass transport because of the low

energy losses associated with steel wheels rolling on steel rails, but still higher energy efficiencies will be required in future. Such improvements will be supported by energy storage systems, (both onboard and trackside), improved regenerative braking, and 'intelligent' microprocessor-based control systems. There are many engineering challenges ahead in reaching these objectives. This presentation was held at RMIT University. It was well received by the audience of 47 and was followed by a lively discussion session.

**2014-11-26:** This was a site visit to the Wilson Transformer Co. manufacturing plant in Glen Waverley, Vic. The plant has impressive facilities and can produce power transformers of up to 550MVA rating at 400kV. There were 26 visitors in this tour. We were cordially hosted by Wilson staff. (Joint with Circuits & Systems Chapter and Life Members Affinity Group).

JOSEPH LEUNG, PES Chapter Chair 2014

### SIGNAL PROCESSING CHAPTER

2014 was the thirteenth year of operation of the SPS Chapter, which was formed in December 2001. We organised or co-organised nine (9) technical activities during the year, outline details of which are given below.

**2014-02-19:** Talk on "Structural Optimization of Neurofuzzy Systems for Data Modelling and Time Series Analysis", by Dr. Massimo Panella, University of Rome "La Sapienza" in collaboration with RMIT University. There were 52 attendees. (EEEVic event).

**2014-03-05:** Talk by Will Woods, Swinburne University of Technology, on "Overview of Swinburne's Neuroimaging Facility". 31 attendees. (Joint with EMBS Chapter; EEEVic event).

**2014-03-19:** Talk by Prof Mike Smith from The University of Calgary, Canada, on "Magnetic Resonance Imaging – The Magic Playground for BME & DSP Application". There were 34 attendees. (Joint with EMBS Chapter; EEEVic event).

**2014-04-02:** Talk by Trish Messiter, CEO and Director of Business Development of Clarinox Technologies Pty Ltd., on "Short Range Wireless Technologies for the Internet of Things Era". 43 attendees; (Joint with ComSoc Chapter; EEEVic event).

**2014-06-02:** Talk by Prof Myung Sunwoo, School of ECE Ajou University, Suwon, Korea, on "Low Power Motion Estimation Specific Instruction-set Processors : Novel design challenge for the nano technology era". There were 6 attendees. (Joint with CAS Chapter).

**2014-06-04:** Talk by Prof Gerald Sobelman, University of Minnesota, titled, "Recent Research Activities in VLSI for Communications". There were 21 attendees. (Joint with CAS Chapter).

**2014-07-02:** Talk by Gary Quinn, Chief Engineer, Environmental Systems and Services P/L titled, "A Big Future for Small Satellites". 42 attendees. (Joint ComSoc Chapter; promoted as EEEVic event).

**2014-10-17:** This was a presentation by IEEE SPS Distinguished Lecturer, Professor John V. Matthews, titled, "Signal Processing for Diagnostic Medicine". Prof. Matthews was visiting from the University of Utah, USA. The event was held at The University of Melbourne and there were 8 attendees. (EEEVic event). **2014-12-02:** Talk by IEEE EMBS DL, Professor Zahra Mousavi, Professor and Canada Research Chair in Biomedical Engineering at the University of Manitoba, titled, "Application of Novel Virtual Reality Technologies in Neuroscience and Diagnosis of Neurodegenerative diseases". Attendance 23. (Joint with EMBS Chapter; promoted as EEEVic event)

. The Chapter Committee consists of Karim Seghouane (Chair) and Robert Slaviero (Secretary). 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 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, SPS Chapter Secretary

## SYSTEMS, MAN & CYBERNETICS CHAPTER

The Systems, Man, and Cybernetics Chapter was formed in April 2014 and has since run nine (9) technical activities. A brief summary is given below.

**2014-04-07:** The keynote speaker for this two-part inaugural event was Professor Laszlo T. Koczy Budapest University of Technology and Economics, Hungary, who spoke on "Fuzzy Signatures". The second speaker was Professor Bill Moran Defence Science Institute, Melbourne University who gave a very timely presentation titled, "The Ubiquitous Sensor". Both presentations created a lot of interest, questions and discussion. Altogether 35 people from industry, research sector and academia enjoyed attending these sessions.

**2014-06-09:** A workshop by Dr Abbas Khosravi, affiliated to Deakin University was organised on the topic of Optimal Design of Type Reduction Algorithms for Interval Type-2 Fuzzy logic Systems. This has attracted great participation from both industry and academia alike. Number of research students attended this talk as the topic is of great interest to many researchers working in different fields.

**2014-07-18:** Two activities were organised in the month of July 2014. These activities included lectures by two international speakers including one distinguished IEEE speaker and IEEE region 10 director Prof. Toshio Fukuda. Professor Toshio Fukuda gave an outstanding presentation on Multi-scale Robotics attended by 57 delegates. The presentation generated a great amount of interest and discussion and created a several talking points for the BBQ organised afterwards for all attendees.

**2014-07-23:** Second activity of the month of July 2014 took place on 23 July 2014. Our international guest speaker was Prof Dan Koditschek of the University of Pennsylvania delivering a talk on

Composition of Attractor Basins for Dexterous Robotic Tasks. This inspirational talk was very stimulating for the researchers.

23-07-2014: Lecture by Prof Dan Koditschek (right)

**2014-10-01:** Two events were organised by IEEE Systems, Man, and Cybernetics Victorian Chapter in the month of October 2014. These event included the talks by one international and national speakers. SMC Victorian Chapter Committee Meeting with participation from IEEE Deakin student branch was also conducted on 13th of October to discuss the current and future activities of the chapter as well as the student branch. Strategies to improve membership for SMC Victorian chapter as well as IEEE student branch was also discussed.

**2014-10-01: 1 October 2014 Activities:** Professor Xinghuo Yu gave an outstanding presentation on Discontinuous Control Systems: Past, Present and Future attended by 34 delegates.

**2014-10-20: 20 October 2014 Activities:** Prof. Kim Hua Tan from Nottingham University Business School, England gave a talk on "Harvesting Big Data to Enhance Supply Chain Innovation Competence Set" with 37 guest attendees. Both presentation generated a great amount of interest, questions and discussions and created a several talking points for the BBQ organised afterwards for all attendees.

**2014-11-25:** Dr Andrew Maher - Leader R & D programme - Arup's Australasian offices gave a talk on "New technologies for understanding performance of the built environment and a perspective on development through corporate research" on Tuesday, 25 November 2014. Recent related article by Arup in line with this talk could be found in The Age on Surfing in the city: Melbourne CBD wave pool floated

<http://www.theage.com.au/victoria/surfing-in-the-city-melbourne-cbd-wave-pool-floated-20141109-11itpe.html#ixzz3IkF5IC7l>

31 guests attended this presentation followed by very insight full discussion about the future of construction industry, adoption of technologies and trends.

**2014-12-17:** The last and eighth activity of SMC Victorian chapter for the year of 2014 was a lecture

by Dr. John Wang, DSTO - Aerospace Division about the “Assessment of Memory Cushions in Aircraft Seating for Injury Mitigation through Dynamic Impact Test”. A number of scenarios from land vehicles to aircrafts were presented where rigorous modelling and testing of memory cushions is performed in the context of injury mitigation. 25 participants attended the talk followed by detailed discussion about the research as well as the current and future research directions of DSTO, Australia.

All the above events were hosted by the Intelligent Systems Research Centre of Deakin University and took place at the Waurn Ponds (Geelong) campus. through the year of 2014. These events included the lectures by distinguished international and national speakers followed by detailed technical and nontechnical discussions. Joint social activities and BBQ lunches were also organised as can be seen in the snapshots of the events below.

The inaugural IEEE SMC Victorian Chapter lecture series took place on Monday 7 April 2014 at Centre for Intelligent Systems Research, Deakin University. This activity was followed by number of activities including lectures, workshops and social activities attracting lot of interest from industry, research sector and academia.

Inaugural IEEE SMC Victorian Chapter meeting and presentations with participation from researchers, industry and students

SAEID NAHAVANDI, Chair, SMC Chapter

### **SOCIAL IMPLICATIONS OF TECHNOLOGY, JOINT AUSTRALIAN CHAPTER**

SSIT Chapter organised or co-organised a total of seven events during 2014, variously located in Sydney and Melbourne. Outline details are given below.

**2014-04-09:** Presentation by Professor Roger Hadgraft of Central Queensland University on the topic, “Educating Sustainability Engineers - Redesigning Curricula”. Professor Hadgraft is the new Deputy Dean, Learning and Teaching, in the

School of Engineering and Technology at CQU. This event was hosted by The Melbourne Emergence Group and held at CQU's Melbourne campus in Lonsdale Street. There were 15 attendees.

**2014-05-22:** David Vaile spoke on the topic, “Big Data: The Challenge to Privacy and Informed Consent”. Vaile gave an excellent overview of the technical and policy issues arising from Big Data. The event was held at the Faculty of Law, UNSW, Kensington. The event attracted 22 attendees. (co-hosted by IEEE/CLPC).

**2014-07-07:** This was an Informal presentation by Philip Hall on the topic, “Water Energy, Food Security: Integrated Technology Solutions for Sustainability”. The event was held at Naughton’s Hotel, Parkville. There were 5 attendees.

**2014-07-31:** Dr Andre Oboler spoke on the topic, “Social Media & Cyber-Racism”. The event was held at the Faculty of Law, UNSW, Kensington Campus. There were 12 attendees. (Joint with IEEE Computer Society).

**2014-09-29:** This workshop session, "Remotely Piloted Vehicles and Related Technologies", was chaired by Philip Hall and was part of The Eighth Workshop on the Social Implications of National Security held at The University of Melbourne, Parkville. (Jointly organised by SSIT Australia Chapter, the IEEE-USA Committee on Transportation and Aerospace Policy, and several other organisations).

**2014-10-02:** Dr R.E. Burnett (USA National Defense University) spoke on the topic, “US National Defense Activities in Relation to Drones”. Dr Burnett is a T&S writer on information weapons. He has participated in R&D in the Genetics field and has a particular interest in Information Ethics. The event was held at Café Trevi, Lygon Street, Melbourne. There were 12 attendees.

**2014-10-30:** A panel of experts from industry, academia and government addressed the topic, “Self-Driving Cars: Fiction or Reality?”. The event was held at Wesley Conference Centre, Sydney, and attracted 35 attendees. (Joint with several chapters of IEEE NSW Section).

In other news, Past Chapter Chair Greg Adamson



has recently been elected Society President of SSIT and takes office in 2015. Since this is my last report as Chapter Secretary, I wish my successor and other members of the chapter executive every success in the future.

SOPHIE MCKENZIE, SSIT Chapter Secretary

### TECHNOLOGY MANAGEMENT CHAPTER

TM Chapter organised or co-organised three technical talks during 2014.

**2014-10-01:** Ms Caroline Knight presented the talk “From Management to Leadership: A personal story”. Ms Knight is founder and CEO of Greyfriar Group and board member of Life Education Victoria and the Australian Institute of Management. She shared her top tips and the four key steps that have been most instrumental in building her international board-level career. Caroline is a grandniece of Jane Austen, the renowned 19th century literary figure, and was raised in the ancestral home in Hamstead, England. Joint event with IEEE Women in Engineering, co-promoted by EA & IET as an EEEVic event. There were 29 attendees.

**2014-10-16:** Ms Satya Tanner presented the talk “A Bird's Eye View on Strategies for Leadership Success”. Ms Tanner had a 16-year career as a pilot and aerospace engineer in the Royal Australian Air Force and is currently working as a consultant. She spoke about how leaders inspire, influence and achieve results and how to develop the skills every confident leader needs. Joint event with IEEE Young Professionals. 24 attendees.

**2014-12-16:** Mr Malcolm Eccles presented the talk “Basslink Project: connecting the transmission systems of Tasmania and Victoria”. Mr. Eccles is the CEO and Managing Director of Basslink Group. He spoke about the history of the Basslink Interconnector, from inception through to operations and covered the experiences of planning, constructing and operating this magnificent engineering project. Joint event with IEEE Young Professionals. Co-promoted by EA & IET as a EEEVic event. 47 attendees.

CLAUDIO INSURREALDE, Acting Chair, TM

Chapter

### VEHICULAR TECHNOLOGY CHAPTER

The VTS Chapter of Victorian Section ran four (4) technical events during 2014. Brief details are given in the following summary.

**2014-03-07:** Professor Ari Ide Kyoto University  
Ultra-High Resolution High Colour Fidelity  
Imaging SUT Attendance 25

**2014-04-09:** Assoc. Prof. Hussein Dia Mimicking  
Human Senses: The Convergence of Sensor-Based  
and Connectivity-Based Vehicle Technologies. SUT

**2014-05-27:** Hydrogen & Fuel Cell Technology in  
Modern Hybrid New Energy Systems Dr Klaus  
Fischer Germany

2014--12-3/5: 6th International conference on  
Modelling, Identification & Control (ICMIC 2014)  
Melbourne

MEHRAN EKTESABI, Chapter Chair

### LIFE MEMBERS AFFINITY GROUP

Early in 2014, the Section Committee approved the formation of a The Life Members Affinity Group of Victorian Section. Dr Keith Adams was appointed as Convener and Interim Chair of the new Group and a Petition was subsequently submitted to IEEE Headquarters. There have been five successful meetings of this group-in-formation, as outlined below. We expect to receive final (official) approval from IEEE HQ in January 2015.

**2014-07-10:** The first meeting was called in July and ten members signed the petition to form the group. Later, ten further signatures were added to the petition. A provisional committee was elected, consisting of Mike Osborne, Harvey Cohen and Keith Adams as Convenor.

**2014-08-20:** Our first industrial visit was to Dyne Industries Pty Ltd in Bayswater, Vic. We had a most enjoyable tour of the Dyne facilities and noted the wide range of technologies required to produce transformers ranging in size from a few millimeters in diameter up to 40 kVA ratings.

**2014-10-07:** This was a technical lecture titled, "Early Radio – From Novelty to Ubiquity". It was presented by our Interim Committee member, Mike Osborne, who is also incoming president of the Historical Radio Society of Australia. This was a very informative talk that highlighted some of the political and commercial issues surrounding early radio broadcasting in Australia.. The venue was RMIT University. There were about twenty members and visitors present.

**2014-11-26:** Our second industrial visit was to Wilson Transformer Company in Glen Waverley, Vic. This time our hosts showed us around a plant producing large power transformers with ratings up to 550 MVA rating at 400 kV. A most enjoyable afternoon was spent inspecting these impressive manufacturing and testing facilities. Equally important was to find that this all-Australian company has operated since the 1930's and has not only survived despite intensive overseas-based competition, but is now investing heavily in the future. About 26 persons attended this visit of inspection. (Joint with PES and CAS Chapters).

As a closing comment, in December I attended the annual IEEE Victorian Section AGM and Dinner. The opportunity for older members to meet the up-and-coming generation and to celebrate their recent successes was much appreciated.

KEITH ADAMS, Convener & Interim Chair, Life Member Affinity Group.

### YOUNG PROFESSIONALS AFFINITY GROUP

Our YP Group organised or co-organised three events during 2014.

**2014-10-16:** This was a talk titled, "A Bird's Eye View of Strategies for Leadership Success". The presenter was Ms Satya Tanner, who has a diverse background in the Australian Defence Force and commerce and is now a management consultant. Twenty-four persons attended, including 17 YP members. The venue was The University of Melbourne, Parkville. (Joint with Technical

Management Chapter).

**2014-11-26:** This brief technical presentation was titled, "Gaze Tracking from Ordinary Webcams". The presenter was Dr. Alan Zhang from Xlabs, a Melbourne start-up company. He showed movie shots of his system in operation. There were twelve persons present, (11 YP members).

**2014-12-16:** This lecture was titled, "The Basslink Project - Connecting the Transmission Systems of Tasmania and Victoria". The presenter was Mr Malcolm Eccles, CEO of Basslink Pty Ltd. He described the main features of this unique project and its many challenges in design and construction. There were forty-seven persons present, including 21 IEEE Members. (Joint with Technology Management and PES Chapters).

In other news, our Group recently received a cash grant from IEEE Region 10 in support of the "YP Smart Idea Challenge". This new competition is designed to encourage practical proposals and innovative solutions by our members, in the fields of Engineering and Information Technology. The inaugural Award has been made to Mr. Farzad Khodadai of the ICT Department, University of Melbourne, for his project titled, "A Ubiquitous Framework for Programming and Orchestrating Workflows in the Internet of Things".

LEILA KOUSHAEIAN, Chair, YP Affinity Group

### WOMEN IN ENGINEERING AFFINITY GROUP

Our WIE Group ran five technical and special-interest events during 2014. Outline details are given below.

**2014-05-22:** This event marked the 30th anniversary of the first WIE conference held in Melbourne (and probably Australia). We first had individual presentations giving the career outlines of our three speakers, followed by a panel discussion on the changes in professional engineering employment opportunities for females over the past 30 years. Our speakers were Professor Jean Armstrong from Monash University, Dr Reyhaneh Hesami from Yarra Trams and Ms Teagan Dowler

from The Blue Collared Woman. The venue was the Brown Theatre at The University of Melbourne. It was a very successful event with a total attendance of sixty-one (61). (Joint with Engineers Australia Women in Engineering).

**2014-06-26:** In this technical presentation, Annick Boghossian from Thiess Pty Ltd gave an outline of her career background and current professional interests under the heading, "Programming Applications: From Automation to Wearable Microcontrollers". Twenty persons attended this lecture, which was held at RMIT University. (Joint with Computer Chapter).

**2014-07-17:** Mai Yeung from Beca Consulting, Sydney office, gave an interesting lecture titled, "Turning Electric Current into Light". Starting with a review of lighting fundamentals, Mai described the evolution of lighting technology from incandescent filament lamps to modern LED implementations. She referred to the special system design and reliability requirements of aviation and railway applications. The venue was RMIT University and there were thirty-eight attendees. (Joint with PES Chapter).

**2014-10-01:** Caroline Knight, CEO of Greyfriar Group, spoke on, "Personal Goals, Vision, Branding and Resilience". Caroline gave an outline of her employment background and described her present day outlook and strategies as a business consultant. This event was held at the Engineers Australia auditorium in North Melbourne. There were twenty-nine attendees. (Joint with Technology Management Chapter).

**2014-11-22:** This was our first training workshop on, "The LilyPad Arduino". The aim of the workshop was to demonstrate the use and applications of the LilyPad Arduino, a 'sewable' microcontroller board, and to provide basic training to beginners and more advanced programmers in a creative environment that is particularly attractive for females. We plan to run similar workshops at various levels of scope and advancement during 2015. This inaugural event was held at RMIT University. There were six trainees present and four tutors.

MEHRNAZ SHOUSTARIAN, Chair 2014, WIE Affinity Group.

## Student Branches

### DEAKIN UNIVERSITY STUDENT BRANCH

Our IEEE Student Branch organised three events/activities during 2014, our inaugural year.

**2014-03-04:** We participated in the Deakin University Student Association's "market and stalls day". This provided us with an opportunity to advertise our existence to the student body and recruit new members.

**2014-07-18:** This was a Welcome BBQ followed by a technical lecture titled, "Multi-scale Robotics Based on the Cellular Robotics System. The presenter was Professor Fukuda from Tokyo University. We had over 70 attend the BBQ. The event was very successful and well received by all who attended. (Joint with SMC Chapter).

**2014-08-05:** To stimulate interest in our Student Branch we created two Poster competitions and a Branch Logo and Slogan competition. Entries were received for all categories except the undergraduate poster competition. Both poster competitions will be run again next year.

In other news, we recently launched the DUSB website ( <http://sites.ieee.org/sb-dusb/> ) together with online media. We are very happy with the final product, which will allow us to operate much more effectively in the coming year.

Overall, our inaugural year was quite successful. We have now laid the foundations for further development of our IEEE Student Branch in 2015.

KRISTAN MARLOW, Chair, Deakin University Student Branch

### LA TROBE UNIVERSITY STUDENT BRANCH

During 2014 our Student Branch organised or participated in a total of twenty-seven (27) events. Outline details of a small selection are given below. A full report on our activities is available at (.....) s

**2014-04-14:** Guest speaker Dr. Jim Park gave an hour-long presentation to La Trobe Engineering students in which he explained how the law works

in relation to the engineer's role in industry, and the many ways it affects the work they do. Dr. Park shared his experiences working alongside lawyers in his role as an expert advisor at the ACCC.

**2014-04-30:** This was a barbeque hosted by the student branch with the aim of signing up new members and increasing awareness of our activities. We distributed promotional material.

**2014-05-07:** Dr Jonathan Stanger presented a seminar on the topic of electro-spinning. He outlined the different approaches his team has taken to find reliable information about the electrospinning process. It is necessary to focus on the nature of electric charges within this physical system.

**2014-05-23:** Dr Stuart Anderson presented a seminar titled, "Radiowave Polarisation and Depolarisation in High Frequency Skywave Propagation". Dr Anderson explained the need to take polarisation modulation into account when operating skywave radars. The first step in this process is the correct characterisation of the multi-dimensional CTF, and we were shown the initial results from a unique experiment that addressed this objective. The seminar also examined the properties of vortex fields with polarisation singularities and showed the potential utility of such fields for ionospheric investigations.

**2014-08-24:** The student branch participated in the La Trobe University Open Day at the Bundoora campus. The projects presented included Robogolf, a moving-target shooting gallery, and 3D printing. We also ran Open Day events at La Trobe's regional campuses in Bendigo and Wodonga.

**2014-09-15:** Guest lecturer Gary Quinn presented a technical seminar titled, "A Big Future for Small Satellites". This talk described the new generation of small satellites and discussed present-day and likely future applications for such systems. Gary is a La Trobe University graduate in Communications Engineering who now works for ES&S.

**2014-09-24:** Dr Peter Moar presented on the topic, "Securing International Work Experience and Research Partnerships". He discussed the ways in which Australian universities can establish valuable

overseas contacts through student and staff mobility and links with major trans-national R&D organisations.

**2014-10-17:** Dr Greg Adamson spoke on the topic, "Social Responsibilities of Engineers". His presentation was based on his planned address to the UNESCO-sponsored World Engineering Conference and Convention, to be held in Kyoto, Japan, in November 2015.

**2014-10-23:** Presentation by Dr Arkady Zaslavsky on the topic, "The Internet of Things". This event was held at La Trobe's city campus. Our Branch helped with the organisation of this event. (Joint with Computer Chapter).

**2014-11-25:** The 22nd Annual Engineering & IT Showcase was held at La Trobe's Bundoora campus. The Showcase is the pinnacle event of our university year. It allows Engineering and IT undergraduate students to display their project work to industry, academia, alumni, families and the general public. The 2014 Showcase was attended by over 350 patrons and guests, some visiting from as far away as Albury-Wodonga and Mildura. The Telstra M2M project team received an Engineering Innovation and Entrepreneurship Award. Our Branch helped with the running of this event.

MATTHEW FELICETTI, Chair, La Trobe Student Branch

## MONASH UNIVERSITY STUDENT BRANCH

During 2014 we averaged two activities per month, including technical seminars, workshops, industrial tours, membership development programs, and social events. Selected activities are noted below. Further details are given in our Student Branch Annual Report ([www.monash.edu.au](http://www.monash.edu.au)).

**2014-03-31:** This was a Training Workshop on Altium Designer conducted by Monash postgraduate students Simon Kennedy, Samuel Pang, Kasun Thotahewa and Dilpreet Buxi. Due to popular demand, the workshop was repeated on 3rd April. There were 30 attendees in total and we received very positive feedback.

**2014-04-17:** This Pizza Event was held to welcome new postgraduate students. We had a couple of introductions, played some games, then heard a brief presentation on the activities of Monash Student Branch.

**2014-5-27 till 2014-06-04:** Our principal event of the year was a Career Development Program aimed at helping students to identify career pathways and providing them with practical knowledge and advice in pursuing their personal goals. The first talk was by Prof Emmanuele Viterbo of Monash University, who spoke on "Life as an Academic". The second talk was by Ms Michelle Etheve, who outlined the Career Services offered by Monash University. The third session was conducted by a panel of three industry representatives, from Successful Endeavours, Ericsson Australia and MiniFab Pty Ltd., respectively. The last session was led by two Monash PhD Alumni, who outlined their career paths and experiences to date. They also gave advice on preparing for the first job.

**2014-07-21:** This was an excursion to VicRoads Head Office in Kew, facilitated by our industry mentor, Mr. Les Davey and Mr. Andrew W. Eckersley of Vicroads. We were briefed on the operation of the Traffic Management System while watching it live in action from the meeting room. It was a very enjoyable and informative visit, attended by 20 students.

**2014-07-25:** Mr Stephen Howell of Telstra gave a talk on "Mobile Evolution - Taking LTE the next step to 5G". Specifically, he covered the new services that customers can expect in future as well as the current areas of research into mobile network advancement looking forward to 2020 and the introduction of 5G. The talk also covered current standardisation activities towards the next iteration of the present 4G network as well as projects that will define 5G.

**2014-08-13, 15, 20, 22:** A technical Training on C++ basics was conducted by: Alexander Senior, Andrew Spek, Ben Harwood, Moses Wan, Winston Yii and Tony Grubman. 15 students attended. Topics covered under object oriented programming were: classes, inheritance, polymorphism, standard

libraries and network communications. Beta testing was done on people who were on a very long waiting list. Overall, students were very happy with the initiative and provided feedback on improving the timing / logistics of the course.

**2014-08-22:** Prof Ken Thompson (University of Edinburgh) gave an overview talk on Green Wireless Communications Research at The University of Edinburgh. This was a major collaboration between academic and industrial researchers in the UK. The main aim of the project was to try to reduce the carbon footprint of mobile wireless networks. Recent work has shown that mobile base stations account for a significant portion of the energy consumed in such networks.

**2014-11-18:** This was our annual "grudge" soccer match between students and staff of ECSE. It is always a popular event, and this year was no exception. There were 26 players in total and 10 spectators. It was a close match that saw the students winning 6-5.

**2014-12-12:** At our Annual General Meeting, we heard a brief recap on our activities in 2014 and held an election for all positions on the 2015 Student Branch Committee.

DILPREET BUXI, Chair, 2014, Monash Student Branch

#### **RMIT UNIVERSITY STUDENT BRANCH**

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#### **SWINBURNE UNIVERSITY OF TECHNOLOGY STUDENT BRANCH**

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AREZOO EKTESABI, Chair, SUT Student Branch

#### **UNIVERSITY OF MELBOURNE STUDENT BRANCH**

The following events were organised by our student branch in 2014.

**2014-02-27:** During the university Orientation Week we ran a promotional campaign jointly with the UniMelb Electrical Engineering Club. New students were given a flyer with general information about the IEEE and our student branch in particular. We also included an outline of our planned activity program.

**2014-03-07:** This was a technical presentation titled, "Cyber-Security Challenge Roadshow". Speakers from the Department of the Prime Minister and Cabinet, Department of Defence, Telstra, CERT Australia and PwC described the National Cyber Security Challenge, Australia's only national cyber security competition. About 32 people attended. (Joint with UniMelb Electrical Engineering Club, with assistance from the Department of the Prime Minister and Cabinet).

**2014-03-07:** The University of Melbourne IEEE Women in Engineering Student Affinity Group invited all student members to celebrate *International Women's Day* at a luncheon. There were three inspirational speakers who each outlined their career experiences as professional engineers. They all encouraged female students to persevere in their journeys of professional development. About 30 people attended this event.

**2014-03-11:** In this Information Session, Ericsson Australia was invited to the university's Parkville campus to make a presentation on the company's graduate program. Students had an opportunity to meet Ericsson engineers and HR representatives. About 30 people attended this event (Jointly organised with the Department of Electrical and Electronic Engineering).

**2014-03-13;25:** We organised two very successful field trips to Toyota's assembly plant in Altona North, which is a world-class manufacturing facility. Both tours were fully booked out, 33 people attending on each occasion. We had students, engineers from outside industry and academics, so there were ideal networking opportunities prior to

the start of the in-plant inspections. We received very positive feedback from all attendees.

**2014-05-27:** Siemens Ltd invited members of our Branch to their Victoria head office where they offered free training courses on some of their new products. Several full-day training sessions focused on a range of skills, ranging from project management to distributed control systems and other specialties of Siemens Industry Automation products. This valuable opportunity was shared with the IEEE Victorian Section network to benefit all IEEE members. About 20 members registered for the sessions. As Siemens Ltd. is a global leader in electrical engineering, attendees were quite satisfied with the training and networking with engineers of Siemens.

Repeated on 30th May.

**2014-07-27:** 'Hackathon' is an event held on university campuses around the world. It is an exciting opportunity for women in computing and technology to network and collaborate on Microsoft projects over three days. The event was simultaneously broadcasted via Skype between campuses around the world. Female computing and technology students with any level of programming experience were encouraged to take part. In this regard, the invited four mentors helped students out with the projects. IEEE Women in Engineering Student Affinity Group and Women in ICT at The University of Melbourne organized this event. The event had about 15 participants.

**2014-07-30:** The University of Melbourne Women in Engineering affinity group organized a successful workshop on 'The Importance of Confidence, Building It, Living It and the Art of Faking It'. Mrs. Teagan Dower the founder of the Blue Collared women conducted this workshop. Teagan has learnt very quickly the importance of displaying confidence in the workplace. In this workshop, she was able to share with her experiences, strategies and tips for building, living and faking confidence, creating positive and lasting first impressions and developing meaningful, professional relationships

with others. The attendance for this workshop was about 40 IEEE members from the Victorian section with the majority of WIE members.

**2014-08-21:** A talk on 'Social Media and Cyber-Racism' was present by Dr. Andre Oboler. Dr. Oboler is the CEO of Online Hate Prevention Institute and a distinguished visitor for the IEEE computer society. The talk was organized jointly with IEEE Computer Society. It was about the growth of online hate presenting as a major challenge to social media companies, governments and society. It covered different forms of online hate ranging from cyberbullying, racism, homophobia, misogyny, religious intolerance and hate targeting people with disabilities. It explored into the technical, ethical, policy, legal and political challenges. This fascinating talk was well attended and well received.

**2014-10-07:** A student get-together was organized to celebrate the 'IEEE Day 2014'. It served as a platform to encourage new students to become members of IEEE and subsequently members of student branch. This event was jointly organized with Computer and Information Systems department and attendance was over 75.

**2014-12-01:** We held our annual general meeting and dinner at the Kitchen Workshop, Crown, Melbourne. We were pleased to welcome guests from IEEE Victorian Section and other IEEE societies.

The University of Melbourne Student Branch was awarded the runner up in the 'IEEE Outstanding Student Branch Competition' for the year 2013. The Women in Engineering Affinity Group of the University of Melbourne was awarded the best 'IEEE WIE Affinity Group' of year 2013.

Two members of the student branch were awarded the 'Richard E. Merwin Student Scholarship' by IEEE Computer Society in 2013.

A member of the student branch won the first place in the "*IEEE Australian Council Best Paper Contest*" in 2013.

DINUKA KUDAWITHAN, Chair, Unimelb Student Branch

### **VICTORIA UNIVERSITY STUDENT BRANCH**

During 2014 we organised two technical meetings.

**2014-03-13:** Professor Jean Armstrong of Monash University spoke on, "Visible Light Communications and Visible Light Positioning: Two Leading Edge Technologies". This was a very interesting lecture. We had 33 persons attend.

**2014-06-06:** Dr Antoine Frappe presented on the topic, "Digital Signal Generation Towards Ultimate Transmitters". There were 30 attendees.

In other news, on 01 June one of our Student Branch members, Mirhojat Seyedi, attended the ISCAS 2014 Conference in Melbourne.

MARZIYEH NAZARI, Chair, VU Student Branch



## Section and Chapter Officers, 2014

**Anthony Gascoigne** – Chair, IEEE Victorian Section; [aeg@gnsassoc.com.au](mailto:aeg@gnsassoc.com.au)

**Alan Harvey** - Vice-Chair, IEEE Victorian Section;

**Enn Vinnal** - Treasurer, IEEE Victorian Section; [e.vinnal@ieee.org](mailto:e.vinnal@ieee.org)

**Golnar Khomami** - Secretary, IEEE Victorian Section;

### Chapter & Affinity Group Officers:

**Alan Harvey** - Circuits and Systems / Solid-State Circuits Societies Chapter Chair, Email: [acupak00@hotmail.com](mailto:acupak00@hotmail.com)

**Paul Fitzpatrick** - Communications Society Chapter Chair, Email: [paul.g.fitzpatrick@gmail.com](mailto:paul.g.fitzpatrick@gmail.com)

**Annick Boghossian** - Computer Society Chapter Chair, Email:

**Kevin Korb** - Computational Intelligence Society Chapter Chair, Email: [kevin.korb@monash.edu.au](mailto:kevin.korb@monash.edu.au)

**Paul Junor** - Education Society Chapter Chair, Email: [p.junor@latrobe.edu.au](mailto:p.junor@latrobe.edu.au)

(vacant) - Electromagnetic Compatibility Society Chapter Chair

**Mehrnaz Shoustarian** - Engineering in Medicine & Biology Society Chapter Chair, Email:

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

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

**Joseph Leung** - Power & Energy Society Chapter Chair, Email:

**Karim Seghouane** - Signal Processing Society Chapter Chair, Email:

**Philip Hall** – Society on Social Implications Of Technology Chapter Chair, Email: [g.adamson@ieee.org](mailto:g.adamson@ieee.org)

**Claudio Insourralde** (acting) - Technology Management Council Chapter Chair

**Mehran Ektesabi** - Vehicular Technology Society Chapter Chair, Email: [mektesabi@swin.edu.au](mailto:mektesabi@swin.edu.au)

**Leila Koushaeian** - Young Professionals Affinity Group Chair, Email: [leila.koushaeian@ieee.org](mailto:leila.koushaeian@ieee.org)

**Mehrnaz Shoustarian** - Women-in-Engineering Affinity Group Chair, Email:

**Keith Adams** - Convener, Life Members Affinity Group, Email:

For further contact details, please visit the Victorian Section website at [www.ieeevic.org](http://www.ieeevic.org) or email to [contact@ieeevic.org](mailto:contact@ieeevic.org)

## Financial Accounts 2014

### I. Consolidated Operating Statement 2014 (calendar year)<sup>(1)</sup>

IEEE VICTORIAN SECTION		
2013 CONSOLIDATED OPERATING (P&L) STATEMENT		
	(2013)	(2012)
<b>Receipts</b>		
Meetings & Social	1,916	2,464
Student Activities	3,045	140
Rebate from IEEE HQ	11,305	11,027
IEEE Societies	1,192	459
IEEE Region 10	0	0
IEEE Australia Council	0	0
Sections Congress (SC'11) Subsidies	0	713
Bank Interest	4,087	7,747
Miscellaneous receipts	0	25
<b>Sub-total</b>	<b>21,545</b>	<b>22,575</b>
Extra-ordinary Society Income	1,078	38,267
<b>Total</b>	<b>22,623</b>	<b>60,842</b>
<b>Expenditure</b>		
Meetings & Social	12,951	11,864
Publication Expenses	316	522
Student Activities	12,262	4,651
Grants & Awards	2,000	4,327
Travel & Accommodation	0	0
Conferences/Workshops	0	0
Sections Congress (SC'11) Expenses	0	0
Australia Council levy	0	0
Postage, printing, supplies & miscellaneous	2,614	771
<b>Sub-total</b>	<b>30,143</b>	<b>22,136</b>
Extra-ordinary Society Expenditure	6,002	0
<b>Total</b>	<b>36,145</b>	<b>22,136</b>
<b>Surplus / deficit without extra-ordinary items:</b>	<b>-8,597</b>	<b>439</b>
<b>Surplus / deficit with extra-ordinary items</b>	<b>-13,522</b>	<b>38,706</b>

(TBC)

Financial accounts (cont'd)**II. Balance Sheet as at 31 December 2014**

<b>IEEE VICTORIAN SECTION</b>				
<b>Balance Sheet as at 31 December 2013</b>				
		<b>2013</b>	<b>2012</b>	
		<b>(\$)</b>	<b>(\$)</b>	
<b>Current Assets</b>				
Cash in bank	- Section accounts	122,976	130,527	
	- ComSoc Chapter accounts	29,565	29,148	
	- MTT Chapter accounts	503	1,000	
	- MTT Chapter Society trust accounts	33,343	37,267	
	- All other sub-unit accounts	1,009	1,851	
	Sub-total	187,396	199,793	
	Repayment of conference loan receivable	4,111	4,111	
	<b>Total Current Assets</b>	<b>191,507</b>	<b>203,904</b>	
<b>Current Liabilities</b>				
	Provision for bad debts (T&SA Conference, Singapore)	4,111	4,111	
	IEEE Reserve Allocation (IEEE Pension Fund liability)	31,491	13,072	
	Sub-total	35,602	17,183	
<b>Net Assets</b>		<b>155,905</b>	<b>186,721</b>	

NOTES TO ACCOUNTS

1. All income and expenditure amounts are ex-GST

(TBC)

## **List of Section Events for 2014**

**(TBC)**