

UPLINK

NEWSLETTER OF IEEE VICTORIAN SECTION

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REPORT FROM THE CHAIR

Welcome to the fourth issue of Uplink** for 1997. Since the publication of the last newsletter, the Committee, in particular our Uplink** Editor Chris Dobson, has received from IEEE Headquarters (finally), an updated membership database for Victorian Section. This is good news indeed because our previous membership list was grossly in error with Chris spending countless hours making changes to members' addresses etc. in response to undelivered mail. It is inevitable that IEEE members will change their business or home addresses at various stages during their career so I would like to ask all members in this position, to ensure that they contact HQ with their updated information as soon as they can. The Committee receives updates to the membership database on a monthly basis so all changes to member details should be passed on quickly to the Section however to avoid delays, members can also contact the Section directly with their change of address information.

Unfortunately along with the good news this month, I also have to pass on some disappointing news with the upcoming departure from the Committee of Chris Dick, the Computer Society Chapter Chair. Chris has been a valued volunteer for IEEE Victorian Section over the last 5 years and has been responsible for coordinating the many activities of the Chapter which has run very successfully under his direction. The Committee thanks him for his great efforts and we wish him well for his new job in California. Chris will continue to act as Chair of the Computer Chapter until his departure from our shores at the end of this year and in the meantime we are actively seeking another enthusiastic volunteer to fill this position.

Dalma Novak, Section Chair



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COMMUNICATIONS CHAPTER REPORT

Over the last two months a number of interesting events have taken place. Dr Russell Smith from the Australian Institute of Criminology gave a lunch time lecture on "Crime in the Digital Age". He noted that crime follows opportunity and could, for example, be divided into crimes carried out by computer and crimes aimed at computers. Regulatory agencies needed to have strategies in place which anticipated each class of criminality. Dr Smith went on to describe 9 forms of illegality and 5 counter measures. He concluded by noting the limitations of the strategies used singly and called for a mix of these and a co-operative approach.

Professor Ashley Goldsworthy, the Chairman of the Federal Government Information Industries Task Force presented an evening lecture on the deliberations of the Task Force to the combined Electrical and Electronics Engineering Societies (EEEVic) on behalf of the IEEE. In it he noted an interesting dichotomy. On one hand the information industry in Australia was of approximately the same size in terms of turn-over as the automotive industry and growing at a much greater rate. On the other hand, in comparison to overseas, the size of the industry was far below that which would be expected. He noted that it was make-or-break time in Australia now: either Governments needed to have innovative and effective policies or we would as a nation miss the boat.

Dr Antonio Cantoni, who is Director of the CRC for Broadband Telecommunications and Networking, in Western Australia, presented one talk at two locations in Melbourne. He illustrated the range of work being carried out at the CRC and the opportunities for young graduates who might wish to work there. The second half of the talk examined a spin-off called Atmosphere. This company was now pursuing opportunities in the USA to finalise the design of ATM products and commercialise these. It was illuminating to see what indeed it does take for an Australian idea to be successfully financed and managed through to commercialisation.

Finally, the ComSoc and the Computer Society ran a joint one day seminar on "Multi-rate Digital Signal Processing with Applications in Wireless and Modem Communications". This was presented at the Telstra Research Laboratories by Professor Fred Harris (yes, this is the correct spelling :o) from San Diego State University. The main thesis was that dramatic reductions in the

number of operations required per output sample could be achieved through the use of resampling and multi-rate filters. Having seen the performance improvements you'd never go back to the conventional techniques again..

Upcoming ComSoc Events

Alan Horsley from the Australian Telecommunications Users Group (ATUG) will present a re-scheduled talk on telecommunication and its directions post de-regulation in Australia. Details of this talk are included in a separate flyer but note that pre-talk refreshments begin at 12 noon so you are welcome to come along and use this as an opportunity to meet friends and network.

Till next time

Enn Vinnal (9253-6252)

& Craig Skinner (9253-6312)

IEEE ComSoc Victoria

<http://www.dgs.monash.edu.au/~ieevic/comsoc/>

POWER ENGINEERING SOCIETY REPORT

Your Power Engineering Society Chapter is establishing a rolling program of activities, aimed at giving interested members an insight into areas that are often not readily accessible to engineers outside the direct discipline concerned.

We are also aiming to provide a diverse range of activities to embrace areas such as power electronics, as well as the traditional power field.

Recent Activities.

A recent event was the visit to Otis Elevator's high-rise lift installation at the Herald and Weekly Times building, at the Southbank Centre. During this visit, an enthusiastic group of members had the opportunity to inspect a site where state of the art elevator technology was accessible for viewing. Jim Caruana, State Field Engineer Victoria/Tasmania for Otis Elevator Company, took the group into one of the elevator machine rooms in the new Herald and Weekly Times Building at the Southgate Complex in Melbourne.

We were able to hear about the microprocessor controlled motor drives and call-handling controllers designed and built for Otis' high speed elevators. The installation we visited had a 6 m/sec travelling speed, and significantly higher speeds are supported by this technology. Jim also showed us this equipment in operation, and described the interactions among the various items of control equipment.

Also of interest were the remote monitoring capabilities now built into this type of system.

This visit was attended by a highly-motivated group of IEEE members, and Jim Caruana successfully handled a constant stream of searching questions! Thanks go to Jim, Otis, and Herald & Weekly Times for co-operating with IEEE in this most interesting event.

Forthcoming Events.

A number of interesting activities are scheduled between now and the end of the year. On Tuesday September 9, members will have the opportunity to visit the Monash High Voltage laboratories, where Dr. Qi Su will demonstrate for us many of the capabilities available in this major high voltage testing laboratory (the second largest of its type in Australia).

Detailed information on this event is provided in the separate flyer included in this issue of Uplink (please note that some earlier notices incorrectly advised the location of this event as being the Caulfield campus of Monash University. The correct location is Clayton campus, exact details are in the enclosed flyer).

On Wednesday October 1, a one-day workshop on Solar Energy is being conducted at Monash University, Caulfield Campus. This workshop is being organised under the sponsorship of Dr. Ahmad Zahedi, in association with IEEE, ANZSES, The Australian Institute of Energy, and Monash University. This event has also attracted industrial sponsorship, and full details are included in (another) flyer enclosed with this edition of Uplink.

Our final event for the year will be on Monday November 17. This will be a presentation on the state-of-the-art in electric vehicles. More details on this event will be made available closer to the date.

It is our aim in 1998 to continue our efforts in providing an interesting program of activities for our members. The chairman of the Power Engineering Society Chapter, Dr. Robin Lisner, is always happy to hear from any members with requests/suggestions to be incorporated into the chapter's program of activities.

Robin can be contacted at 03 9903 2290, or by e-mail at Lisner@eng.monash.edu.au

NEW JOINT AP-S/MTT CHAPTER

At a recent meeting of the Victorian Section Committee, approval was given for the formation of a joint AP-S/MTT-S Chapter in Victoria. This new Chapter will be able to provide a forum for the antenna and RF/micro-wave Engineers in Victoria to get together, and will make it easier to attract distinguished lecturers to visit from overseas.

In order to form the Chapter, we require 20 members to sign a petition requesting that the Chapter be formed.

If you would like to be a signatory, please e-mail James Scott at James.Scott@rmit.edu.au or ring me on 9660 3248.

We need your support to get this up and running.

James Scott, Victorian Section Committee.

STUDENT ACTIVITIES

Welcome, in particular the student members of the IEEE, to the Student Activities column. As of April 1997, I have been elected the Student Activities Chair of the IEEE Victorian Section.

One of my fundamental responsibilities is to encourage IEEE student activities in particular, not only encourage students to join the IEEE but to make sure once they do, they get full value from their membership.

One of the priorities of the Victorian Section Executive Committee is to establish and maintain several Student Branches at the universities throughout this state. Victoria has some of the finest electrical engineering institutions throughout the world and therefore it is only logical that we have several Student Branches.

To start a Student Branch is relatively easy (if you are interested email me!), the difficulty is in the maintenance. As you read this article, a student branch is being formulated at the Department of Communication and Electronic Engineering, RMIT.

If you are a student at another university in Victoria and are interested in starting a branch please contact me.
Rod Waterhouse
email: rwaterhou@rmit.edu.au

COMPUTER VIRUS CLEAN-UP

On 10th June, IEEE Members were treated to a presentation by one of the world's pioneers in the field of computer "virus-busting", Mr. Roger Riordan.

Roger is a home-grown product, having pursued a professional engineering career in Australia over many decades. He has a reputation for innovation in many fields, and he has directed his energies towards the computer field in most recent times.

In his talk, Roger presented a chronicle of the evolution of the modern-day computer virus phenomenon, starting in the late 1980s with so-called boot-sector viruses, and followed through to the more recent bugs that activate in novel ways (for example the "macro" viruses that activate upon opening of Winword document files, etc).

Roger gave us a detailed walk through the timeline over which the computer virus era has developed, starting in 1989 with computer viruses spreading like wildfire through student computer laboratories.

He was involved from the very beginning in trying to develop preventive measures against virus propagation, and his early work evolved into the well-known VET anti-virus software. This work became all-consuming and Roger now heads a thriving company (Cybec) which is heavily involved in the ongoing battle against computer viruses.

Roger's talk gave members a very good insight into a wide range of issues surrounding computer viruses including: virus classifications, detection measures, consequences of different types of computer virus, virus proliferation (there are over 10,000 of them), dangers of virus propagation through the internet, the real costs of viruses, security measures and good housekeeping, levels of security versus utility, and the range of mechanisms used in anti-viral software.

This evening provided a rare opportunity for members to learn about the ins and outs of this important aspect of contemporary computer usage from one the key players in the field.

Our thanks go to Roger for his excellent presentation.
Robin Lisner

ANNOUNCEMENT

New Video Tutorial Co-Sponsored By Educational Activities and the IEEE Neural Networks Council

Computer Engineers Learn To Tackle Difficult Computation Problems With A Vital Learning Tool On Evolutionary Computation

PISCATAWAY, NJ, September 5, 1997 — Evolutionary computation is a new and expanding field with applications that often go beyond solutions offered by the classic techniques.

To prepare engineers to overcome these dilemmas, the Educational Activities Board of the Institute of Electrical and Electronics Engineers, Inc. (IEEE), has produced a video-tutorial sponsored by the Neural Networks Council.

An Introduction To Evolutionary Computation offers an overview of this new technology. The presenter, Dr. David B. Fogel of Natural Selection, Inc., discusses in sufficient detail the areas of genetic algorithms, evolution strategies, and evolutionary programming.

The presentation is designed to provide engineers new to evolutionary computation with the adequate knowledge to address arising issues. In addition, the video covers genetic programming and artificial life, as well as connections between the fields of evolutionary computation, neural networks, and fuzzy systems.

The video, with a run time of one hour and 46 minutes, is an essential learning tool for computer engineers and practitioners who need to solve real problems resistant to traditional solutions. It is also useful for the academia and engineering students who want to learn more about the field of evolutionary computation.

The viewers will learn about the historical perspective of evolutionary computation and its use in machine learning. They will also learn how to generate solutions to difficult engineering problems. To assure the effectiveness of the points made in the video, users should have a familiarity with computer programming. They should also have a basic knowledge of neural networks, fuzzy systems, evolutionary biology and engineering.

Dr. David B. Fogel is the executive vice president and chief scientist of Natural Selection, Inc., La Jolla, California. Dr. Fogel received a Ph.D. in engineering sciences (systems science) in 1992 from the University of California at San Diego. He has published over 90 papers in journals and conferences and authored two technical books on evolutionary computation.

Dr. Zbigniew Michalewicz, a professor of Computer Science at the University of North Carolina in Charlotte, served as a technical editor for the tutorial. He received a Ph.D. in 1981 from the Institute of Computer Science, Polish Academy of Sciences. His current research interests lie in the field of evolutionary computation. Dr. Michalewicz has published a monograph and over 100 technical papers on evolutionary computation.

All video products are available in either NTSC or PAL standard. To order, one must select the standard that is used in the country where the tape will be played. If the individual is unsure about the video standard used in a particular country, he or she can call IEEE customer service.

To order the video, which consists of two tapes, use IEEE product number: HV6969. PAL number HV6971. Member price, US\$299.95. List price: US\$329.95.

Order from the IEEE, 445 Hoes Lane, PO Box 1331, Piscataway, NJ 08855-1331.

Please add the following shipping and handling charges: for orders totaling US\$1.00 to US\$50.00, add US\$4.00; US\$50.01 to US\$75.00, add US\$5.00; US\$75.01 to US\$100.00, add US\$6.00; US\$100.01 to US\$200.00, add US\$8.00; over US\$200.00, add US\$15.00. Call for overseas Air Freight charges. Credit card orders (MasterCard, Visa, American Express, and Diner's Club) are accepted.

Tatiana Garnys,
Communications Outreach Coordinator
Educational Activities

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S SOFTWARE ENGINEERING INDUSTRY PRESENTATIONS

TUESDAY 28 OCT, 5.15pm-7.00pm. 221 Bouverie Street Carlton.

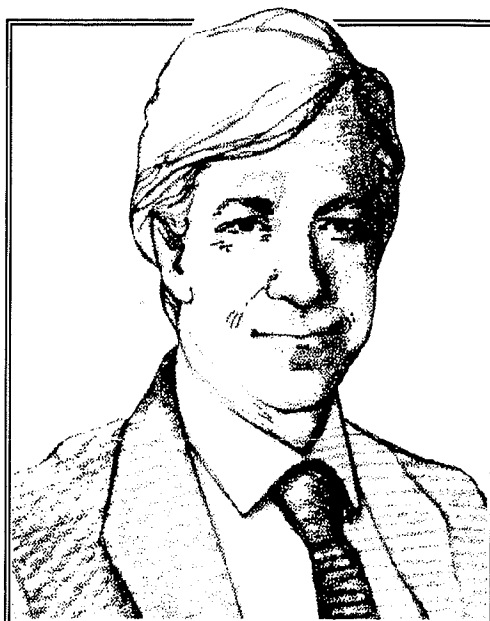
The University of Melbourne 1997 demonstration of Software Engineering team projects by final year students and selected 3rd year students.

At the University of Melbourne, team project work involving real clients is an integral part of software engineering education. Our curriculum provides students with the opportunity to gain valuable experience in the specification, design and development of quality software.

We welcome your attendance at our presentation where both Engineering and Science students will demonstrate a selection of projects undertaken in 1997. The evening will also be an opportunity for those interested to find out more about our innovative Software Engineering course that is the first of its kind to have full accreditation from the Institution of Engineers, Australia.

Light refreshments will be offered following the presentation to allow you to meet the students involved. Staff will also be available to provide information on collaborative opportunities for working with the staff and students in the Department.

To register your attendance at this event, please contact The Department of Computer Science, Faculty of Engineering on 9344 9100.



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