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Institute of Electrical and Electronics Engineers
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IEEE
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NEWSLETTER

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Message from the Section Chair

PROF. TAPAN SAHA

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Welcome IEEE Queensland Section members. This is the fourth and final newsletter of 2013. We are only two weeks away from the annual general meeting, which will be held on 28th November at St. Leos College, College Road, St Lucia, University of Queensland. I would like to invite our IEEE Members to attend this AGM and provide us your feedback. In particular, we want to know what you liked from the activities of your section and chapters in 2013. I encourage members at large to actively participate in the Section and Chapter activities.

We are not very far from the end of 2013 IEEE calendar. Our chapters and affinity groups have been organising technical and other activities throughout the year. If you have any suggestions about any specific technical activities that you like your chapter to organise, please drop an email to the chapter Chair.

Our student branches are equally engaging their branch members through membership drive functions and other technical events. Thanks to all student branch committees and student counsellors for their hard work throughout the year. Student Members are encouraged to participate in undergraduate thesis and paper competitions.

Nomination process for the 2014 executive committee was closed on 28th October and we will announce the new committee on the AGM. A number of Section and Chapter committee positions are still vacant, I request you to nominate yourself or a valued IEEE member for 2014 committee during the AGM.

I hope you have wonderful IEEE activities experience in the section. Please keep updated by visiting our website: www.ieee.org/queensland

Editor's Remarks

MR ROBERT ELLEN

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Greetings to all Queensland-based IEEE members. This edition of the IEEE Queensland Section newsletter is not only the last of the year, but is also the 20th and final that sees me as its Editor. I began in the newsletter position in 2007, taking over from Yong Pang Ong, who performed the role in 2006, succeeding James Birt. Through both newsletter editor, and other roles I have performed, serving local IEEE members has been an honour.

I'd like to thank several people who need recognition for helping me during my time on the committee. Firstly, many thanks must go to Michael Lees, for initially encouraging me to take up the editor role and supporting me on my IEEE volunteer journey ever since. Secondly, my gratitude goes to the chairs of the section since I've been on the committee - Vaughan Clarkson, Abbas Bigdeli, Roelof Swanepoel and Tapan Saha - for their support in my various volunteer roles. And last but not least, to the IEEE volunteers who contributed articles to the newsletter.

Without preempting the announcements of positions for the 2014 committee, I can assure you that the newsletter is in safe hands going forward and I wish the successful editor nominee the very best. It has been an honour and a pleasure being your scribe these last seven years. I look forward to meeting you at an IEEE event in the future.

2013 AGM & Dinner Lecture – November 28th

You are cordially invited to the IEEE Queensland Section's Annual General Meeting and Dinner to be held at *St Leo's College, University of Queensland* on the evening of *Thursday 28th November 2013*. This annual event will provide networking opportunities with fellow engineers and leading professionals in the community.

This year our guest dinner speaker is *Professor Peter Corke*, an IEEE Fellow and faculty member at Queensland University of Technology. Professor Corke is editor-in-chief of the IEEE Robotics & Automation magazine, and a recipient of the Qantas/Rolls-Royce and Australian Engineering Excellence awards.

He is well known for his research in vision-based robot control, field robotics and wireless sensor networks. Prior to joining QUT in 2010 Professor Corke was a senior principal research scientist at CSIRO where he founded the Autonomous Systems laboratory, a 50-person team undertaking research in mining, ground, aerial and underwater robotics, as well as sensor networks. With underwater mining technology currently in the news, Professor Corke's talk is certain to be entertaining and informative.

Date: Thursday, 28th November 2013

Location: St Leo's College, Dining Room, University of Queensland

Map: <http://www.uq.edu.au/maps/index.html?menu=1>

RSVP: Email blackmagic@computer.org by Friday 22nd November 2013

AGM Time: Arrive at 5:15pm for a 5:30pm start (the Annual General Meeting is for IEEE members)

Dinner: Pre-dinner drinks from 6:30pm, dinner 7.00pm

Entree:

Goat's Cheese and Caramelised Red Onion Tart
or

Combination Mini Vegetarian Spring Rolls and Asian Dumplings with Dipping Sauce

Main course:

Slow Cooked Lamp Rump with Mustard & Red Wine Jus
or

Grilled Fillet of Tasmanian Salmon with Salsa Verde

Dessert:

Hazelnut Opera Dessert
or

Tasmanian Cheese & Dried Fruit

If you have special dietary requirements please communicate them to blackmagic@computer.org when you register for the event. All menu items are halal compliant.

Cost for AGM: None

Cost for Dinner (includes drinks and a three course meal):

IEEE and Engineers Australia members: \$40

Non-members: \$60

Payment options:

To facilitate better planning of the event there will be no 'pay at the door' option this year. Instead, payments for the dinner should be made to the Section's bank account by close of business Friday 22nd November.

Bank account details:

Bank: bankmecu

Account name: IEEE Qld Section A/C

Account number: 305832

BSB code: 313-140

Please make sure your name appears on the payment advice from your financial institution.

If you are attending the AGM and not the dinner, please make this clear when you submit your RSVP

Update from the GOLD Affinity Group

MS ALEXANDRA PRICE, CHAIR

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IEEE Queensland GOLD affinity group has had a very productive year holding a number of well attended events.

On 10th October, an event titled *What is Leadership?* was held at Energex's Newstead office. Lynn Williamson, Sourcing Team Manager and Brendan Watson, Principal Electrical Design Engineer at Energex gave their perspective on leadership roles and the qualities good leaders possess. This was then followed by a networking afternoon tea.

On 11th November, the IEEE Queensland GOLD affinity group co-sponsored a technical seminar with the IEEE Queensland Power and Energy Society Chapter held at the University of Queensland titled *Integrating Alternative Energy - Lessons from Germany*, presented by Blake Harvey, Manager Alternative Energy Solutions Rural at Ergon Energy.

IEEE Queensland GOLD affinity group is looking forward to an eventful 2014 and would like to encourage any young engineers interested in getting involved next year to contact us via the office bearer details at the back of this newsletter.

Update from the Aerospace & Electronic Systems Society Chapter

DR GARRY EINICKE

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Previous event

A technical seminar was presented by Dr Mark Davis at the University of Queensland on Friday 13th September. Dr Davis gave a three-part tutorial on foliage penetration radar. The first part covered an early history of battlefield surveillance enabled an ability to detect fixed and moving objects under dense foliage. The second part concerned synthetic aperture radar (SAR) that have been developed for both military and commercial applications. The last part discussed new research in multi-mode Ultra-Wideband Radar, with the design of both SAR and moving target indication systems.



Dr Mark Davis

It was interesting to note that the foliage penetration radar is applicable to remotely inferring the health of forested areas. A range of open problems such as optimising antenna polarisation and antenna arrays were also discussed. We gratefully acknowledge the support of IEEE AES for co-funding the visit of Dr Davis to Queensland through its Distinguished Lecture program.

Update from the Joint Control Systems and Robotics & Automation Chapter

MICHAEL KEARNEY

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Previous events

In early October, the CS/RA chapter held two technical seminars given by control theory/engineering researchers from the University of Melbourne at the University of Queensland St Lucia Campus.

The first of these technical seminars was given by Dr Rohan Shekhar on the development of an extremum-seeking controller for internal combustion engines that can handle a wide range of fuels. Dr Shekhar discussed the methodology behind extremum seeking and showed how it can be experimentally applied to optimally tune engine parameters as the fuel composition varies.

Dr Shekhar is a Research Fellow in the Department of Mechanical Engineering, The University of Melbourne. Rohan received a BE (Hons) from the University of Queensland in 2006 and a PhD from the University of Cambridge in 2012. His research interests include Model Predictive Control (Robust and Fault-tolerant MPC) and Extremum seeking control.

The second technical seminar was given by Dr Iman Shames on factions in complex systems. Dr Shames presented an introduction to modelling social networks, and presented he and a co-worker's recent results on how to influence the formation of factions within the network, and introduced a new network centrality measure for signed networks.

Dr Shames is a McKenzie Fellow with the Department of Electrical and Electronic Engineering, The University of Melbourne. Previously, he was an ACCESS Postdoctoral Researcher at the ACCESS Linnaeus Centre, the KTH Royal Institute of Technology, Stockholm, Sweden. He received his B.S. degree in Electrical Engineering from Shiraz University, Iran in 2006, and the Ph.D. degree in engineering and computer science from the Australian National University, Canberra, Australia in 2011. His current research interests include optimisation, multi-agent systems, sensor networks, distributed fault detection and isolation, and security in networked systems.

Update from the Joint Microwave Theory & Techniques and Antennas & Propagations Chapter

DR KONSTANTY BIALKOWSKI
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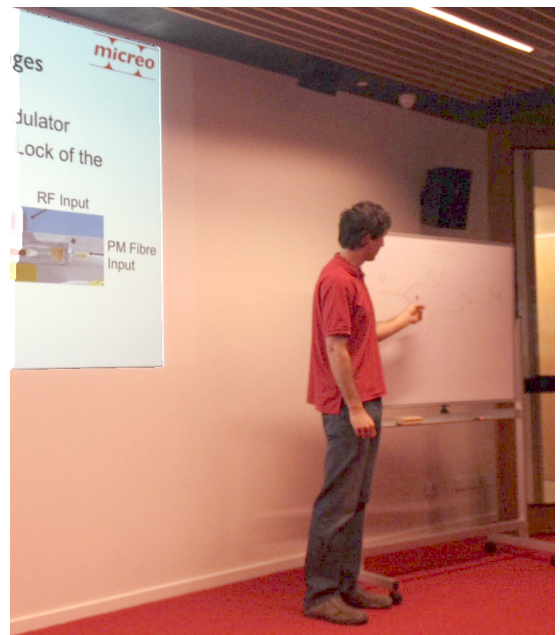
Recent events

Our last event was held at the University of Queensland by Conrad Fontes from Microeo in the evening of October 10. His talk *An Optical Link for the Airborne Environment* described the engineering behind two optical links in production at Microeo Limited.

Next event

Our next event will be held at Griffith University - Nathan Campus on 14 November 2013 at 14:30. The talk will be by Prof. Christophe Fumeaux from University of Adelaide and will be entitled *Dielectric Resonator Antennas: From microwaves to optical frequencies*.

For full details of both the upcoming seminars as well as any of those held in the past including the abstracts, please check our website: <http://ewh.ieee.org/r10/queensland/v2/doku.php/chapters:mttap:start>



Conrad Fontes explains a detail from his talk 'An Optical Link for the Airborne Environment'

Update from the Power and Energy Chapter

DR MEHDI (DANIEL) EGHBAL

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Recent events

An archive of all technical seminars and distinguished lectures can be found from PES webpage:
<http://ewh.ieee.org/r10/queensland/v2/doku.php/chapters:pes:start>

The University of Queensland 1.2MW Solar PV plant Site Visit

The IEEE PES Student branch at the University of Queensland (UQ) organised a site visit to the UQ 1.2MW solar rooftop PV plant on 22nd of October. This event was attended by 17 IEEE student members from University of Queensland and Queensland University of Technology (QUT). First, there was a technical presentation for visitors at The Global Change Institute. A brief overview of the UQ PV plant and technical information about its online database, generated power, converters and batteries were given to visitors. This presentation was followed by interesting questions from students.

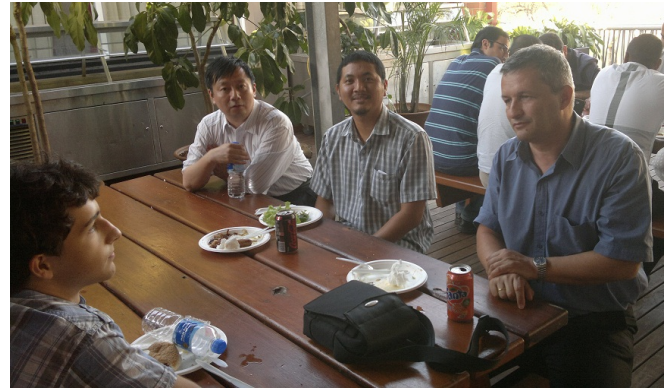
After the technical presentation, students were guided through the PV plant at the UQ Centre. First they visited the converters room and learnt what they do and how they work. Subsequently, they were directed to the rooftop of the UQ Centre where they could see installed PV panels.



IEEE Student members visiting the AEMO control centre

PES Queensland Chapter Family Day

The PES chapter organised a family barbecue day on 1st November 2013. The event was advertised through e-notice and all PES members and their family members of the section were invited to register and attend the event. The event was held on the deck area of St Leo's College, The University of Queensland. A total of 25 participants attended the event and enjoyed fresh food and BBQ atmosphere. Attendees took opportunity to discuss future events to be held under PES and continued social interaction after the conclusion of the event.



PES members and guests attending the Family Day

Technical Seminar: Integrating Alternative Energy- Lessons from Germany

Date & Time: 11 November 2013 5:00pm-7:00pm

Venue: Room 502- Advanced Engineering Building (#49) The University of Queensland

Speaker: Blake Harvey, Ergon Energy

This presentation was a candid look at the issues associated with renewable generation integration in Germany and subsequent lessons for Australia.



Blake Harvey

PES Outstanding Engineer Award - Call for nominations

In 2013, Call for Nominations will start in November 2013 and will be publicised through IEEE website, newsletter, e-notices and direct email to industry contacts. Nominations for the Outstanding Engineer Award are accepted from IEEE Queensland Section engineers who contributed to the power engineering profession. The outcome will be announced late December 2013. The award rules and nomination forms can be downloaded from PES QLD webpage below. Previous PES Outstanding Engineer Award recipients:

- 2010 : Dr Jose Lopez-Roldan
- 2011: Dr Dave Allan
- 2012: Professor Tapan Kumar Saha

Update from the joint Signal Processing and Communications Chapter

VAUGHAN CLARKSON

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The Qld Sections joint SPS/ComSoc Chapter (also joint with Northern Australia Section) has continued to be active in promoting members interests. In addition to the usual series of technical seminars, we have instituted an experiment this year entitled The First Tuesday Journal-Paper Club.

Previous technical seminars

1. On 29th January, Prof. Tulay Adali, an SPS Distinguished Lecturer, was scheduled to present a seminar entitled Complex-valued Adaptive Signal Processing: When and how to take noncircularity into account? at QUT. Unfortunately, it coincided with the immediate aftermath of a severe thunderstorm, and QUT was closed for the day. Instead, Tulay participated in a small-group technical discussion off-campus.
2. On 18th July, Prof. Beat Stettler of the University of Applied Sciences in Rapperswil, Switzerland, presented a seminar entitled Multipath Connectivity Over Heterogeneous Wireless Networks for Public Transportation Vehicles. The seminar took place at QUT and was well attended, with more than 30 people in the audience.
3. On 19th July, Dr. Sanjeev Naguleswaran of QSpectral Systems Pty. Ltd., presented a seminar entitled Dynamic Wireless Networks: Design and Optimisation for Critical Operations. This seminar was held at The University of Queensland.

Previous professional and non-technical activities

1. On 3rd April, the Chapter co-hosted a Careers Evening at the Central Queensland University, Brisbane campus, organised by the CQU Student Branch. Please refer to their report for further details.
2. The Chapter experimented with the hosting of an IEEE Day Celebration on 1st October. This took place at the Brisbane Brewhouse at Woolloongabba. The occasion was an opportunity for members to chat over an meal and a beer and to reflect on the benefits of IEEE membership. It was also an opportunity to discuss the planning of the 1st Tuesday Journal Club, as reported below.

New Initiative: 1st Tuesday Journal-Paper Club

For 2013, the Chapter undertook a new initiative to hold meetings of a 1st Tuesday Journal-Paper Club. The idea is to meet regularly, usually on the 1st Tuesday of the month as the name suggests (inspired by the ABC TV series "1st Tuesday Book Club"). Each month, the participants would agree on a highly cited, 'top ten' or major-prize-winning article in an SPS or ComSoc journal (but not one of our own!). We would also select a Discussion Leader. Through the month, each of the participants would read the article. At the next meeting, the Discussion Leader would lead a discussion of that article, starting with his/her own appraisal. In this way, it is hoped that we could all broaden our

understanding of the field and further develop a sense of community.

The first meeting of the Club took place on a last Thursday, 31st October. The venue was the Brisbane Brewhouse in Woolloongabba. The Discussion Leader was the Chapter Chair, Vaughan Clarkson, and the selected paper was Seung-Jean Kim, K. Koh, M. Lustig, Stephen Boyd, and Dimitry Gorinevsky, 'An Interior-Point Method for Large-Scale l_1 Regularized Least Squares', IEEE J. Sel. Topics Signal Process., vol. 1, no. 4, pp. 606617, Dec. 2007.

Upcoming Events

There are two upcoming events scheduled for the remainder of the year.

1. On Friday, 15th November, Prof. Marco Martorella of the University of Pisa, Italy, will present a seminar entitled Radar Research in Pisa. The seminar will be held at 11am in the Advanced Engineering Building (Building 49), Room 502, at the UQ St. Lucia Campus.
2. Another meeting of the 1st Tuesday Journal-Paper Club is tentatively scheduled for Tuesday, 3rd December. More details will be forthcoming. Conclusion In closing, I would like to thank my Vice Chair, Dhammika Jayalath, for his support in organising Chapter activities not only this year but over a period of many years. Id also like to thank the members themselves for playing a part in the life of the Chapter. Ive enjoyed my term as Chair and look forward to more Chapter activities in the future.

Conclusion

In closing, I would like to thank my Vice Chair, Dhammika Jayalath, for his support in organising Chapter activities not only this year but over a period of many years. Id also like to thank the members themselves for playing a part in the life of the Chapter. Ive enjoyed my term as Chair and look forward to more Chapter activities in the future.

Your 2013 IEEE Queensland Section Volunteer Office Bearers

This list is also available on the IEEE Queensland Section website at:

<http://ewh.ieee.org/r10/queensland/v2/doku.php/officebearers>

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Computer Society**Chair**

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Engineering in Medicine and Biology Society

All positions vacant

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