



*Advancing Technology
for Humanity*

**INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS INC.
(ARBN 078 576 495)**

QUEENSLAND SECTION

ANNUAL REPORT FOR THE AGM 2010

**UNIVERSITY OF QUEENSLAND
BRISBANE**

25 November 2010

FROM THE SECTION CHAIR

In office: Dr. Abbas Bigdeli

Part A – Review of 2010

This year has been a year of exceptional growth, strong level of activities across the board and establishing a new Affinity group, Women In Engineering WIE.

- The membership has increased to 1186 (as of 25th November, 2010). This represents 18% annual growth on last year's figures which is well above our average of 10% growth over the last 6 years. Such an exceptional growth is largely thanks to a phenomenal increase in our student numbers (47%). I must congratulate our Student Branch and their counsellors for such an amazing performance.
- Most organisational units (chapters and affinity groups) hosted by the Section have held at least two meetings per year required for official 'active' status. One chapter in particular has been extremely active, holding eight meetings for the benefit of members. This includes a number of seminars by IEEE Distinguished Lecturers, internationally recognised as leaders in their fields.
- Last year was a year of consolidation for the Queensland Section, but in 2010 we finally succeeded in creating one new Affinity Group, Women In Engineering.
- In 2010, we also had another first in our Section. The very first Student Chapter of Power and Energy Society. I must congratulate our PES committee for their achievement and special thanks are due to the student volunteers who made this possible.
- The Section actively continued to promote student activities and membership.
 - The Section continued with our usual recruitment drives at busy student functions (such as BBQs)
 - The annual thesis prize competition was again very popular.

- The Section had a new Educational Activities Chair who injected some new ideas including outreach through events held in the Gold Coast in order to raise awareness about IEEE.
- We have had a few vacant positions in the Section's executive committee throughout the year. I use this opportunity to encourage members to volunteer for the vacant positions for 2011.

In 2010, twelve executive committee meetings will have been held by year's end, as well as the AGM. This year's committee meetings were organised through teleconference, as in previous years. From a central meeting place at The University of Queensland's St. Lucia campus, members were able to attend the teleconference from more distant locations in the Section such as the Gold Coast, Toowoomba and Rockhampton.

As well as chairing the monthly meetings of the Section's Executive Committee, the AGM and attending to the business ordinarily arising from them, I was personally involved in several other activities and initiatives.

- I attended the Region 10 Meeting in Cebu, Philippines. This annual event allows Section Chairs to be appraised of current developments in IEEE and in our region and to make contact and coordinate with other Sections.
- I attended several Chapter and Student Branch functions, giving presentations on the benefits of IEEE membership at some of them.
- After our unsuccessful attempt in bidding to host the TENCON 2012, I coordinated another bid to Region 10 for hosting the Region 10 Technical Conference TENCON in 2013. We are in the race to win this.
- I regularly attended teleconference meetings of the IEEE Australia Council in order to coordinate with other Australian Sections.

Part B – Closing Remarks

This was my second and last year as Section Chair. I would like to express a big thank you to all committee members for the support during the last two years. I look forward to continue to serve the members in our Section in my new role as the Immediate Past Chair in 2011.

I use this opportunity to wish all our members and their families best wishes and happy and safe time for the festive season. I look forward to be working with you all in 2011.

Abbas Bigdeli

Chair, IEEE Queensland Section

FROM THE SECTION VICE CHAIR

In office: Mr. Roelof Swanepoel

Year in Review

2010 has been an eventful and ultimately fruitful year for IEEE Queensland Section from the vice chair's perspective. The Section Chair will have already dealt with issues pertaining to section activities in general, so I will just summarise items that are of relevance to the Vice Chair. Some highlights:

- *Formation of the Women In Engineering Affinity Group*

The WIE Affinity Group formed with Sandra Mau as inaugural chairperson was arguably the highlight for the year. The formation and launch event corrected, what I considered to be, a hole in the section when I was elected as vice chair in 2009. With a dedicated leader, there is much opportunity for this group to expand within the section, and also within South East Queensland by way of cooperating with other similar groups.

- *Attendance of the R10 annual meeting*

I was honoured to be nominated to attend this function as a secondary delegate along with the chair for Queensland Section again in 2010. Held in Cebu, Philippines, the annual event provides an unparalleled opportunity for networking with other sections in Queensland, as well as with the R10 committee. Knowledge gained during the 2 days at this meeting has already been applied, and will continue to be useful going forward.

- *Annual Student Thesis Prize Competition*

The annual thesis prize competition happened without incident, thanks in large part to our new Student Activities Chair, Steven Lawrance, and the student branch councillors. As in previous years, the recipients of the awards for 2010 are of a very high standard.

- *Annual General Meeting and Dinner Lecture*

AGM and Dinner Lecture attendance for 2010 has grown again from 2009 numbers, and I consider that a very good sign for member involvement in section activities. The changed format from earlier years continues to work, and we are continuing to build on the new momentum. We are happy to have an excellent guest speaker agree

to present at the dinner (Alina Dini, Department of Environment and Resource Management). Unfortunately, our attempts to invite members of the State Government were foiled by parliamentary proceedings, but we will persist with this in 2011.

- *Section Administrative Activities*

On occasion, I had to stand in for vacant or absent roles in the section committee, notably chairing of committee meetings on occasion, and as acting secretary for a few months.

Going Forward

While the section has had a remarkable year in terms of activities and added value for our membership, it is never a good idea to rest on our laurels. There are definitely some areas where we can increase our value for members. Some areas where I believe we can do this, are (not exhaustive):

- *Section Administration*

More attention could be given to business continuance in chapters and affinity groups, and within the section executive committee itself. This will smooth transitions between volunteers, and also save valuable time.

- *AGM and Dinner Lecture attendance*

While we have been increasing the numbers of members attending this function since 2008, room remains to raise the awareness of this function, and turn it into one of the section's annual highlights. More careful and advance planning and marketing are definitely two starting points.

- *Industry Participation*

Several chapters and affinity groups have developed close relationships with industry, as is evident from the functions held for members. This approach could be more proactively adopted throughout the rest of the section as well, and extended to cooperation with other engineering groups. Ultimately, this will increase added value for our membership drastically.

Final Thoughts

This is my final year as Vice Chair for the Queensland Section. The past two years have been incredibly educational and motivational in this role, and I wish to thank everyone that provided me with the opportunity to serve the section.

It has been an absolute privilege to work with the motivated and able volunteers that serve on the section committee, and I can but hope that I lived up to the expectations that were set for me when I was originally nominated for the position. The Queensland membership can definitely count themselves lucky to have such a dedicated group of people working for them. Going forward, I hope to assist the new Vice Chair as much as possible, to make sure that we keep the momentum on items that have been set in motion. I also wish them the best of luck in putting their own stamp on the position - it is only through the combined efforts of individual talents and skills that we can keep on growing Queensland Section!

Mr. Roelof Swanepoel

Vice Chair,

IEEE Queensland

REPORT FROM THE SECRETARY

In office: Dr. Mandar Gujrathi

I took office in August 2010 and there were 10 executive committee meetings held since February 2010. These meetings were held physically at The University of Queensland in Brisbane; however members were able to attend via teleconference from other locations.

The following table lists the attendance records of the executive committee for the meetings

Office	Attendance	Present	Apology	Absent
Chair	Abbas Bigdeli	10	0	0
Vice Chair	Roelof Swanepoel	9	1	0
Secretary	Mandar Gujrathi	4	0	0
Treasurer	Jasmine Banks	8	2	0
Immediate Past Chair	Vaughan Clarkson	5	5	0
Newsletter Editor	Robert Ellen	5	4	1
Webmaster	Ashkan Boldaji	0	0	10
Professional Activities	Farhad Dadgostar	4	2	4
Membership Coordinator	<i>Vacant</i>			
Awards & Recognition	Michael Lees	0	10	0
Student Activities Chair	Steven Lawrance	3	1	0
Educational Activities Chair	Jan McSweeney	3	6	1
Engineers Australia Liaison	Tapan Saha	7	3	0
Women in Engineering	Sandra Mau	5	4	1
Aerospace and Electronic Systems Chapter	Peter Lindsay	2	6	2
Aerospace and Electronic Systems Chapter (VC)	Garry Einicke	6	2	2
Aerospace and Electronic Systems Chapter (Sec)	John Davies	4	4	0
Computational Intelligence Chapter	Marcus Gallagher	0	6	4
Computational Intelligence Chapter (VC)	Michael Blumenstein	0	1	9
Computer Chapter	Philip Machanick	6	4	0
Computer Chapter (VC)	Jianming Yong	0	0	10
Computer Chapter (Sec)	Marc Robinson			
Control Sys/Robo & Auto Chapter	Gordon Wyeth	2	2	6
Control Sys/Robo & Auto Chapter (VC)	John Billingsley	9	1	0
Engineering in Medicine & Biology Chapter	Mohan Karunanithi	6	4	0
Engineering in Medicine & Biology Chapter (VC)	Stephen Wilson	0	0	10
MTT/AP Chapter	Karla Ziri-Castro	1	4	5
MTT/AP Chapter (VC)	Jacob Coetzee	3	2	5
Power & Energy Chapter	Tapan Saha	7	3	0
Power & Energy Chapter (VC)	Jose Lopez-Roldan	1	1	8
Power & Energy Chapter (Secretary)	Mehdi Eghbal	5	0	0
Power and Energy Chapter (Student rep)	Alexandra Price	3	0	0
Signal Pro & Comms Chapter	Dharmika Jayalath	5	4	1
Signal Pro & Comms Chapter (VC)	Vaughan Clarkson	5	5	0
GOLD Affinity Group	Roelof Swanepoel	9	1	0
GOLD Affinity Group (VC)	Robert Ellen	5	4	1
Student Counsellor QUT	Jacob Coetzee	3	2	5
Student Counsellor UQ	Vaughan Clarkson	5	5	0
Student Counsellor GU-GC	<i>Vacant</i>			
Student Counsellor GU-Nathan	<i>Vacant</i>			
Student Counsellor USQ	Tony Ahfock	0	0	10
Student Counsellor CQU	Shawkat Ali	10	0	0

In addition, I was one of the three judges for the IEEE Student thesis competition, 2010. All the participants were of high quality and it was rather difficult for us to choose a clear winner. I congratulate all entrants of this competition for their hard work and look forward to continue my association with IEEE-QLD in the New Year.

Mandar Gujrathi
Secretary, IEEE Queensland

REPORT FROM THE NEWSLETTER EDITOR

In office: Mr. Robert Ellen

Three newsletters were published in 2010, in May, September and November. The following table lists the articles contributed to the newsletter for 2010, by the officer, chapter, branch or affinity group.

Office / Chapter / Group	Number of articles	Number nominally required	Issue numbers
Section Chair	3	3	1,2,3
Section Vice-Chair	2	2	2,3
Secretary	0	0	
Treasurer	0	0	
Webmaster	0	0	
IEAust Liaison	0	0	
Professional Activities	0	3	
Educational Activities	1	3	3
Student Advisory / Activities Chair*	0	3	
Membership Development*	0	3	
Awards & Recognition	1	1	1
Aerospace & Electronic Systems	3	3	1,2,3
Computational Intelligence	1	3	3
Computer	3	3	1,2,3
Control Systems / Robotics & Automation	0	3	
Engineering in Medicine and Biology	2	3	2,3
Microwave Theory / Antennas & Propagations	2	3	2,3
Power & Energy	3	3	1,2,3
Signal Processing / Communications	1	3	3
Graduates of the Last Decade	3	3	1,2,3
WIE*	2	2	1,2
CQU Student Branch*	0	3	
Griffith Student Branch (Gold Coast)*	0	3	
Griffith Student Branch (Nathan)*	0	3	
QUT Student Branch	1	3	2
UQ Student Branch*	3	3	1,2,3
USQ Student Branch*	0	3	

* - These roles were not filled for some or all of the year which may have contributed to less than the nominal number of articles

Robert Ellen
Newsletter Editor, IEEE Queensland

STUDENT ACTIVITIES REPORT

In office: Mr. Steven Lawrance

The IEEE Australia and New Zealand Student Conference was held in Melbourne this year and financial support was offered to two student members, nominated by the Student Branch Counsellors, to travel to and attend the event. Coincidentally, the two students receiving the \$500 grants, Alexandra Price and John Quinn, went on to become the recipients of the student thesis prizes.

This year's student thesis prize saw entries from the University of Queensland and Central Queensland University. The IEEE Student Prize for the Best Final Year Undergraduate Thesis in All Fields of Electrical Engineering and Information Technology was awarded to Alexandra Price from the University of Queensland and the ICPADM-Mat Darveniza IEEE Student Prize for the Best Final Year Thesis in Power Engineering to John Quinn from Central Queensland University. I would like to congratulate both winners for their fine work and thank the student branches for their support in running the competition.

Steven Lawrance

Student Activities Chair, IEEE Queensland.

AWARDS AND RECOGNITION REPORT

Chair: Mr. Michael Lees

For 2010 the committee has retained the award structure that was used for 2009. This encompasses the following three categories.

The first category is *Recognition of Service* awards. These are an official recognition of a person's contribution in a particular role and are awarded at the first AGM following the completion of a person's term in a role. They are awarded to all people in this category without requiring nomination.

The second category is *Outstanding Contribution* awards. These are awarded to people who have been identified as having made a significant contribution during their term in a role. They are awarded at the first AGM following the completion of a person's term in a role. These awards require a seconded nomination (by members of the IEEE Queensland section) along with a reason for the nomination to be submitted to the section committee.

The third category is for the IEEE Queensland Section *Volunteer of the Year*. This is awarded to the person who is regarded as having made the most substantial contribution during their time in office. Only people who have completed their term of office are eligible. A single plaque is awarded each year. Nominations (by members of the IEEE Queensland section) are submitted to the section committee.

Awards

Recognition of Service

A total of 16 *Recognition of Service* awards were awarded within the Queensland section during 2010. Most of them were presented in November at the section AGM.

Award Recipient	Contribution
Dr. Mark Griffin	Student Activities Chair Queensland Section 2009
Mr. Robert Ellen	Inaugural Chair AESS Chapter Queensland Section 2008-2009
Dr. Peter Lindsay	Inaugural Vice Chair AESS Chapter Queensland Section 2009

Mr. Simon Ellis	Chair Computer Chapter Queensland Section 2008-2009
Dr. Philip Machanick	Vice Chair Computer Chapter Queensland Section 2008-2009
Dr. Duncan Campbell	Chair Joint CSS R&A Chapter Queensland Section 2008-2009
Dr. Aleksandar Rakic	Chair MTT/AP Chapter Queensland Section 2008-2009
Dr. Karla Ziri-Castro	Vice Chair MTT/AP Chapter Queensland Section 2008-2009
Dr. Jose Lopez-Roldan	Chair PES Chapter Queensland Section 2009
Dr. Tapan Saha	Vice Chair PES Chapter Queensland Section 2009
Dr. Garry Einicke	Chair Joint SP/Comms Chapter Queensland Section 2008-2009
Dr. Dhammika Jayalath	Vice Chair Joint SP/Comms Chapter Queensland Section 2008-2009
Mr. Robert Ellen	Chair GOLD Affinity group Queensland Section 2008-2009
Mr. Roelof Swanepoel	Vice Chair GOLD Affinity group Queensland Section 2008-2009
Mr. Peter McLarty	Membership Coordinator Queensland Section 2005-2009
Dr. Andrew Thomas	Student Counsellor UQ Queensland Section 2008-2009

Outstanding Contribution Award

Two *Outstanding Contribution* awards were awarded within the Queensland section during 2010. They were presented in December at the section AGM.

Award Recipient	Contribution
Dr. Garry Einicke	Chair Joint SP/Comms chapter Queensland Section 2008-2009
Mr. Robert Ellen	Inaugural Chair AESS Chapter Queensland Section 2008-2009

IEEE Queensland Section Volunteer of the Year 2010

Awarded to Mr. Robert Ellen

Thesis prize awards

There were two categories of award for undergraduate theses this year.

1. **IEEE Queensland Section Student Prize for the Best Final Year Thesis in All Fields of Electrical Engineering and Information Technology** was awarded to Alexandra Clare Price from The University of Queensland for her thesis entitled ‘Computational Tool for Short-Circuit Analysis of Fault Current Limiters’.
2. **ICPADM¹ Mat Darveniza IEEE Queensland Section Student Prize for the Best Final Year Thesis in Power Engineering** was awarded to *John Quinn* from the Central Queensland University (CQU) for his thesis entitled ‘Implementation of Closed Loop Voltage Control for Medium Voltage Distribution’.

Best Paper awards (Power & Energy Society Chapter)

The **IEEE Power & Energy Society (PES) Queensland Chapter Student Conference Travel Prize** was awarded to two recipients this year:

- a. *Mrs. Mai Huong Nguyen*, PhD student, First author of the paper entitled “A Comparative Study of Voltage Stability for Long Distance HVAC and HVDC Interconnection”
- b. *Mr. Sudarshan Dahal*, PhD student, First author of the paper entitled “Investigations of Small Signal Stability of a Renewable Energy based Electricity Distribution System”

Michael Lees

Awards & Recognition Chair

IEEE Queensland Section

Email: Michael.Lees@ieee.org

¹ ICPADM: The International Conference on the Properties and Applications of Dielectric Materials.

EDUCATIONAL ACTIVITIES REPORT

[commenced: March 2010]

Chair: Ms. Jan McSweeney

- IEEE Business Case submission – Robot Building Workshop [May 2010]
 - A fast-track, hit and run submission which did not get up but allows further legwork for future development opportunities

- Young ICT Explorer’s Judge – Uni. Of Qld event [Aug 2010]
 - A pleasure and a privilege – the two schools my brothers attended won prizes but that had nothing to do with my team

- Presenter Membership Drive – Central Qld University event [Sep 2010]
 - A pleasure and a privilege – the two schools my brothers attended won prizes but that had nothing to do with my team

- Proposal – currently in development – IEEE CQU student web site co-developer

- Author Draft Proposal – IEEE – IT Skills Assessment [Aug 2010]
 - Current - seeking membership feedback re formation of committee

In closing, I wish to acknowledge the outstanding support I have received from the Chair, Vice-Chair and Treasurer as well as Mandar Gujrathi and Robert Ellen, Newsletter Editor of the Queensland section. There are also many others from whom I have benefited including, Prof. Neil Bergmann, Dr Ricky Robinson, the Young ICT Explorer’s Group, NICTA, etc.; and IEEE members who have extended invaluable collegiality which has made my experience at IEEE a pleasure as well as a privilege.

Jan McSweeney

Chair

Educational Activities, IEEE Queensland

Annual Reports from the Section chapters

COMPUTATIONAL INTELLIGENCE SOCIETY

Office Bearers:

Chair: Dr. Marcus Gallagher
Vice-Chair: A/Prof. Michael Blumenstein

The Queensland Chapter of CIS was active in 2010. Unfortunately there were some planned technical talks through the year that had to be cancelled for various reasons. In addition, the postgraduate symposium was not held this year due to unavailability of staff from the organizing universities. The following event was organized and held:

- Technical meeting (Seminar) – 26th August.

This meeting was held via the Access Grid, with members from Brisbane (UQ and QUT), the Gold Coast (Griffith University) and Rockhampton (CQU) in attendance. 10 members and 3 non-members attended the presentation.

Talk details:

Fast and Parameter-Free Search of Time-Series Discords

Dr Wei Luo

Complex and Intelligent Systems, School of ITEE

University of Queensland

Time-series discord has proven to be a useful concept for time-series anomaly identification. To search for discords, various algorithms have been developed. Most of these algorithms rely on pre-building an index (such as a trie) for subsequences. Users of these algorithms are typically required to choose optimal values for word-length and/or alphabet-size parameters of the index, which are not intuitive.

In this talk, we present an iterative search algorithm for time-series discords. The algorithm alternates between a refutation step and an estimation step to minimize the number of unnecessary distance queries. Natural heuristics for both the refutation step and the estimation step are presented. The algorithm not only has eliminated parameters that require tuning from a user, but also has demonstrated significant speed improvement on a variety of time series.

Dr. Marcus Gallagher
IEEE CIS (Queensland) Chapter Chair.

COMPUTER SOCIETY CHAPTER

Office Bearers:

Chair: Dr. Philip Machanick
Vice-Chair: Dr. Jianming Yong
Secretary: Mr. Mike Robinson

The IEEE Queensland Computer Chapter had a reasonably active year, with 3 technical meetings, a committee meeting and a meeting with IEEE chair of the Geographic Unit Operations Committee (GUOC), Pieter Botman and IEEE Computer Society member, who was in Brisbane in September. Our three technical meetings were:

1. *Leading edge design solutions used to create the first arc fault contained solid dielectric 38kV pole mounted switchgear*, presented by David Dart, NOJA Power at the University of Queensland, 27 July 2010.
2. *Embedded Linux on Programmable FPGAs for Fun and Profit*, presented by Dr John Williams, Petalogix at the Engineers Australia Hawken Auditorium in the city, 09 September 2010.
3. *Global Software Engineering Research in a Small Country*, presented by Prof Kevin Ryan from the University of Limerick, Ireland, at state government offices in the city on 7 October 2010.

We gradually built up the audience over the year, with 17 people attending Prof Ryan's presentation. We have attempted to build linkages with NICTA, Software Queensland, Engineers Australia and the Australian Computer Society. Building these linkages will take time, and will remain an ongoing project.

Our strategy for next year is to build on the start we have this year, to offer more value to members both by a wider range of technical activities and by creating more networking opportunities involving other organisations. We have refrained from an aggressive membership building strategy in favour of building value for members; stepping up recruitment is the next logical follow-up, once we have a clear value proposition for prospective members.

On finances, we had no cash flows. Two of our technical meetings were co-hosted by other organisations that provided catering. However, should we embark on a membership drive in future, we will request appropriate funding.

Philip Machanick

Chair.

Computer Society IEEE Queensland

JOINT CHAPTER OF SIGNAL PROCESSING AND COMMUNICATIONS

Office Bearers:

Chair: Dr. Dhammika Jayalath

Vice-Chair: A/Prof. Vaughan Clarkson

We have had a quiet year in 2010. However we had two very successful events thus far and expected host a distinguished lecturer visit before the end of the year. One of the distinguished lecturer visit organised by our chapter has been postponed to next year due to the unavailability of the speaker during 2010.

Two functions are as follows.

Date: 12-May-2010

Location: Queensland University of Technology, Brisbane, Queensland

Title: *Allegro Networks: An Australian WiMax experience*

Invited talk by Mr David Waldie, Managing Director of Allegro Networks.

This was presented jointly by The Signal Processing and Communications Chapter and Microwave Theory and Techniques/Antennas and Propagation Chapter of IEEE Queensland Section together with Queensland University of Technology. This was attended by 21 guests including 12 IEEE members.

In this talk David presented how they've managed to implement Queensland only Wimax network, challenges faced in the process and opportunities presente. WiMAX is the technology of the future when it comes to lightening fast wireless access to broadband services is concerned. Allegro is Australia's first WiMAX network operator. Allegro has an exclusive license to use WiMAX spectrum covering 16% of the Australian population. To make best use of this they have designed and built a world class WiMAX based network infrastructure to match.

Date: 21-September-2010

Location: Queensland University of Technology, Brisbane, Queensland

Title: Robotics, Control, Image Processing and Machine Vision with Engineering Applications.

Technical Talk by Visiting Prof. Shiyin Qin, from School of Automation Science and Electrical Engineering, Beijing University of Aeronautics and Astronautics Beijing, China. This was attended by 29 guest including 11 IEEE members.

In this talk, Prof. Qin gave a brief introduction into the research activities at the Lab of Pattern Recognition and Intelligent Systems (LPRIS), Beijing University of Aeronautics and Astronautics (www.buaa.edu.cn), Beijing, China. The topics covered include robotics, formation flight control, image processing, and machine vision.

Dhammika Jayalath

Chair

Joint Chapter of SP and Comms, IEEE Queensland.

AEROSPACE AND ELECTRONIC SYSTEMS (AES) CHAPTER

Office Bearers:

Chair: Prof. Peter Lindsay

Vice-Chair: Dr. Garry Einicke

Secretary: Mr. John Davies

Thanks go to the outgoing 2009 Chair and Queensland AES Section founder, Rob Ellen, for providing our initial momentum. We have had a successful year hosting numerous aerospace systems seminars at QUT, ARCAA, CSIRO and UQ.

Our previous seminars are listed below.

- Gianluca Falco, from the Electronics Dept. at Politecnico di Torino, Italy, who presented a talk on “Advanced techniques for GPS/INS integration” at QUT on 1 March 2010.
- H. Jin Kim and Youdan Kim, presented “UAV research activities at Seoul National University”, and Min-Jea Tahk gave a seminar entitled “UAV research activities at Korea Advanced Institute of Science and Technology (KAIST)” at Australian Research Centre for Aerospace Automation (ARCAA), Brisbane Airport on 22 April 2010.
- Franco Tecchia, from Scuola Superiore Sant’Anna, Pisa, Italy, who spoke on “Virtual and Augmented Reality Research” at CSIRO on 7 July 2010.
- Mike Borgelt, from Borgelt Instruments, spoke on “History and engineering development of sailplane instruments” and GPCAPT Ross Thomasson, Directorate of Strategic Planning, RAAF, provided a seminar entitled “How technology advancements impact on operational decision making in the military” at UQ on 21st October 2010.
- Phillip Griggs presented a seminar on “Military Mission Planning Systems - Assisting the Warfighter” at UQ on 25th October 2010.

We have scheduled one further seminar, namely,

- Ms Kelly Roscoe of Applied Strapdown Analytics, will be presenting “An overview of strapdown inertial navigation analytics” at CSIRO on 5 November 2010.

Prof. Peter Lindsay

Chair,

AES Chapter, IEEE Queensland

MICROWAVE THEORY AND TECHNIQUES/ANTENNAS AND PROPAGATION JOINT CHAPTER

Office Bearers:

Chair: Dr. Karla Ziri-Castro

Vice-Chair: Dr. Jacob Coetzee

Seminars and Distinguished Lecture Series

The MTT/A&P chapter is organizing technical seminars and distinguished lectures for the coming months. The date and time for the next seminars in the series will be announced by e-notices.

On the first of September this year we held a distinguished lecture with Dr. Richard Taylor.

Microwave products using High Temperature Superconductors and new ceramics



Dr. Richard Taylor is Founder and a former Director and Chief Technical Officer of Microwave and Materials Designs Pty Ltd, now Mesaplexx Pty Ltd. The company was formed in 2002 to exploit the unique properties of High Temperature Superconductors (HTS) and other metamaterials to develop microwave products for mobile wireless systems. Since HTS operates at temperatures below 90K, products incorporating HTS must include a cryogenic cooling system.

Dr. Richard Taylor has been involved in the design of communications products since the mid 1980s and in superconductor technology for the past 10 years. He brings a wealth of theoretical and practical experience, plus a broad technological understanding of the process of R&D and commercialisation.

During the discussion Dr. Taylor shared experiences on the growth of a multi-disciplinary team in the company and the background to the development of its unique microwave filters for mobile wireless telecommunications. He presented his views of in-house RF Design and

mathematical modelling combined with experience in Material Sciences that allowed him to introduce a range of innovative RF systems.

It was a very interesting session with participation of around 50 attendees, including several attendees from industry

Please stay tuned to your email for information on future events.

Dr. Karla Ziri-Castro

Chair,

MTT/AP Joint chapter, IEEE Queensland.

POWER AND ENERGY SOCIETY

Office Bearers:

Chair: Prof. Tapan Saha

Vice chair: Dr. Jose Lopez Roldan

Secretary: Dr. Mehdi Eghbal

UQ PES Student branch chair: Ms. Alexandra Price

Major activities for 2010

- Organised 7 technical programmes (Six technical seminars and one distinguished Lecture)
- Organised one membership drive event at Powerlink.
- Established one student travel award for student members to attend and present a paper at the IEEE PES General Meeting conference. In 2010, PES chapter award committee decided to share the prize equally between two winners; Miss Mai Nguyen and Mr.Sudarshan Dahal. The winners received \$1000 check each during the IEEE seminar on 5th of July.
- Established PES student Chapter at UQ.
- Established Outstanding Engineer Award to recognize outstanding technical, professional and society contribution on behalf of the power and energy profession.
- Maintained and updated the website of the PES chapter. Archive of 2010 activities can be accessed from the website of the PES chapter.

1) Technical Seminar 1

Title: *How do we supply the world's energy needs?*

Date: 21 June 2010

Speaker: Professor Derek Abbott, University of Adelaide

Venue: The University of Queensland

30+ IEEE members and guests attended



2) Technical Seminar 2

Title: *Grid Integration of Large-Scale Wind Generation*

Date: 5 July 2010

Speaker: Professor Ian A. Hiskens, University of Michigan

Venue: The University of Queensland
50 IEEE members and guests attended including Central Queensland University (joined the seminar through video conference)



3) IEEE PES Distinguished lecture

Title: *Demand Side Management & Smart Grid*

Date: 9 June 2010

Speaker: Dr. Bruno Meyer, RTE (the French Transmission System Operator), France

Venue: The University of Queensland
60+ IEEE members and guests attended



4) Technical Seminar 3

Title: *Demand Response Programs in Restructured Power Systems*

Date: 24 August 2010

Speaker: Professor Mohsen Parsa Moghaddam, Tarbiat Modares University, Iran

Venue: The University of Queensland
20+ IEEE members and guests attended



5) Technical Seminar 4

Title: *Challenges of transmission planning in the Australian National Electricity Market*

Date: 16 September 2010

Speaker: Mr. Tim George, Executive General Manager, Planning- Australian Energy Market Operator (AEMO)

Venue: The University of Queensland
48 IEEE members and 43 guests attended the meeting



6) Technical Seminar 5

Title: Climate Change and The Power Industry: A Queensland Perspective

Date: 14 October 2010

Speaker: Mr. Simon Bartlett, Chief Operating Officer, Powerlink Queensland

Venue: The University of Queensland

32 IEEE members and 21 guests attended the meeting



7) Technical Seminar 6

Title: Computer Simulation of Analogue Electronics and Communication Systems

Date: 28 October 2010

Speaker: Dr. Keith Kikkert, Adjunct Associated Professor James Cook University

Venue: The University of Queensland

20 IEEE members and guests attended



Other major activities in 2010

Establishment of Student chapter of PES

The IEEE Student Branch Power & Energy Chapter was formed on 16 April 2010 as a result of a successful petition. Ms Alexandra Price has taken the role of Chair of the student chapter for 2010.



Dr Mehdi Eghbal (Secretary of the PES Chapter), Ms Alexandra Price (UQ PES Student branch chair)

Membership Drive

The PES chapter organised a membership drive event at Powerlink Queensland on 18 August. Powerlink operates and maintains Queensland's high voltage electricity transmission network and they employ a large number of electrical engineers. The event was very successful with an introductory speech by Prof Tapan Saha, display of IEEE XPlore and followed by informal discussions.



Dr Jose Lopez Roldan (Vice chair of the PES Chapter), Professor Tapan Saha (Chair of the PES Chapter)

Student Prize

IEEE Queensland section PES chapter has established a \$2000 travel prize for student members to attend and present a paper at the IEEE PES General Meeting conference. This prize will be administered by the PES chapter of IEEE Queensland section and is initially available for 5 years from 2010 – 2014. PES chapter in 2010 received 5 applications from the students of Queensland universities to attend and present paper in the IEEE 2010 PES General Meeting at Minneapolis, USA. Miss Mai Nguyen and Mr. Sudarshan Dahal were the winners in 2010 and both presented their papers in the conference.



Mr. Sudarshan Dahal, Winner of the Student travel prize 2010



Miss Mai Nguyen, Winner of the Student travel prize 2010

Announcement of PES Outstanding Engineering Award 2010

The IEEE PES Queensland chapter is very pleased to announce the inaugural ‘Outstanding Engineer Award’ which is aimed to recognize outstanding technical, professional and society contribution on behalf of the power and energy profession. This award will be given each year starting from 2010. Special plaque of “*IEEE Power & Energy Society of Queensland Outstanding Engineer Award*” will be presented to the recipient by the chair of the IEEE PES chapter.

Call for nomination started 1st of November and is publicized through IEEE website, newsletter, e-notices and direct email to industry contacts. Nominations for the 2010 Outstanding Engineer Award are accepted from IEEE Queensland Section engineers who contributed to the power engineering profession. Nomination form must be submitted electronically to the PES Chapter Chair (Email: saha@itee.uq.edu.au) not later than 12 December 2010. A form can be downloaded from link below:

http://ewh.ieee.org/r10/queensland/v2/lib/exe/fetch.php/chapters:pes:oea_2010_nomination_form.doc

Eligibility Criteria:

- Outstanding technical contributions to the power engineering profession.
- Outstanding professional and leadership contributions to the power engineering profession
- Significant contributions to the local community representing the power engineering profession.
- Outstanding contributions in the area of power engineering education.
- Service to the Power Engineering Society and/or IEEE.
- PES and/or IEEE membership.

Power & Energy Society Chapter Web link

<http://www.ewh.ieee.org/r10/queensland/v2/doku.php/chapters:pes:start>

ENGINEERING IN MEDICINE AND BIOLOGY CHAPTER

In 2010, the IEEE QLD EMB chapter had some change over of members from the 2009 committee, for positions that included Secretary, Industry Development Officer, and Professional Development officer (see below in italics).

The key members of the committee for 2010 are:

Chapter Chair	Dr. Mohanraj Karunanithi
Vice Chair	Assoc. Prof. Stephen Wilson
<i>Secretary</i>	<i>Dr. David Mason</i>
Treasurer/Website Development Officer	Dr. Anthony Nguyen
Program Officer	Mr. Antti Sarela
<i>Industry Liaison officer</i>	<i>Dr. Andrew Ward</i>
<i>Professional Development Officer</i>	<i>Dr. Amol Waghlikar</i>
Membership Development Officer	Mr. Sanjeev Hirmath

Activities

Although, the chapter looked at conducting 2 events for the year, we achieved in having 3 major varied events, as outlined below:

- **13-15th July 2010:** IEEE Qld EMBS sponsored and was part of the conference organising committee for IEEE Complex Medical Engineering Conference, at the Gold Coast, Queensland, Australia. Attendants were 65-70. The IEEE EMBS QLD also raised \$A1000 to contribute towards the conference: \$500 from IEEE QLD section and \$500 from CSIRO (national research body of Australia) for Student and best paper awards.
- **15th July 2010:** Within the conference, IEEE QLD EMBS also organised a separate specialised workshop to highlight some innovative healthcare research projects and applications being conducted in Queensland. The topics covered in the workshop were intended to give a perspective of research being done at various sectors of healthcare services, starting from Emergency department to Acute care interventional procedures (eg. Severe heart failure patients) to Post-cardiac failure management (home cardiac rehabilitation) to innovation in mental health that would serve aged care.

- **11th Oct 2010: Career Opportunities in Biomedical Engineering Event**

This was final event for 2010 and was the most successful event for the Chapter, so far. The main objective was to target final graduate Biomedical Engineering students to set direction, and bring awareness to students seeking biomedical engineering jobs in Australia and Queensland, and hence, was titled “Career Opportunities in Biomedical Engineering”. It was sponsored by the IEEE QLD Section and Australian eHealth Research Centre (AeHRC), CSIRO. This was mainly due to the lack of promotion in Biomedical engineering jobs despite it being a rapidly growing industry. A number of varied speakers with varied perspective to Biomedical Engineering were invited to present, as outlined below:

- Dr. Amol Waghlikar, outlined some approaches career approaches in Biomedical Engineering eg. Industry, research, etc.
- Mr. Nicolas Grandjean Thomsen, a Graduate Biomedical Engineer at ResMed Pty. Ltd related the graduate biomedical engineering program introduced recently by ResMed
- Dr. Phil Gurney, CEO of AeHRC, outlined the various ICT health related projects and the different CSIRO recruitment programs (PhD and Vacation students, student scholarships, postdoctoral fellowships, and research scientist positions) that are available throughout the year.
- Prof Stephen Wilson, from UQ, presented on the different higher degree and the various research opportunities in biomedical engineering available in universities
- Mr. Rick Lawrence outlined his experience as a new graduate in biomedical engineering at the Mater hospital, Brisbane
- Ms Elsa Garcia, highlighted her experience through the CSIRO vacation student program and the opportunities beyond.

The presentations were followed by a tour of project demonstrations through the AeHRC. The entire event was also the most successful event for the EMBS chapter, bringing up to 40 people in the audience, and was well received with some good questions throughout the presentations. In general, comments from students indicated that there was some clarity in direction and opportunities they could pursue following this event.

In summary, the IEEE QLD EMB chapter engaged in conducting 3 prominent events for the year 2010. In doing so, the chapter events comprised of: engaging in the organisation of a major IEEE conference in medical engineering, a workshop to highlight the biomedical engineering innovation in Queensland, and promoted and set directions for career development for young graduates in the profession of Biomedical Engineering.

Dr. Mohanraj Karunanithi
Chair, IEEE QLD EMBS

**Reports from the Section
Affinity Groups and student
branches**

WOMEN IN ENGINEERING (WIE)

Chair: Ms. Sandra Mau

In mid-2010, IEEE Queensland formed our very own Women in Engineering (WIE) affinity group to inspire, engage, and empower women at a local level. Already we have organized three events in 2010 and intend to continue offering professional development seminars, role model talks, and networking sessions throughout the year in 2011.

The inaugural event of WIE QLD was a great success! Despite the rain, over 30 engineers and aspiring young leaders came to hear guest speaker Else Shepherd, Chairwoman of Powerlink, share her experiences and words of wisdom, followed by networking over refreshments.

The second event this year was a role model talk by Prof. Penelope Sanderson from UQ combined with information about summer internship opportunities.



Prof. Penelope Sanderson talking for the WiE event

Finally, to wrap up the year, WiE QLD will be jointly hosting an End of Year Rendezvous with Women in Technology QLD on December 8. Come join us to celebrate your achievements and the approaching holidays over trivia, food and drinks.

Sandra Mau

Chair, Women in Engineering

IEEE Queensland

GRADUATES OF THE LAST DECADE (GOLD) AFFINITY GROUP

Office Bearers:

Chair: Mr. Roelof Swanepoel

Vice chair: Mr. Robert Ellen

Year in Review

Queensland Section GOLD has had an excellent year in terms of events held and attendance. A major portion of this can be attributed to industry participation, as well as active involvement with other groups within IEEE and engineering groups in Queensland. A quick summary of events for 2010:

- *Venture Capital and Capital Fund Raising: A Guide for Entrepreneurs*
Presented in cooperation with the IEEE Professional Development chair, this function was held at the Hawken Auditorium, Engineering House, Brisbane. There were 22 attendees, of which 14 were IEEE members. It was a catered and free event.
- *Commercialization of research: models and examples*
Co-sponsored with James Cook University, Dr Paul Darwen gave this presentation in Brisbane. It was again a free event, with 14 guests, of which 6 were IEEE members.
- *Young ICT Explorers Competition*
Several GOLD members helped as judges at this inaugural event for school children, focusing on ICT and its applications. It is scheduled to be an annual event, and GOLD hopes to provide assistance in future competitions as well.
- *Ambient Intelligence: From Sensor Networks to Smart Environments and Social Networks*
Held at University of Queensland in conjunction with the IEEE Professional Activities chair, this function was free of charge to attend for members. 27 guests attended, of which 12 were IEEE members.
- *Student Transition and Elevation Partnership Function*
Serving as a platform to introduce graduating student members to IEEE benefits (particularly GOLD), this was held for the first time in Queensland in 2010. The function is co-sponsored by IEEE MGA (but free to attend), held at UQ Club and with 20 guests, there were 15 IEEE members present. This function is also the only event

for 2010 that has an accrued expense against IEEE GOLD Queensland - the amount will be finalised after final reconciliation with MGA.

Going Forward

2010 represents a substantial increase in activity for GOLD over 2009, and we hope to continue this trend into 2011. Areas and specific functions that we hope to focus on (both for reportable events, and for assistance of other groups in the section):

- *Young ICT Explorers*

For 2011, GOLD will have proxy input into the steering committee for this event. We hope to assist in both planning and execution phases, and consider this an important springboard to be more involved with schools in Queensland.

- *Student Branches*

Student branches ultimately feed into GOLD, and we will be making an effort of attending student branch functions with the help of student branch councillors. This will serve the purpose of making the students aware of GOLD benefits early on, as well as providing them an opportunity to learn of GOLD events and attend them.

- *STEP events*

The hosting of Queensland's first STEP event proved very educational, and we plan on putting knowledge gained to good use during 2011. There is substantial support available from IEEE MGA for this initiative, and we hope to capitalise on that, and expand the function outside of the core Brisbane area.

- *Proactive membership involvement*

Instead of organising ad-hoc events for 2011, we plan to more actively engage our membership to determine their needs, and plan events and guest speakers around this.

Final Thoughts

The current GOLD committee is very happy with the results for the year, but realise that there is much work to be done for 2011. We are also actively working on a handover plan for the next generation of GOLD leaders, so that momentum can be retained.

Mr. Roelof Swanepoel

Chair,

GOLD affinity group, IEEE Queensland

IEEE UNIVERSITY OF QUEENSLAND STUDENT BRANCH

Student Branch Counsellor: A/Prof. Vaughan Clarkson

Highlights

The UQ student branch has had an active and successful year in 2010. The highlights are:

- Two pizza lunches for recruitment.
- Formation of the Power & Energy Society Student Chapter.
- Three technical seminars.
- Cooperation with the School of Information Technology & Electrical Engineering (ITEE) On Campus Alumni (OCA) group.

Power & Energy Society Student Chapter

A petition was organised by Alexandra Price for formation of a PES Student Chapter. The petition was successful and Alex was created Interim Chair.

Leadership

The student branch executive for 2010 was:

- Chair: Nicola Holmes
- Treasurer: Robert Chang

With the successful petition of the PES Student Chapter, Alex Price also joined the executive as PES Student Chapter Interim Chair.

The student branch counsellor is Vaughan Clarkson. Tapan Saha has served as adviser for the PES Student Chapter.

A call for nominations for 2011 officers was made in July. As a result, Nicola, Robert and Alex will retain their current offices in 2011, to be joined by Joanna Oon as Vice Chair.

Activities

Two pizza lunches were held this year. The first was held on 1st April. At this event, Prof. Tapan Saha gave a brief talk on the benefits of IEEE membership. The lunch was very well attended and 64 new student members were recruited.

A second pizza lunch was held on 6th August. The speaker on this occasion was Vaughan Clarkson who, like Tapan, gave a brief talk on the benefits of membership. A further 9 students were recruited.

The PES Student Chapter has also organised three seminars. The first of these was held on 16th September and given by Mr. Tim George, Executive General Manager, Planning of the Australian Energy Market Operator (AEMO). The second seminar was held on 14th October and given by Mr. Simon Bartlett, Chief Operating Officer of Powerlink. A third talk is scheduled for 28th October, to be presented by A/Prof. Keith Kikkert.

Finally, a number of meetings of the executive have been held throughout the year. In particular, two combined committee meetings have been held with the School of ITEE's On Campus Alumni group. Further collaboration between the two groups is planned.

Membership

The membership of the student branch now stands at 110.

A/Prof. Vaughan Clarkson
UQ Student Branch Counsellor
IEEE Queensland

CENTRAL QUEENSLAND UNIVERSITY STUDENT BRANCH

Student branch counsellor: Dr. Shawkat Ali

I had a great honour to hold the CQUniversity student counsellor position in 2010. We conducted three major student branch events in this year.

April 28, we run a student membership drive event for all CQUniversity local campus student. The event outcome was very strong, 12 new members signed up with IEEE. First, one of our active student members G M Shafiullah has presented his research talk on Smart Grid. There had a very big audience. Following this, we organise an Engineering Trivia. Finally honourable IEEE member Dr Amanullah Moug Than Oo distributed prizes among the Trivia winners and the lottery winners, which was run only for new IEEE student members. Towards the end of program we offered lunch for all the participants.

October 15, IEEE CQUniversity student branch has recently conducted a networking event in Martin Hansen Building premises at CQUniversity's Gladstone campus to foster the benefit and opportunities of members, and to advance respective professions. Students and staff members from Computer, Information Technology, and Engineering background were invited. It offered an opportunity to existing and prospective members to network with people from similar discipline and find out how each can get involved with the IEEE activities. The event was sponsored by IEEE Queensland Division as a part of the membership Drive.

The event was graced by Student Counsellor, Dr Amanullah Maung Than Oo (Advisor, IEEE CQUniversity Branch), Ashfaque Chowdhury (Chair, IEEE CQUniversity student branch), Dr Sanath Alahakoon, Dr Ashfaque Rahman, Dr Fakrul Islam, Dr Aruna Jayasuriya, Pubudu Warusamanna and other staff members of the university.

I had presented the activities and scope of work with IEEE and its technical societies. It was also proposed to form a sub section for the Central Queensland Region. All the voting members presented on the signed a petition to form a sub-section. All the members of the Central Queensland region will be contacted individually to seek their support to form the

sub-section. Next year, the new committee is aimed to organise several technical sessions, industry visits and networking session for the continued professional development of the members. At the end of the event, all members attended an industry tour at Boyne Smelters Limited (BSL). CQUniversity students and staff members in the fields of Computer, Information Technology, Mathematics, Engineering and Science background are welcomed to join this eminent technical society. During the lunch session a call for nominations was also made this year for a new Student Counsellor in 2011 from CQUniversity staff.

Dr. Shawkat Ali
CQU Student branch counsellor
IEEE Queensland