

IEEE Queensland Section Newsletter Print Post Approval No. PP4458860011

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Vice Chair

Dr. Vaughan Clarkson

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Mr. Andrew Thomas

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Dr. Amoakoh Gyasi Agyei

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Dr. Renate Sitte

Full list of office bearers is available on page 14.

Institute of Electrical and Electronics Engineers

Queensland Section Newsletter

November 2006

From the Editor

Welcome to the third and last newsletter of IEEE Queensland Section for 2006. The purpose of this newsletter is to update Section members with news and information of ongoing activities in Queensland. The past two issues have received positive feedback. I hope you find this issue equally useful and informative.

In this issue, you will find information about the upcoming AGM and dinner lecture from pages 3 to 5. You will find reports from the treasurer, webmaster and membership coordinator from pages 6 to 8. You will also find updates on our GOLD affinity group, and technical chapters.

The section's website is being constantly updated by our webmaster to provide you with the latest updates on the section's events and activities. So, don't forget to check the site for the latest information.

Last but not least, I wish to take this opportunity to thank all colleagues for their support over the past year. On behalf of the Section, I wish everyone a wonderful festive break, and a happy new year.

Yong Peng Ong Newsletter Editor, IEEE Qld Section

Find out about Conference on Mechatronics and Machine Vision in Practice on page 11.

From the Chair, IEEE Queensland Section

Dear IEEE Queensland Section members

On behalf of the Queensland Section Committee I would like to welcome you to IEEE activities for the last quarter of 2006. We are approaching the end of my term as Chair of the Queensland Section and also approaching the AGM. There will be a special announcement from the Vice Chair of the Section regarding the AGM. May I request all of you to participate in this year's AGM and make the IEEE more active in coming years?

This year we have formed the affinity group *Graduates of the Last Decade (GOLD)* in the Queensland Section. IEEE Queensland

Section Secretary Mr Andrew Thomas attended the IEEE Region 10 Gold and Student Congress in China to gain experience from activities in our region. Andrew with other colleagues will start more activities with the GOLD affinity group early in the New Year.

Recently we completed the election process for 2007. Results will be announced during the AGM. We did not require a vote, as there was only one nomination for each position. I would like to congratulate all nominees for their willingness to serve IEEE.

This year we had a number of distinguished lecturers and many organised seminars from different chapters. A detailed report will be tabled at the AGM. I would like to congratulate all chapter chairs for their wonderful service to IEEE. Please keep yourself updated with your Chapter activities and your participation will help make IEEE more dynamic. You will always find detailed information about the scheduled events in our newsletters and website (www.ieee.org/qo/qld).

A number of membership drive functions have been arranged in the Queensland university campuses in the past few months. Two new student chapters have been formed this year. These are at Central Queensland University, Rockhampton and at University of Southern Queensland at Toowoomba. Congratulations to Dr Amoakoh Gyasi-Agyei and to Dr Tony Ahfock for their initiatives and hard work. Information for this year's IEEE thesis prizes (for undergraduate students) has been advertised in all university campuses and special thanks are due to Dr Vaughan Clarkson for his initiative.

Since this is the last newsletter of 2006, I wish you all a Merry Christmas and a Happy New Year. Have a safe holiday and I look forward to working with you in 2007 as immediate past chair of the Section.

Professor Tapan Kumar Saha Chair IEEE Queensland Section

FROM THE VICE-CHAIR

Dear IEEE Qld Section Members

It is my pleasure to invite you to the 2006 Annual General Meeting of the IEEE Qld Section on Friday, 15th December, at Customs House, 339 Queen St., Brisbane. The AGM will be followed by a sumptuous 3-course dinner at which we will be honoured to have the company of Prof. Robert Calderbank of Princeton University, who will afterwards give a talk entitled 'Quantum Computing and Cellular Phones'.



The AGM and dinner are separate events, collocated at Customs House: it is possible to come to one and not the other, although we'd be glad of your company at both!

The AGM will begin at 5.30pm. The dinner begins with drinks at 6.30pm before being seated at 7pm.

The AGM is free but the dinner (& talk) are \$60/head to IEEE members or \$100/head to non-members. Attendance at the dinner is limited to 60 so please be sure to reserve your place promptly. Your place is secured by sending a cheque payable to 'IEEE Qld Section' to

Dr. Peter Sutton
School of Information Technology & Electrical Engineering
The University of Queensland
Old 4072

or by making a direct deposit to

Account name: IEEE Queensland Section

BSB:804-083

Account number:305832

Payment reference: Your 8 digit IEEE member number along with your last name

In either case, please also email Peter on p.sutton@itee.uq.edu.au so that he can confirm receipt by return email. Please also advise Peter or me of any dietary requirements.

I look forward to seeing you on what promises to be a very pleasant evening.

P.S. For catering purposes, RSVP is Friday, 1st December.

Yours faithfully

Dr. Vaughan Clarkson
IEEE Old Section Vice-Chair



IEEE Queensland Section presents AGM Dinner Lecture for 2006

Speaker: PROF. ROBERT CALDERBANK, Director, Program in Applied and Computational Mathematics, Princeton University, NJ, USA.

Title: QUANTUM COMPUTING AND CELLULAR PHONES

Abstract: Multiple antennas are transforming the rate, reliability and reach of wireless systems. The speaker, Robert Calderbank is a co-inventor of space-time codes which improve the reliability of communication over wireless channels by correlating signals across different transmit antennas. Improvements in link reliability translate directly to larger cells and lower infrastructure cost; the WiMax standards body (IEEE 802.16) is counting on multiple antennas to deliver data rates up to 75 MB/s over a 20 MHz bandwidth in a cell radius of 6 miles. Space-time codes make all of this possible with end to end signal processing complexity that is essentially the same as single antenna systems. Quantum computers are calling into question the security of cryptosystems where security rests on the presumed intractability of factoring. Dr. Calderbank developed the group theoretic framework for quantum error correction together with Peter Shor and colleagues at AT&T Labs. This concept has changed the way physicists view quantum entanglement, and is the foundation for fault tolerant quantum computation.

The two breakthrough technologies are connected by a common mathematical foundation and Dr. Calderbank will describe how the wireless industry is making use of mathematics developed by number theorists about a hundred years ago.



Biography: Dr. Robert Calderbank is a Professor of Electrical Engineering and Mathematics at Princeton University where he directs the Program in Applied and Computational Mathematics. He joined Princeton from AT&T where he was Vice President for Research and responsible for designing the first Research Lab in the world where the primary focus is data. Inventions by Dr. Calderbank in his career at Bell Labs and AT&T have transformed communications practice in voiceband modems, advanced read channels for magnetic recording, and wireless systems. He also created the framework for fault tolerant quantum computation together with Peter Shor.

Awards: Dr. Calderbank was honored by the IEEE Information Theory Prize Paper Award in 1995 for his work on the \mathbb{Z}_4 linearity of Kerdock and Preparata Codes (joint with A. R. Hammons Jr., P. V. Kumar, N. J. A. Sloane and P. Sole), and again in 1999 for the invention of space-time codes (joint with V. Tarokh and N. Seshadri). He became an AT&T Fellow in 2000, received the IEEE Millennium Medal in 2000, and was elected to the National Academy of Engineering in 2005.



Institute of Electrical & Electronic Engineers (IEEE) Dinner The Art Gallery – 15th December 2006

Entrée

Salad of smoked chicken breast with gourmet leaves, asparagus tips, marinated capsicum, citrus segments and honey mustard dressing

ক্তক্তক ককক

Potato pancake with salmon gravalax, mizuna salad leaves and wasabi mayonnaise

Main Courses

Panfried eye fillet, pont neuf potato, glazed turned vegetables, cognac scented jus

Seared barramundi with dill crust on braised leeks, potato gratin, asparagus, confit tomato butter sauce

Cheese Platter

A selection of three Australian cheeses with lavosh, dried fruit and nuts

Freshly brewed coffee and tea served with Rum Truffles



Treasurer's Corner

The IEEE Queensland Section is a professional organization fulfilling an important role in our local community, and hence it's rewarding to be on its executive board of volunteers. I'm glad to inform you that our section has enjoyed an excellent financial state during my tenure (December 2004 - Dec 2006) as a treasurer to be built upon; our coffers have always been held in surplus while maintaining high levels of professional meetings. All treasurer reports were submitted to the IEEE HQ in New York on time during my tenure. I also established an IEEE Student Branch at Central QLD University during my tenure. We have had a dynamic, energetic executive team during my tenure as treasurer; with a strong volunteer and collegial leadership spirit that contributed in so many ways to ensure that The IEEE accomplished its mission and goals even in our Queensland region. We have had an excellent volunteers and management that worked diligently to implement the many visions, ideas, programs and services supported by the global IEEE in Queensland region. It has been a great opportunity that IEEE QLD Section gave me the chance to practice, among other things, my bookkeeping and budgeting skills as its Treasurer. Convening a monthly meeting via teleconferencing has been a good experience in itself. At least it truly signals to my non-Brisbane resident IEEE members that they do not necessarily need to be residing in Brisbane to even be at the forefront of the IEEE QLD Section. Hence, please allow me to motivate you to get involved in the IEEE in your locality, as you'll never regret it. Attendance of the AGMs in Brisbane gave me the chance to physically connect with other IEEE members in QLD Section. Surely, this is not the end of my involvement in the organisation of the IEEE QLD Section as I'll remain the Student Counsellor at CQU. We have had an excellent volunteer team in 2005/2006. It has been a pleasure to have the chance to serve you, especially with your cooperative spirit. Thank you.

Dr Amoakoh Gyasi-Agyei
Treasurer IEEE Queensland Section

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From the webmaster - Queensland Section

Dear IEEE members.

Time really flies and we are approaching the end of the year again. Over the past nine months, our Queensland section has been exceptionally active and exciting with numerous activities, such as IEEE sponsored conferences, seminars and distinguished lecturer programs etc, successfully organized. As there are still a handful of upcoming events (most notably the AGM'06) from now towards the end of this year, please do check out our section webpage (http://www.ieee.org/queensland) for more regular updates.

IEEE branded merchandise such as t-shirts and baseball caps are now available for sale! For more information, feel free to contact me (sqoh@ieee.org).



Sheng How Goh Webmaster IEEE Queensland Section

The New IEEE Website

The new IEEE website is easier than ever to access everything you need from IEEE. Inside, you will find reorganized information and a consistent style – along with everything you already expect to find at IEEE.org.

This new site is the product of extensive user testing and feedback, plus the most current web standards and best practices.

[Adapted from http://www.ieee.org/]



Membership Coordinator Report

Well we are coming to a very successful year for our Membership development. We have grown our overall numbers significantly and this augurs well for the future of the Queensland section. We have seen growth across the board for our main membership levels and growth has also been significant in the later part of this year. Our student membership has grown by a massive 37%.

The growth has come about in part by the development of a latent resource in the creation of two new student chapters one at University of Southern Queensland and the other earlier in the year at Central Queensland University.

Senior Membership is up by 16% Members number have increased by 5.5% and overall Membership has increased by 18.8%. If anyone can identify the reason for the jump of membership from the end of August for Member Grade I would be interested to know your opinions. It would be great to carry forward this growth and what has created it into the New Year.

I have provided some graphs for reference to these statistics.

GRADE IN	HM	LF	F	LS	SM	PS	LM	M	PM	LA	Α	STUDENT	GRAND
IEEE													TOTAL
ACTIVE MEMBERSHIP 10/26/2005	0	2	1	3	41	0	6	483	2	0	24	113	675

GRADE IN	HM	LF	F	LS	SM	PS	LM	М	PM	LA	Α	STUDENT	GRAND
IEEE													TOTAL
ACTIVE MEMBERSHIP 08/31/2006	0	2	1	3	48	0	7	482	2	0	21	137	703

Current IEEE Grade	Current IEEE Grade	Number of
Code	Description	Members
Α	Associate Member	23
AF	Affiliate	55
F	Fellow	1
LF	Life Fellow	2
LM	Life Member	7
LS	Life Senior	3
M	Member	511
S	Student	181
SM	Senior Member	49
TOTAL		832

Have a safe and happy holiday season

Peter McLarty Membership Development Coordinator

From the Chair of the Computational Intelligence Chapter

The Computational Intelligence Society chapter continues to foster the development of a local Computational Intelligence community. Postgraduate students are an important part of this community therefore the chapter has organised the 1st IEEE Queensland Postgraduate Computational Intelligence Symposium to be held on Tuesday 21 November 2006. The Syposium will be held as an AccessGrid teleconference across the campuses of Griffith UniversityGold Coast, The University of Queensland, Queensland University ofTechnology and Central Queensland University.

This 1-day teleconference Syposium will showcase the research in the field of Computational Intelligence carried out by young researchers in Queensland. Research students from Queensland's Universities will report on their research objectives and achievements to their fellow students, supervisors, the local research community, professionals and industry.

Participation as speakers is open to all postgraduate students subject to recommendation by their supervisors and ratification by the organizing committee. Atendance is free and open to IEEE members and non-members.

The symposium is organised by Michael Blumenstein (Griffith-Gold Coast), Marcus Gallagher (UQ), Joaquin Sitte (QUT) and Brijesh Verma (CQU)

Contact:

Joaquin Sitte CIS Queensland Chapter Chair j.sitte@qut.edu.au +61 7 3138 2755

Dr. Joaquin Sitte Foundation Chair CIS Queensland Chapter

IEEE Quick Facts

- ☑ more than 365,000 members, including 68,000 students, in over 150 countries.
- ☑ 311 sections in ten geographic regions worldwide.
- ☑ about 1,570 chapters that unite local members with similar technical interests.
- ☑ more than 1,430 student branches at colleges and universities in 80 countries.
- ☑ 39 societies and 5 technical councils representing the wide range of technical interests.
- ☑ 128 transactions, journals and magazines.
- ☑ more than 300 conferences worldwide each year.
- ☑ about 900 active IEEE standards and more than 400 in development.

Joint Chapter Control Systems/Robotics & Automation

A review of past events:

The Technical Challenges of an Automated Telescope Observatory Hawken Auditorium, September 11, 2006





Associate Professor Duncan Campbell along with a number of students that were involved in the project (Simon Canning, David Haddon, Brad Kunde, Adrian Tuhtan and Gavin Walker) presented a very interesting seminar on the Technical Challenges of an Automated Telescope Observatory.



Robots and RT Systems in Human Environments Hawken Auditorium, 26th October 2006



Professor Kazuhiro Kosuge from Tohoku University in Japan gave an interesting talk at the Hawken auditorium.

Upcoming events:

Workshop: Taking Robots to the Classrooms

Dates: 7-8 December 2006

Location: Griffith University, Gold Coast Campus, G22_2.20

The Workshop is aimed at promoting fields of robotics & control engineering among high school students, and encouraging high school teachers and university lecturers to explore using robotic platforms in education.

The Workshop is organised by the IEEE Queensland Chapter on Control Systems/Robotics & Automation and Griffith University's Robotics & Games Research Laboratory.

The Workshop will be held on the 7th & 8th December 2006 at Griffith University's Gold Coast Campus and will be attended by 48 High School students and their teachers.

The Workshop attendees will be addressed by South Korea's leading researcher and educator in robotics, Professor Jong – Hwan Kim of KAIST. President of the International Robot Olympiad Committee (IROC)

Refreshments will be provided by courtesy of the IEEE – Robotics & Automation Society.

The Thirteenth Annual Conference on Mechatronics and Machine Vision in Practice

December 5-7 Toowoomba

The topics of the conference are defined in its title, Mechatronics and Machine Vision in Practice- and the emphasis is on practical applications. Special encouragement is given to applications of robotics and machine vision in agriculture.

A book of selected papers (probably well over half) will be published by springer after the conference. Some of the papers from the 2004 and 2005 conferences will also be considered for inclusion. Papers will be reviewed to a standard that meets the DEST E1 criterion.

The selection of papers for the conference has been completed. The list is available on the conference website. Conference registrations are now open. A late fee will apply for registrations after 20th November.

For further information see the conference website: http://www.m2vip.com (email: johnbill@usq.edu.au)

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

Michael Lees Chair Joint CSS/R&A Chapter IEEE Queensland Section

From the Chair of the Power Engineering Society Chapter

The Power Engineering Society Chapter has successfully organised six seminars at the University of Queensland for 2006. The seminars were presented by leading researchers in power engineering for power system stability, control, measurement, condition monitoring and computational methods. Four of the seminars were given by IEEE PES Distinguished Lecturers. These seminars were well attended by academics and industrial professionals. The topics and dates of the seminars are:

- (1) 12 Oct 2006: "An Overview of the effects of the SWIS Market on Generators", by Professor Joseph K. Winsen, University of Newcastle, Australia
- (2) 24 July 2006: IEEE PES DL Program "Transformer Fault Diagnosis", by IEEE PES Distinguished Lecturer Professor Dr. Sivaji Chakravorti, Jadavpur University, India
- (3) 25 July 2006: IEEE PES DL Seminar (1) "Electric field analysis in HV systems" and (2) "Modern tools for impulse fault diagnosis in transformers", by by IEEE PES Distinguished Lecturer Professor Dr. Sivaji Chakravorti, Jadavpur University, India
- (4) 3 Apr 2006: Estimating Power System Electromechanical Modes from Measured Data, by Professor John W. Pierre, University of Wyoming, Laramie, WY, USA (jointly with IEEE Signal Processing Chapter)
- (5) 16 Feb 2006 IEEE Distinguished Lecturer Seminar "Sustainable Electric Power Systems in the 21st Century: Requirements, Challenges and the Role of New Technologies", by IEEE PES Distinguished Lecturer Prof Prabha S. Kundur, President and CEO Powertech Labs Inc. Canada
- (6) 17 Feb 2006 IEEE Distinguished Lecturer Workshop "Power System Stability and Control", by IEEE PES Distinguished Lecturer Prof Prabha S. Kundur, President and CEO Powertech Labs Inc. Canada

The power engineering society chapter is looking forward to organising another one or two IEEE power engineering society seminars in Dec 2006 by visiting researchers from overseas.

The current chair is to complete his service to the IEEE PES QLD Chapter from 2007. He would like to thank all the colleagues for their continuous support for this chapter, and wish them a very successful year of 2007.

Dr Zhao Yang Dong Chair of Power Engineering Society Chapter Queensland Section

Our section's webpage is available at http://www.ieee.org/queensland.

GOLD Affinity Group

The GOLD Affinity group has been formed within the IEEE QLD Section; we will be getting the year off to a start with some activities which will start to bring together our GOLD members.

At the inaugural meeting of gold when we raised the petition to form the affinity group I was appointed as the inaugural Chair.

One of my first tasks will be to call elections for officers of the group. I will be looking to have elected officers in the following positions; Chair, Vice-Chair and secretary. If you are a GOLD member and would like to make a difference to your career and yours peers then I would highly recommend taking up the challenge. You will be elected for a 2 year term. You will be ably supported by the QLD section committee who collectively have a lot of experience that you may be able to call upon.

For more information about what you are required to do as an office bearer in the IEEE have a look at this page. http://www.ieee.org/web/geo activities/rab/scs/Resources/new-officer/info.html

Other then the key tasks from the information provided off these links I person that is a leader in GOLD has a responsibility to create opportunities for development in non technical areas that will assist in the overall development of the individual as well as creating social opportunities. There is also other information about GOLD at the GOLD website http://www.ieee.org/organizations/rab/gold/

I would also expect that the GOLD Chair will attend the 2008 GOLD/Student Region 10 conference location as yet undecided, if you want to find out what sort of experience that is contact Andrew Thomas as he attended the 2006 one as a Student reresentative.

If you are a GOLD member and you have ideas for some activities then forward them to me and I will collate that for our future elected committee.

Finally I would like to thank Andrew Thomas for all his efforts in getting GOLD formed.

Have safe and happy holidays

Peter McLarty
GOLD Affinity Chair

Queensland Section - Office Bearers 2006

Executive

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