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Editor's Remarks

Robert Ellen

Greetings members of the IEEE Queensland Section. This newsletter is the first of four planned for 2007. There will be three issues that correspond approximately with the end of first three quarters of the year with a final edition shortly before the Annual General Meeting which will be close to the end of the calendar year.

In this issue we welcome Dr Vaughan Clarkson to the Chair of the Section, succeeding Professor Tapan Saha. Vaughan reports on some of the key section events that occurred since our last newsletter and he also outlines his plans for the coming year and his term in office. We present updates and messages from office bearers including chapter chairs and coordinators. Also in this issue are special items regarding the formation of a Women in Engineering (WIE) Affinity Group and an Aerospace and Electronic Systems Society (AESS) Chapter. Finally, we present a gallery of photos from the 2006 AGM at Customs House.

I hope you find this newsletter informative and useful for your participation in IEEE events in 2007. Please contact me or Vaughan if you would like to suggest content for subsequent issues or provide feedback. See you at an IEEE event soon!

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Message from the Chair, IEEE Queensland Section

Dr Vaughan Clarkson

About me

I would like to introduce myself as the incoming Chair of the IEEE Queensland Section. My name is Vaughan Clarkson. I am a Senior Lecturer in the School of Information Technology & Electrical Engineering at The University of Queensland. Professionally, my interests are in signal processing, telecommunications and information theory.

As to my background, I was born & raised in Brisbane, graduating from The University of Queensland with a Bachelor of Science in Mathematics in 1989 and a Bachelor of Engineering in Computer Systems Engineering with 1st-class honours in 1990. From 1988 to 1998, I was employed by the Defence Science & Technology Organisation (DSTO), first as a Cadet, then, after moving to South Australia following graduation, as a Professional Officer and later as a Research Scientist. While at DSTO, I studied towards a Ph.D. at The Australian National University in Systems Engineering, which was awarded in 1997. From 1998 to 2000, I was a Lecturer in the Department of Electrical & Electronic Engineering at The University of Melbourne. I returned to The University of Queensland in 2000.

Our Section adopted two-calendar-year terms for elected officers in 2004, which means my term as Chair of the Section will extend to the end of December, 2008. I very much look forward to serving you over that time.

AGM & Dinner, 2006

One of my first duties as Chair (technically Acting Chair) was to have the honour of presiding over the Annual General Meeting and Dinner. The AGM and Dinner were held on Friday, 15th December, in Customs House, Queen St., Brisbane. The attendance for both the AGM and the dinner was very encouraging. We had 35 for dinner, which I am assured well & truly breaks all records for attendance at our annual dinners in recent memory. The dinner itself was superb and the evening very pleasant. Our guest of honour was Prof. Robert Calderbank, from Princeton University, who gave an after-dinner talk entitled 'Quantum Computing and Cellular Phones'.

At the AGM, it was a pleasure to report the rather astonishing figure of 23% membership growth from 2005 to 2006, as well as the establishment in 2006 of two new student chapters (The University of Southern Queensland and Central Queensland University) and a Graduates of the Last Decade (GOLD) affinity group.

IEEE Thesis Prizes, 2006

At the AGM, it was also my pleasure to present the IEEE Student Thesis Prizes. Two are awarded annually for best undergraduate theses, one in an open category, another open only to students whose thesis is in the field of power engineering (the ICPADM-Mat Darveniza Prize). In 2006, we

advertised the prizes widely, and the response from the universities in our Section was pleasing. The thesis finalists were of a uniformly high standard, and the judging panel had their work cut out to choose between them. In the end, the deserving winners were:

- in the open category, Mr. Ramin Rafiei of USQ for his thesis entitled 'Optimisation of Low-Cost Astronomical Site Testing Techniques' and,
- in the power engineering category, Mr. Yan Sam Chua of UQ for his thesis entitled 'Strategic Feature Selection for Electricity Market Analysis'.

New Faces on the Executive Committee

The end of the year & the beginning of the next always brings changes to the Section's executive committee.

- As I commence my term as Chair, Prof. Tapan Saha completes his very successful term and he now takes the office of Immediate Past Chair, replacing Dr. Renate Sitte.
- Dr. Zhao Yang (Joe) Dong completes his term as Chair of the Power Engineering Chapter and assumes the role of Vice Chair of the Section.
- Mr. Andrew Thomas completes his term as Secretary and will now concentrate on his Ph.D. studies. We welcome Mr. Abbas Bigdeli as our Section's new Secretary.
- Dr. Amoakoh Gyasi-Agyei completes his term as Treasurer but continues to serve the Section as Student Counsellor for CQU. We are glad to again have the benefit of Dr. Peter Sutton's experience in the office of Treasurer.
- Assoc. Prof. Joaquin Sitte completes his term as inaugural Chair of the Computational Intelligence Chapter and is replaced by Assoc. Prof. Brijesh Verma. The incoming Vice Chair of the Chapter is Dr. Marcus Gallagher.
- Mr. Ong Yong Peng finishes his term as Newsletter Editor and is replaced by Mr. Robert Ellen.

In recent weeks, there have been three further changes:

- Dr. Ed Palmer has resigned as Student Counsellor for QUT and is replaced by Dr. Jasmine Banks.
- Dr. Peter Sutton has resigned as Student Counsellor for UQ and is replaced by Dr. Udantha Abeyratne.
- Dr. Renate Sitte has resigned as Student Counsellor for GU Gold Coast and from the executive committee after many years of valuable service in many roles in order to concentrate on her research. Dr. Khoa Le will now take on the role.

I would like to thank all those named above who have completed their terms as volunteers for our Section. To those who have just joined, I welcome them to the executive committee and I'm sure our membership will gain much from their dedication to their new roles.

Plans for 2007

I'll have more to say about plans in the next issue of the newsletter (conscious of how many other words I have written this time!) but, in 2007, I plan to:

- Raise awareness within the ranks of the Queensland Section membership of the benefits of membership elevation, with a view to a substantial increase in the number of Senior Members in the Section (see my item on this below).
- Increase the interaction between industry and academia for the benefit of all members. Industry is still underrepresented in our Section's leadership and at activities. Invite industry to take part in the Section Executive Committee and encourage them to provide new ideas in the operation of the Section.
- Encourage activities within chapters to ensure that all retain their active status.
- Foster the formation of new chapters, in particular Aerospace & Electronic Systems and the extension of the SA/NSW/Vic/WA Joint Chapter in Information Theory to Queensland (more on this below).
- Shore up the newly established GOLD affinity group through election of a Chair and give support for activity.
- Support the establishment of a Women In Engineering affinity group (please see the separate article on this below).
- Reinvigorate the student branches in the Brisbane universities (UQ, QUT and Griffith University).

Senior Membership

Although we are a mature section and growing quickly, we have a relatively small number of members at the Senior Member level and higher. This is not a true reflection of the depth of experience & talent to be found in our profession in Queensland.

There are many possible reasons why members might not choose to elevate their membership but it seems to me, and to our executive committee, that with some action in two areas we could stimulate our Members to seek an appropriate level of recognition by IEEE. We think we need to:

1. raise awareness of the benefits of and procedures for applying for Senior Membership and
2. provide a means by which Members can find Senior Members (& higher) who could provide references for their applications.

In relation to the first point, the chief benefit of Senior Membership is the recognition that is accorded you by the IEEE and by your peers. The main requirement is, to quote from the by-laws, that 'the candidate shall have been in professional practice for at least ten years and shall have shown significant performance over a period of at least five of those years.' Here, *significant performance* means that substantial job responsibilities have been undertaken successfully. I believe there are a great many of our members who meet these requirements but have not yet applied for Senior Member status. If you meet these requirements and you are not already a Senior Member, I encourage you to consider applying.

This brings me to the second point. To apply for Senior Membership, three references are ordinarily needed from existing Senior Members, Fellows or Honorary Members. It occurs to me that it's not always easy for our Members to know who are the Senior Members, Fellows & Honorary Members in our local engineering community from whom they could seek references. For this reason, I've recently written to each of our members in these grades to ask whether they would mind having their names

printed in an online directory. The response has been very positive.

Moreover, our Section is endeavouring this year to make active use of the *Nominate a Senior Member* initiative. In this scheme, the Section, through its executive committee, can nominate Members for elevation to Senior Member status. The nomination replaces one of the three references that would otherwise be required.

For more information about Senior Membership, including further elevation to Fellow status, the directory of Senior Members in the Queensland Section willing to serve as referees for their colleagues and the *Nominate a Senior Member* initiative, please see the new page we have set up on the Section's web site at <http://www.ieee.org/queensland/Elevate.html>

New Chapters

Currently, moves are afoot to set up two new chapters. There is a petition being circulated to form a local chapter of the Aerospace & Electronic Systems Society. See the separate article in this newsletter for more information on that.

The other chapter under consideration is in fact an extension of an existing chapter, the joint SA/NSW/Vic/WA Chapter of the Information Theory Society, to include Queensland. Queensland's accession to the Chapter is mainly a procedural matter, having been approved by our Section's executive committee already at its February meeting, and now requiring the assent of the existing member sections and the Chapter Chair. At the time of writing, this process is ongoing but is expected to be resolved in the near future. It is to be hoped that Queensland's membership of the Chapter will bring benefits to local ITSoc members in the form of increased awareness of Information Theory events & developments in Australia, with the possibility of some of the Chapter's activities taking place in Queensland in future.

Visit by Director of Region 10

At our first executive committee meeting for 2007 in January, we were delighted to have the company of the Director of Region 10, Prof. Janina Mazierska, as our guest. (For those who have not encountered the term 'Region 10' before, it is one of the ten regions into which IEEE divides the world administratively, and R10 encompasses, roughly speaking, the Asia-Pacific region.) Prof. Mazierska was conducting a tour of some of the Australian sections at the time. She was very pleased to see such strong growth in the Queensland Section. Among many other useful insights, plans and pieces of information that she shared with us, she declared that one of her major ambitions during her term as Director was to increase participation in IEEE elections by rank-and-file R10 members, i.e., you & me! Prof. Mazierska believes that participation in elections is crucial to raising the profile of R10 to the level it deserves within the IEEE.

Region 10 Meeting

At about the time that this newsletter will go to press, Dr. Dong & I will be attending the annual Region

10 Meeting which will this year be held in Kota Kinabalu, Sabah, Malaysia. The meeting is an important opportunity to find out about & participate in developments in our very dynamic Region. We will report on the meeting in the next edition of the newsletter.

At the end of what is now an unexpectedly long first article from me as Chair, I will sign off, expressing again my wish to serve the Section to the best of my ability throughout 2007 and beyond.

Message from the Vice-Chair, IEEE Queensland Section

Dr Zhao Yang Dong

I am delighted and honoured to serve as Vice Chair of IEEE Queensland Section from 2007 after serving the IEEE QLD Section Power Engineering Society Chapter for the past three years.

The growth of IEEE Queensland section over the past three years has been impressive with increasing activities and new chapters emerging. This is out of the efforts of the committee and all the active members of IEEE QLD section.

My immediate task this year is to accompany our Chair, Dr Vaughan Clarkson to attend the Region 10 meeting in Malaysia in March.

As vice chair of the section I will continue to contribute my service to IEEE and am looking forward to a successful 2007 for all IEEE Queensland members.

A Women in Engineering Affinity Group for Queensland?

Dr Bouchra Senadji
WIE Affinity Group Petition Organiser

2007 is the year of women in Engineering (WIE). This is also the year our section is choosing to create a WIE Affinity Group. The IEEE requires that we find six IEEE members willing to be part of the affinity group, and this is not an easy task.

Female engineers, especially female electrical engineers, are rare to come by. Female electrical engineers that are also IEEE members can be even harder to find. Engineering is still a very male dominated profession. Other traditionally dominated professions such as architecture or even IT have either been able to close the gap or are steadily working towards closing the gap between numbers of male and female professionals.

Engineering, however, has made no significant progress in terms of increasing female representation in the profession (typically less than 10%). The source of the problem is the very small proportion of high school girls interested in studying engineering. There are many reasons for that, including lack of knowledge about the profession, lack of female role models, and social pressure. Research also shows that, even if a female student graduates as an engineer, she is also likely to decide against pursuing a career in engineering.

The aim of the WIE affinity group is to address the above mentioned issues by taking actions that will impact positively on the number of female engineers in Queensland. Actions include and are not restricted to outreach programs, financial aid, and mentoring programs.

If you would like to become involved in, or want to know more about, the WIE Affinity Group please register your interest by contacting Bouchra Senadji at b.senadji@qut.edu.au

Proposed Aerospace and Electronic Systems Society Chapter

Robert Ellen
AESS Chapter Petition Organiser

The Queensland Section of the IEEE, with the support of the Australian Research Centre for Aerospace Automation (ARCAA), is working towards establishing an IEEE Aerospace and Electronic Systems Society (AESS) Chapter in Queensland. The AESS is a society for those interested in design, integration, testing, and analysis of large, complex systems consisting of major subsystems that contain dissimilar electronic devices. The AESS has a particular focus on aerospace systems but also incorporates total integrated electronic systems in a range of vehicular and robotic systems (including space and undersea) and their enabling technologies. More information about the AESS may be found at: <http://www.ewh.ieee.org/soc/aes/>

An opportunity exists to create a local AESS chapter in Queensland. Having an AESS chapter in Queensland is highly appropriate given that the region is becoming an important hub for the aerospace industry and research organisations in Australia. Queensland also has a substantial presence in electronic systems research and development hosting several leading universities and research organisations and many small-to-medium-sized enterprises.

The Chapter would be ideally placed to provide a forum through which those involved in aerospace and electronic systems research and development could interact and share knowledge and experience. This would be facilitated through a range of events of a social and/or technical nature. Technical events could include presentations, seminars, workshops, symposia or conferences on topics of interest to members including:

- UAVs, UAS and Aerial robots
- C3 systems
- energy conversion
- intelligent systems
- navigation and tracking systems
- radar
- robotics
- simulations and instrumentation
- sonar and undersea systems
- space systems
- automatic test systems
- vehicular systems
- modular integrated electronics

To make an AESS chapter in Queensland successful the support of engineers and technical professionals from industry, research, government and special interest sectors is greatly needed. The IEEE Queensland Section and ARCAA invites all those interested to consider membership in the IEEE Aerospace and Electronic Systems Society. A petition to form the new chapter will be distributed to Queensland-based AESS members shortly.

The membership price for AESS is \$13 US if you join before August 15th 2007. Contact Robert Ellen at rellen@ieee.org if you require further information.

Update from the Awards and Recognition Coordinator

Michael Lees

Awards for 2006

Recognition Awards

A total of 11 recognition awards for outstanding service to the Queensland section were awarded during 2006. Many of them were presented in December at the section AGM.

Award Recipient	Contribution
Dr. Ed Palmer	Chair 2001-2002
Dr. Peter Sutton	Chair 2003, Acting Treasurer 2004
Dr. Faith Choy	Secretary 2003
Dr. Emmanuel Zelniker	Newsletter editor 2003
Mr. Craig Mills	Webmaster 2003-2004
Prof. Marek Bialkowski	Chair Joint Chapter Microwave theory and techniques & Antennas and Propagation 2004
Dr. Padmanabhan Krishnan	Educational activities coordinator 2004
Mr. James Birt	Newsletter editor 2004-2005
Dr. Vallipuram Muthukkumarasamy	Professional & Careers Activities
Dr. Kathy Melih	Student counsellor GU-GC 2002-2004
Dr. Renate Sitte	Section Chair 2004-(2005/2), Secretary 1998-2001, Acting Secretary 2004, Chair Computer chapter 1996-2003, Acting Student Counsellor GU-GC 2003-2006

Best Paper Award

As the joint chapter on Control Systems and Robotics & Automation was a technical sponsor for the 13th annual M2VIP conference, the chapter sponsored an award for Best student paper at the conference. This was awarded to Simon Meers, Koren Ward and Ian Piper from the University of Wollongong for their paper on "Simple, Robust and Accurate Head-Pose Tracking Using a Single Camera".

Awards for 2007

Nominations are currently being accepted for recognition awards. If you know of someone who has demonstrated outstanding commitment to the IEEE Queensland section during their term of office (in particular for 2006) please forward the details to me. The section committee will review all nominations prior to approval.

This year the awards will be presented at the section Annual General Meeting (AGM) at the end of the year.

Historical records for the IEEE Queensland section

We are currently seeking details on the history of the IEEE Queensland section. In particular we are seeking details on all office bearers that have occupied any roles in the IEEE Qld section since its inception. If you have any details or information that may be of assistance could you please contact me at Michael.Lees@ieee.org

Message from the Educational Activities Coordinator

Dr Tony Ahfok

Selected secondary schools will soon receive a letter from the Section. The schools are being offered free back issues of the IEEE-Spectrum for a period of one year.

A copy of the Spectrum will be sent every month to the schools that accept the offer.

Message from the Professional Activities Chair

Dr Andrew P. Bradley

As professional activities chair I see one of my most important goals as trying to close the gap between academia and industry. Traditionally, the majority of IEEE activities have often been perceived as being "run by academics, for academics" and so are often seen as not being relevant to a large body of the IEEE membership in industry. As someone with first hand experience as both an academic and professional engineer I have a number of "kernels of ideas" that might make this happen, but am always more than keen to hear from members, particularly in industry, as to what type of activities would most interest and benefit them. Please feel free to contact me with your thoughts, comments and suggestions at a.bradley@ieee.org.

QUT Student Branch Update

Dr Jasmine Banks
QUT Student Branch Counsellor

I would like to introduce myself as the QUT Student Branch Counsellor. Since 2006 I have been a lecturer in the School of Engineering Systems at QUT, and am located in S block at Gardens Point campus. I started as Acting Branch Counsellor in September 2006, and have agreed to take over this role in 2007.

My goals in this position include increasing the participation of both undergraduate and postgraduate students in the IEEE, and increasing the ways in which the IEEE can assist students. Some of the activities under consideration are:

- social functions
- guest speakers: including speakers from industry, or former students who could describe life as a graduate engineer.
- mock job interviews: with student and industry involvement
- coordination of the above with other Student Branches in Queensland

Ultimately I would like to see the formation of a QUT Student Branch, where students can take a leading role in deciding what sort of activities can be undertaken to assist with students' professional development. In becoming involved with a student chapter, you enhance your career development, potentially participate in regional conferences, and become part of a worldwide network of Student Branches.

The Queensland section is offering subsidised Student Memberships, 20 per university, to students who are either new to IEEE, or who are taking a role in a Student Branch. Please contact me or your university Branch counselor to find out more.

If you are interesting in joining the IEEE, or in participating in a student Branch, please contact me.

USQ Student Branch Update

Dr Tony Ahfock
USQ Student Branch Counsellor

Five new student members joined the IEEE student branch at the start of semester one this year. A membership drive event will be held on Tuesday 20 March at 5.30 pm. The event will include a seminar given by former student member Steven Rees who is now working for the National Centre for Engineering in Agriculture (NCEA). Steven will speak on the application of Distributed Wireless Sensor Networks in Agriculture.

Computational Intelligence Society Chapter Update

**A/Prof. Brijesh Verma,
Chair, Computational Intelligence
Society Queensland Chapter**

**Dr Marcus Gallagher,
Vice-Chair, Computational Intelligence
Society Queensland Chapter**

We would like to welcome you to the IEEE Computational Intelligence Society's Queensland Chapter. The CIS chapter has significantly grown in the past 2 years and we would like to take this opportunity and thank our past chair Associate Professor Joaquin Sitte for his hard work. We had a very successful 2006 thanks to Joaquin and the chapter's active members. The CIS Chapter has active members at CQU, Griffith, QUT and UQ and if you are not already a member we would like to encourage you to join CIS Chapter. We are planning a number of chapter activities in 2007 as follows.

- Regular meetings/presentations in the first week of April, July, September and November on Thursdays (4-5:30pm) using Access Grid at CQU, UQ, QUT and Griffith.
- Postgraduate symposium in October/November
- A distinguished lecture series

The CIS Queensland Chapter is pleased to announce the following event.

Intelligent Social Networking

Date & Time: 5 April, 4-5:15 pm

Venue (Access Grid Nodes):

CQU Rockhampton, Building 19, Room G.14

QUT Gardens Point, Library Building, Seminar Room, V713

Griffith Gold Coast, Library Meeting Room, G10_3.29

UQ St. Lucia, Building #78, Room 621, General Purpose South Building

Speaker: Dr John Zakos, RelevanceNow

Agenda: 4:00-4:15 Welcome & Introduction (Brijesh Verma)

4:15-4:45 Presentation (Dr John Zakos, RelevanceNow)

4:45-5:15 Discussion

Abstract

This presentation will cover recent developments using intelligent techniques at RelevanceNow. RelevanceNow is an innovator of intelligent social networking technology. They have developed a powerful technology platform that gives organisation an understanding to user generated social content on the web. The uniqueness of their technology lies in its ability to truly understand a user by comprehending content they have written through advanced psychographic profiling techniques. This is at the core of both their corporate analytics product, social intelligence, and their new-concept consumer social networking site MyCyberTwin.com.

Website: <http://relevancenow.com>

Biography

John is the CEO, co-founder and principal technology architect of RelevanceNow. Before founding the company with a fresh vision for social networking technology, John previously worked for both mature (IBM Research Labs, Ixla Limited) and start-up (Mooter.com) companies at an international level. His experience spans both managing business development and technical teams in the development of emerging technologies in Asia-Pacific and the USA. John holds a PhD in web retrieval technology and has published journal and conference papers in the areas of computational intelligence, digital mammography and web document retrieval.

We would like to ask you to let Brijesh or Marcus know about any ideas or plans for activities in 2007 you may have for the chapter.

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Computer Society Chapter Update

Dr John Williams
Chair, Computer Society Queensland
Chapter

Welcome to our first newsletter for 2007. Last year saw the re-instatement of official IEEE "active" status of our chapter, and we intend to build on that this year with a program of technical and social events.

Our first event for 2007 is scheduled for the evening of April 26th, at the Hawken Auditorium of Engineering House in the Brisbane CBD, in conjunction with Engineers Australia. I am pleased to announce that regular "IEEE Computer" magazine columnist **Neville Holmes** is confirmed as speaker. Mark your calendar now for what is sure to be an insightful and hopefully provocative debate on the nature of the computing profession, both in Australia and internationally.

One of my goals for this year is to coordinate with other Computer Society chapters at a national level. By doing so we will be better able to serve members, for example by cooperating to bring IEEE distinguished lecturers to our region. I am in discussion with the Computer Society Region 10 Coordinator, Joseph Ng, to discuss ways of bringing this to fruition.

As always I am open to ideas for events and speakers. If there is someone at your organisation whom you feel would give a good Computer Society presentation or seminar, or if you have something you think might be of interest to other members, please let me know. My contact details can be found at the end of this newsletter.

Control Systems / Robotics & Automation Joint Chapter Update

Michael Lees
 Chair, CSS/R&A Queensland Joint
 Chapter

Since December last year it has been a busy time for the joint chapter on Control Systems and Robotics & Automation. In this time we have hosted a workshop, provided technical co-sponsorship for a conference and hosted a joint seminar with Engineers Australia. Some of the highlights from these events along with selected photos are shown below.

Recent Events 2006

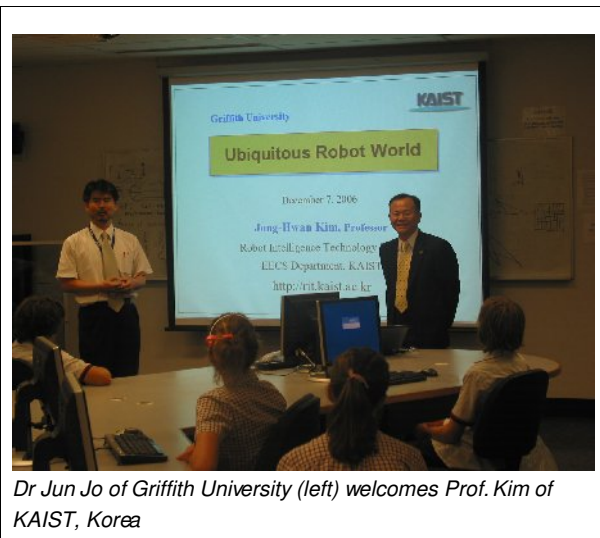
Workshop Topic: Taking Robots to the Classrooms

Speaker: Professor Jong – Hwain Kim, KAIST. (President of the International Robot Olympiad Committee (IROC))

On the 7th and 8th of December students (potential future IEEE members) were introduced to the world of robotics by none other than the President of the International Robot Olympiad Committee himself. The workshop was hosted at Griffith University and provided the students with lecture style presentations and hands on workshop activities with robotics.



Day 2 Workshop activity



Dr Jun Jo of Griffith University (left) welcomes Prof. Kim of KAIST, Korea

The thirteenth annual Conference on Mechatronics and Machine Vision in Practice

The CSS/R&A chapter provided technical co-sponsorship for the 13th annual Conference on Mechatronics and Machine Vision held in Toowoomba from the 5th to the 7th of December.



The University of Southern Queensland (USQ) hosted the 13th annual M2VIP Conference



As defined in its title, the conference was on Mechatronics and Machine Vision in Practice with an emphasis on practical applications. Special encouragement was given to applications of robotics and machine vision in agriculture. Papers were reviewed to a standard that meets the DEST E1 criterion. It was an interesting conference with papers from a broad range of fields, including a paper on the world's first autonomous surgical robot applied in practice (a robotic micro-drill used for cochleostomy operations).

It was an international conference with half of the papers from Australia and half from a number of other countries including: Spain, Sultanate of Oman, Singapore, UK, Korea, Hong Kong, Austria, Japan, USA, IRAQ and Malaysia.

Award for best student paper

As a part of its role as technical co-sponsor for the event, the chapter sponsored an award for Best student paper at the conference. This was awarded to Simon Meers, Koren Ward and Ian Piper from the University of Wollongong for their paper on "Simple, Robust and Accurate Head Pose Tracking using a Single Camera".



Chapter chair Michael Lees (left) presenting Simon Meers with the Best student paper award at the M2VIP Conference in Toowoomba

Recent Events 2007

Seminar: **Emerging Standards in information exchange with Automation systems: a case study on OPC Unified Architecture (OPC UA)**

On Thursday 22nd February at Hawken Auditorium in Engineering House we hosted a joint seminar with Engineers Australia (ITEE). The topic of the seminar was: Emerging Standards in information exchange with Automation systems: a case study on OPC Unified Architecture (OPC UA). It was presented by Gavan Hood: Senior Systems Architect from Rockwell Automation.



Gavan Hood (from Rockwell Automation) presenting the seminar on OPC Unified Architecture at the Hawken Auditorium

Gavan is also an active member of various standards groups including *ISA SP 88* and *SP 95* and *OPC Unified Architecture*. He presented a very interesting seminar covering the directions of the OPC foundation and what the OPC Unified Architecture specifications represent. He provided some insights into the evolution of Service Oriented Architecture and its impact on control system automation.

For those that are interested in this seminar but were unable to attend, this seminar was recorded and copies are available for purchase from Engineer's Australia.

(see <http://eaq.mediavisionz.com.au/>)

Upcoming events

March 2007

Seminar: **Control Systems for Nuclear Reactors**

Speaker: Professor Bijan Bandyopadhyay, Indian Institute of Technology Bombay, Mumbai, India

Date: Thursday 22nd March

Location: Room 78-622 University of Queensland, St Lucia Campus

Abstract:

Fission reactions taking place in nuclear reactors can give rise to the formation of several nuclear species. However, the Xenon isotope ^{135}Xe requires special attention with respect to the operation and control of thermal reactors. The oscillations of the neutron flux that are introduced by ^{135}Xe can be broadly classified in two categories: fundamental mode or global power oscillation and higher mode or spatial oscillations. Generally speaking global power oscillations are readily noticed and suppressed by a control system while spatial oscillations are not. Here the global reactor power can remain constant so that no change in the coolant outlet temperature is effected, the oscillations being in

spatial distribution of power inside the core. If the spatial oscillations in a reactor are not controlled, a serious situation known as 'flux tilting' may arise i.e. one portion of the reactor may tend to produce more energy than the other portion does, and this can cause fuel in that region to exceed its thermal design limits. For this reason spatial oscillations have received more attention in literature. This talk will discuss how a nodal model for a large reactor can be obtained and then it will be shown that by using a kind of output feedback known as periodic output feedback, which uses only zonal flux, any desired closed loop specification can be obtained. Finally the application of the proposed method to a practical PHWR of 500 MW will be discussed.

Biography:

B. Bandyopadhyay (S'83–M'88–SM'06) was born in Birbhum Village, India, in 1956. He received the Bachelor's degree in electronics and communication engineering from the University of Calcutta, Calcutta, India, and the Ph.D. degree in electrical engineering from the Indian Institute of Technology, Delhi, India, in 1978 and 1986 respectively. In 1987, he joined the Interdisciplinary Programme in Systems and Control Engineering, Indian Institute of Technology Bombay, Mumbai, India, as a Faculty Member, where he is currently a Professor and the Convener. He has authored or co-authored more than 200 journal articles and conference papers and two research monographs in Lecture Notes in Control and Information Science (Springer-Verlag). His research interests include the areas of large-scale systems, model reduction, reactor control, smart structures, periodic output feedback control, fast output feedback control, and SMC.

August 2007

Seminar: **Control Systems on the Australian Synchrotron Project**

Speaker: Richard Farnsworth (Lead Control Systems Engineer for the Australian Synchrotron Project)

Date: Thursday 23rd August

Location: Hawken Auditorium, Engineering House (This is a joint seminar with Engineers Australia (ITEE))

Special requests for specific seminar topics or speakers are also welcome. Please forward any requests to me at Michael.Lees@ieee.org



Upcoming Events for the Microwave Theory & Techniques / Antennas and Propagation Joint Chapter

Prof. David Thiel
Chair, MTT/AP Queensland Joint Chapter

The joint chapter is proud to announce to following events.

1) IEEE Distinguished Lecture

Time: 6 pm Thursday 5th April 2007

Venue: Griffith University, Nathan Campus, Building N34 Room 0.05

Speaker: Peter de Maagt
Antenna and Submillimetre Wave Section
Electromagnetics & Space Environments Division
European Space Agency
& Associate Editor, IEEE Transactions on Antennas and
Propagation

Title: **Terahertz Technology for Space and Earth Applications**

The terahertz (THz) part of the electromagnetic spectrum falls between the lower frequency millimetre wave region and, at higher frequencies, the far-infrared region. The frequency range extends from 0.1 THz to 10 THz, where both these limits are rather loose. As the THz region separates the more established domains of microwaves and optics, a typical THz technique will incorporate aspects of both realms, and may even draw on the best of both. The two bounding parts of the spectrum also yield distinct sets of methods of generating and detecting THz waves. These approaches can thus be categorised as having either microwave or optical/photonic origins. As a result of breakthroughs in technology, the THz region is finally finding applications outside its traditional heartlands of remote sensing and radio astronomy. Extensive research has identified many attractive uses and has paved the technological path towards flexible and accessible THz systems. Examples of novel applications include medical and dental imaging, gene therapy, communications and detecting the DNA sequence of virus and bacteria. The presentation will discuss the range of THz applications and will present the components and systems that are utilised for the frequency region.

Biography:

Peter de Maagt was born in Pauluspolder, The Netherlands, in 1964. He received the M.Sc. and Ph.D. degrees from Eindhoven University of Technology, Eindhoven, The Netherlands, in 1988 and 1992, respectively, both in electrical engineering. In the period 1992/1993 he was station manager and scientist for an INTELSAT propagation project in Surabaya, Indonesia. He is currently with the European Space Research and Technology Centre (ESTEC), European Space Agency, Noordwijk, The Netherlands. His research interests are in the are of millimetre and submillimeter-wave reflector and planar integrated antennas, quasioptics, electromagnetic bandgap antennas, and millimetre- and submillimetre-wave components. Dr. de Maagt was co-recipient of the H.A. Wheeler Award of the

IEEE Antennas and Propagation Society for the best applications paper of 2001. He was granted a European Space Agency Award for innovation in 2002. He was co-recipient of the LAPC 2006 best paper award. Dr. de Maagt serves as an Associate Editor for the IEEE Transaction on Antennas and Propagation.

2) iComms Seminar

Time: 6 pm Thursday 3rd May 2007

Venue: Griffith University, Nathan Campus, Building N34 Room 0.05

Speaker: Chris Brindley, iComms

iComms is a Brisbane based software company that provides a software suite that models and maps the radiation hazards around antenna installations. Using large antenna data bases and GPS coordinates, licenced users can define the exclusion zones for both the general public and antenna workers. The company has commercial arrangements in Europe and Australia and continue to roll out improved visualisation and electromagnetic modelling software.

3) Planned Seminar: Details to be announced soon!

Time: 6 pm Thursday 7th June 2007

Venue: Griffith University, Nathan Campus, Building N34 Room 0.05



Power Engineering Society Chapter Update

Dr Rajat Majumder
Chair, Power Engineering Society
Queensland Chapter

I have taken charge of the chapter chair as of 1st January 2007 from immediate past chapter chair Dr. Zhao Yang Dong. I joined the School of ITEE, University of Queensland in February 2006 as a lecturer of power engineering. Before joining UQ I was working for my Ph.D at Imperial College London, UK in the area of power systems dynamics, stability and control.

In 2007 the PES chapter has already organized one seminar by Prof. Andrew Ford from Washington State University, USA on 'Boom and Bust in Power Plant Construction: Lessons from the California Electricity Crisis'. Three more events have already been finalized.

1. 16th February 2007: 'Accounting for dynamic performance specifications in system design' by Prof. Ian Hiskens from University of Wisconsin, Madison, USA.
2. 19th February 2007: 'Towards Space-time Cooperative Schemes against Blackouts' by Prof. Yusheng XUE, Chief Engineer at the Nanjing Automation Research Institute (NARI).
3. 29th March 2007: 'Ancillary service practice in Australian Electricity Market' by Dr. Santa Ranatuga, NEMCO

The power engineering society chapter is looking forward to organising more IEEE power engineering society seminars in 2007 by visiting researchers from overseas.



Signal Processing / Communications Chapter Update

Dr Bouchra Senadji
Chair, SP/Communications
Queensland Chapter

Dr Jasmine Banks
Vice-Chair, SP/Communications
Queensland Chapter

So far this year the Signal Processing and Communications chapter has had the honour of hosting two international speakers. The first was Prof. Kenichi Kanatani from Okayama University, Japan, who on Feb. 26 gave the seminar "Statistical Optimization for Geometric Fitting: Theoretical Accuracy Bound and High Order Error Analysis". The second speaker was Prof. Rama Chellapa from the University of Maryland, USA, who on Mar 22 spoke on "Recent Advances in Still and Video-Based Face Recognition". Further seminars are planned for later in the year.

On March 15, Jasmine Banks attended the IEEE ComSoc Asia Pacific Regional Chapters Chair Congress (AP RCCC), in Hong Kong, as a representative of the Queensland Section. Accommodation and air fare were paid for by the IEEE Communications Society, therefore her attendance at this meeting was not at any cost to the Qld Section. The meeting consisted of a number of presentations, on topics such as membership trends, and the resources available to chapter chairs. The topics of "How to provide better services to ComSoc members in the AP region" and "How to promote ComSoc activities in AP region" were discussed, with the meeting concluding with ideas and suggestions on how to move the chapters forward in their activities.



Attendees of the IEEE ComSoc Asia Pacific Regional Chapters Chair Congress

Please contact us if you have any suggestions for Chapter activities or seminars, or any other thoughts on how we can best serve the interests of the Signal Processing and Communications Society members in Queensland.

AGM 2006 Photo Gallery

Photo Gallery: AGM and Dinner, Customs House, Brisbane, 15th December, 2006

Photos courtesy of Dr. Renate Sitte, Dr. Joaquin Sitte & Mr. Yam Chua.



That icon of Brisbane, Customs House, our venue for the AGM and dinner.



Dr. Vaughan Clarkson chairs the AGM.



Excellent AGM attendance in the Lady Thiess Room, Customs House.



Dr. Peter Sutton receives his recognition award at the AGM from Awards & Recognition Chair, Mr. Michael Lees.



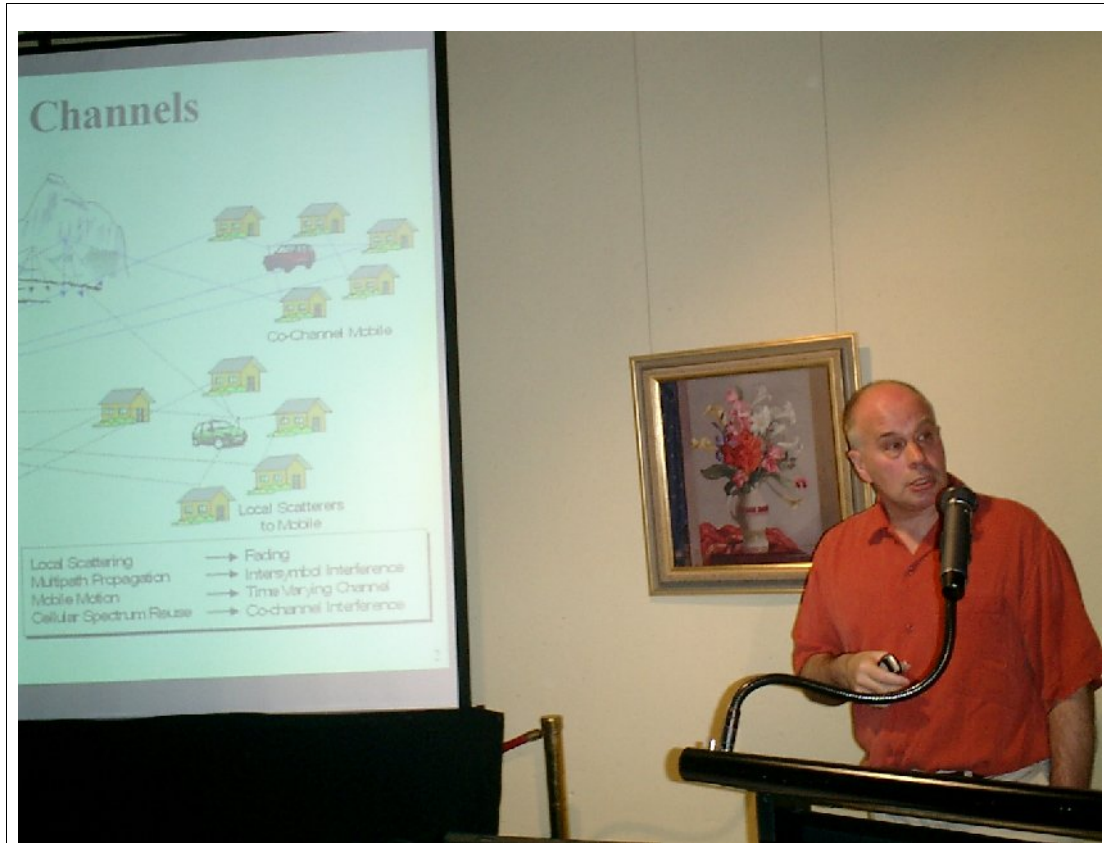
Mr. Craig Mills receives his recognition award at the AGM from Awards & Recognition Chair, Mr. Michael Lees.



Dr. Renate Sitte receives her recognition award at the AGM from Awards & Recognition Chair, Mr. Michael Lees.



Mr. Yam Chua receives his IEEE thesis prize at the annual dinner from Acting Chair, Dr. Vaughan Clarkson.



Prof. Robert Calderbank gives his after-dinner talk.



Members and guests absorb Prof. Calderbank's talk between dinner and dessert in the Art Gallery of Customs House.

List of your volunteer Office Bearers for 2007

NOTE: full contact details may be found at
<http://www.ewh.ieee.org/r10/queensland/OfficeBearers.html>

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