

IEEE QUEENSLAND SECTION NEWSLETTER

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Section Chair's Report



Nilesh Modi

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Welcome to the first newsletter of the IEEE Queensland section in 2019.

This is my first year of being a chair of IEEE Queensland section. My report includes highlights of the Annual General Meeting and Region 10 annual meeting that was held on 2 – 3 March 2019 in Melbourne, Australia.

The Annual General Meeting of 2018 was held on 28 November 2018 at Brisbane Exhibition and Convention Centre. This year approximately 50 people attended the AGM and Awards Dinner. We were fortunate to have Penny Locaso from BKindred as the guest speaker. She gave a talk on 'Fear is Your Future'. Once again, this year Noja Power supported this event. During the AGM elected officers for 2019 were announced. During the dinner the student thesis awards and outstanding volunteers award were presented. A full list of award winners and reports from each chapter and affinity group is available in the [AGM Report](#). I would like to thank BCEC, Penny Locaso and Noja Power for supporting AGM. I would also like to thank attendees of the AGM and Awards Dinner.

IEEE Region 10 executive committee and section chairs get together once a year at the R10 annual meeting to share experiences and discuss our future direction face to face. 2019 IEEE Region 10 annual meeting was held in Melbourne on 2-3 March 2019. On behalf of IEEE Queensland Section, I attended the meeting. This year our section also supported four additional delegates to attend R10 meeting. I also attended the Australia Council (AC) face to face meeting on 1 March to represent our Queensland Section. Highlights of the R10 and AC meeting is outlined below:

- During the AC meeting, R10 director, Akinori Nishihara gave a presentation on the IEEE strategic initiative and encouraged AC members to provide feedback to R10. Lance Fung gave a presentation on IEEE New Initiatives. Ramakrishna Kappagantu gave a presentation on IEEE Smart Cities and encouraged AC members to consider hosting an IEEE Smart Cities workshop in Australia. More details and key contacts can be found on the Australia Council website.
- I am pleased to share that the IEEE Queensland section received the 'outstanding medium section award' and 'membership growth award'. I would like to congratulate the outstanding performance by 2018 committee.
- Vaughan Clarkson from the Queensland section presented on IEEE potentials for R10.
- Region 10 has a substantial presence in IEEE. Industry outreach and membership retention were key focus areas that sections within R10 need to consider. Majority of the chapters in R10 are facing challenges to retain their student members.
- Presentation materials and photos of R10 meeting are available [here](#). I like to encourage you to refer to the slides to gain better understanding of your chapter/affinity group activities.

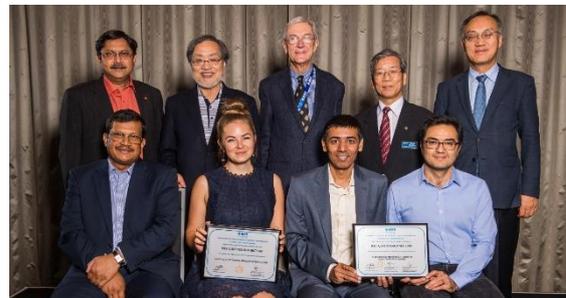
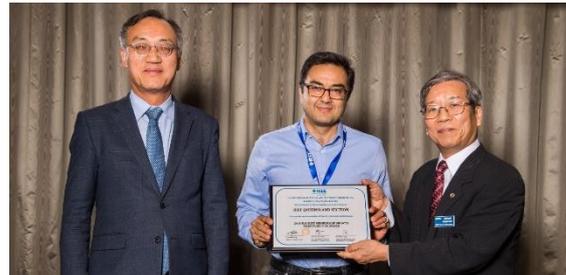
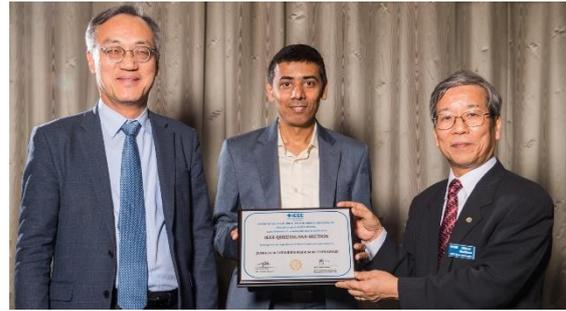
Earlier this year, we had interest from a few IEEE members to establish 'Blockchain and Internet of things' special interest group. Further details of this group is provided later in this newsletter.

I am looking forward to working with the Queensland section committee and IEEE

volunteers this year. Please feel free to contact me or any committee member if you have any suggestions or are seeking any support.



IEEE region 10 **IEEE Region 10 Annual General Meeting 2019**
2 - 3 March 2019, Melbourne, Australia



IEEE: Diverse Membership



Membership Development Report



Sudarshan Dahal
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1. Membership

As of 7 May 2019, Queensland Section had a total of 925 members. The breakdown of membership by category is detailed in the table below.

2. Arrears

There are 369 past members who have not renewed for 2019. A reminder and subscription request email to all was sent on 26 April 2019. Five of them have already renewed. Some of them are no

longer working and asked whether IEEE can support discounted membership.

3. Senior membership

IEEE QLD section invited applications for senior membership in June 2019. If applicants are looking for assistance in referral, MD chair will coordinate with the applicant and potential referees.

4. Future Event

Industry membership development seminars have been planned.

Region	Council	Section	Grade Category	Grade	Total
R10	Australia Council	Queensland Section	IEEE Grades	Associate Member	7
				Fellow	4
				Graduate Student Member	109
				Life Member	28
				Life Senior	14
				Member	560
				Senior Member	135
				Student Member	56
				Other Grades	
			Affiliate	11	
	SA Member	1			
	Total	925			

Blockchain & Internet of Things Joint Group



Alexandra Posoldova
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Committee:

Chair: Alexandra Posoldova
Vice Chair: Matthew Hutchins

The Queensland section is excited to announce the launch of the new Blockchain & Internet of Things (IoT) interest group. IoT, Blockchain, AI, VR and other key components of the 4th Industrial Revolution will completely disrupt the existing foundations of traditional business methodologies, operations, transactions and customer engagement. This new Blockchain & IoT interest group will focus on emerging technologies and their potential applications to radically change industries, disrupt business models and solve real world challenges through innovation and automation. The group will leverage key communities into a shared resource to assist communities and enterprises develop products, skills and services with these emerging technologies.

The group is run by Alexandra Posoldova and Matthew Hutchins. Alexandra has been an active volunteer for IEEE for 5 years. She has work experience in the IoT area using sensors for predictive maintenance. Alexandra is passionate data scientist looking for opportunities to revolutionise everyday lives through technology.

Matthew has extensive corporate and enterprise experience with IT infrastructure design, projects and provisioning. He is an enterprise blockchain specialist, blockchain

enthusiast and founder of a blockchain automation trading company. He is passionate about finding solutions using cutting edge technology to create positive change for humanity.

The first event will be panel discussion on the topic: *How Emerging Technologies are Changing the World* on 2 September at Hawken Auditorium, Engineering House Brisbane organised together with Engineers Australia. *How Emerging Technologies are Changing the World* is an event focused on cutting edge technologies that will change the landscape of how we do business and how we conduct our everyday lives. Invited panellists are pioneers and seasoned professionals among the top people in their respective industries and together we will aim to separate the hype from tangible technologies of the future. We will talk about blockchain and IoT applications, future opportunities and challenge the vision of how our collective future will look with the application of these emerging technologies. Come join us to question the future, the narrative, to dream and be inspired.

Connect with us on Facebook
fb.me/IEEEQLDBlockchainIoT

Remember that to join the new Blockchain & IoT group is free of charge

Microwave Theory & Techniques/Antennas & Propagation Societies



Antony Liu
lui@ieee.org

Committee:

Chair: Antony Liu
 Vice Chair: Hugo Espinosa
 Secretary: Anthony Stancombe

This year we have a new committee including Antony Lui (Chair), Hugo Espinosa (Vice Chair) and Anthony Stancombe (Secretary).

The chapter has a strong tradition of holding numerous technical seminars from world leading researchers as well as IEEE Distinguished Lecturers (DLs) from the MTT and AP societies. In February, Professor Mikael Persson from Chalmers University of Technology in Sweden shared with us the recent progress in microwave-based stroke and trauma diagnosis technology made by his team. In March, Dr. Markus Gardill (MTT DL) from Germany presented a talk about the current state-of-the-art of signal processing technology in automotive radar. Two DLs visited in June, the first was Prof. Buon Kiong Lau from Lund University in Sweden, who discussed terminal antenna designs for future wireless. The presentation was held at Griffith University. Later, Associate Professor Oscar Quevedo-Teruel from the Royal Institute of Technology (KTH) in Stockholm discussed the fundamentals of lens antennas.



Dr. Markus Gardill is explaining how signal processing is applied to automotive radar

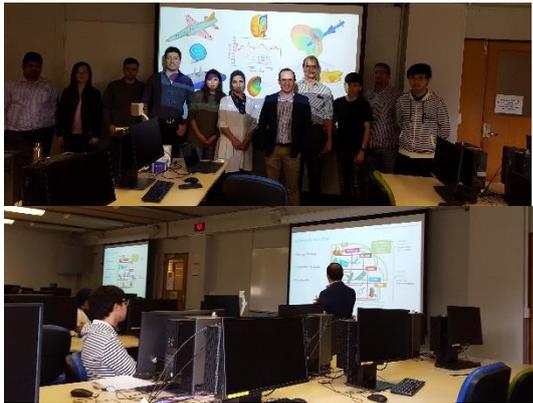


Prof. Buon Kiong Lau explaining the new antenna design paradigm that can improve 5G performance.

Other than professional seminars, the chapter organized two “educational” events in May. On 10 May, the chapter invited Altair FEKO to host a one-day training workshop about their high frequency electromagnetic solver package. This type of event is useful for students and researchers, as well as engineers working in industry, to help them learn how to use and master these modelling tools for their projects. On 17 May, the chapter hosted a professional development seminar with our education activity chair Rasoul Garmabdari. Associate Professor Nemai Karmarkar from Monash University will also present a seminar about harmonizing engineering education.



Associate Professor Oscar Quevedo-Teruel presenting his research in lens antenna.



Feko Training workshop held at the University of Queensland, St. Lucia.

This year the theme for the IEEE Queensland section is “*Industry Engagement*”. Along with this theme, our chapter organized an industry engagement seminar on the 26 June. Speakers from leading microwave electronics companies in Brisbane were invited to share with us some of the technical problems that they face and their solutions. Infinite Electronics and L3 Micreo kindly took part in this event, sharing their experiences and challenges, allowing our members to gain better insight into the microwave and antenna engineering industry in Australia.

On the 20 and 22 August, we are expecting Professor Kenneth Kin-Yip Wong from the University of Hong Kong and another AP DL - Professor Carey Rappaport from Northeastern University in Boston. Details of these seminars are now available on vTools. Towards the end of the year, the chapter is planning to organize a student thesis competition. The objective of this competition is to encourage students working in AP and MTT area. Details about this competition will soon be available.

Mu Kappa Society



Lucas Rabenhorst

l.rabenhorst@uq.edu.au

Committee:

Chair: Lucas Rabenhorst
Vice Chair: Joshua Riddell
Secretary: Ruiyuan Zhang
Treasurer: Sameera Samarasinghe

On 1 May, the Queensland chapter of IEEE Eta Kappa Nu (HKN) held a regular meeting at the University of Queensland. The meeting first confirmed that the Annual General Meeting of this year will held on 15 May, during which new members induction will also be held and a new committee will be formed.

Subsequently, the chapter has discussed their plans for the rest of the year. A workshop will be organised in a local high school. Campus tutoring will be organised as per the previous year for undergraduate students in two courses. The members agreed that the local school workshop would be beneficial and encouraging for those who

are keen to study engineering. Furthermore, due to the positive feedback of the site visit to AEMO control room last year, another site visit to Tritium and Noja Power has been proposed. Faculty Adviser Prof Saha will make these arrangements. Last but not the least, there will also be an experience sharing event with the Chair of HKN chapter of UCSI, Malaysia. Chair of HKN chapter of UCSI Malaysia will be visiting UQ for a month.

The meeting was attended by Faculty advisor, Prof. Saha and HKN Members Amit Dhoke, Ruiyuan Zhang, Aobo Zhou, Sameera Samarasinghe, Joshua Riddell, Lakshitha Naranpanawe, Ebby Thomas and Ashley Gillman.

Power and Energy & Dielectric and Electrical Insulation Societies



Tapan Saha
saha@itee.uq.edu.au

Committee:

Chair: Tapan Saha
 Vice Chair: Nilesh Modi
 Secretary: Hossein Etesami
 Treasurer: David Batterham

Planning Meeting

A planning meeting for 2019 was held on 8 March. The meeting was attended by Tapan Saha, Chandima Ekanayake, David Batterham and Nilesh Modi. The planning covered arranging site visits to the following:

- a) UQ Gatton Solar farm
- b) AEMO control centre
- c) Noja Power Factory

It was decided to plan for a one-day workshop with a focus on the application of energy storage in smart cities. Local battery manufacturers/suppliers are to be invited to provide a display.

Multiple presentations for speakers from among the following organisations were planned:

- a) Network companies
- b) AEMO
- c) Battery manufacturers of different types
- d) Siemens: STATCOM or SVC Plus

Other discussions at the meeting were:

1. How to increase educational activities by collaboration with IEEE University student Branches including the UQ PES Chapter.
2. Joint technical seminars with Engineers Australia.
3. Joint PES seminars with UQ and QUT Power Seminars.
4. The need to plan a Student/WIE/Young Professional social function.
5. Conducting a senior membership drive for membership development.

6. Awards for PESGM 2019 Travel award for students, outstanding Engineer award and outstanding PES Volunteer award.
7. How to provide some DEIS related activities with either site visits or seminars

Technical Seminar 1: *Aspects of Data Science at Redback Technologies*

Dr Richard Bean of Redback Technologies gave a presentation with a title of *Aspects of Data Science at Redback Technologies*, on Tuesday 2 April 2019.

The presentation described a smart solar inverter system with battery which can operate in an automatic mode or receive commands over a network to charge and discharge at a given rate. In order to make battery storage financially viable and advantageous to the consumers, effective battery scheduling algorithms can be employed. Particularly, when time-of-use tariffs are in effect in the region of the inverter, it is possible in some cases to schedule the battery to save money for the individual customer, compared to the "automatic" mode.

A novel battery scheduling algorithm for residential consumers of solar energy was described and future research directions for the Redback Technologies Research Centre

in the Network Intelligence area were outlined.



Technical Seminar 2: *Electrical Safety for Stringing Conductors on Transmission Lines*

Speaker: Mr Tony Gillespie

This was a joint event with Engineers Australia, Queensland Electrical Branch

Venue and Time: HAWKEN AUDITORIUM
LEVEL 1, 447 UPPER EDWARD ST, Brisbane,
2 July 2019 6:00 PM

Abstract: Serious electrical shocks have occurred during transmission line stringing activities in Australia over the last 20 years. Unfortunately, there are no standards or guidelines that adequately cover the electrical safety aspects associated with stringing. This talk discusses and explains the electrical hazards associated with stringing, including magnetic and electric induction, transferred potential rise, direct contact and lightning. Physiological effects of electric shock are discussed and options for

derivation of electrical safety limits are presented. Basic electrical safety precautions are recommended along with a process for risk assessment. More detailed mitigation measures, training and administration of control measures are also presented. Recommendations on equipment used for earthing are also put forward.



Technical Seminar 3: *An overview of the standard industrial practices for monitoring and control of large-scale solar farms*

Speaker: Ritesh Anand, Weidmueller

25 July 2019 10:00 AM; Room 78-420; Staff House Road, the University of Queensland

Abstract: This talk provided an overview of industrial practices in the development of monitoring and control systems for large scale solar farms. The talk will discuss considerations for standards/design parameters applicable to Combiner Boxes, SCADA and communications interface. Some key points about installation, operation and maintenance will be discussed with the help of some real-world case studies.

Women in Engineering



Negareh Ghasemi
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Committee:

Chair: Negareh Ghasemi
 Vice Chair: Marie-Luise Wille
 Secretary: Hanxiao Zhang
 Treasurer: Vacant

IEEE WIE Events 2019:

IEEE Women in Engineering QLD section, in partnership with the UQ WIE, hosted two events on 17 and 19 July.



The first event hosted by IEEE WIE 17 July 2019

The first event was a welcome lunch held on UQ open day and around 40 new female students attended. They attended this event to learn more about IEEE and UQ WIE

activities. We had a chance to introduce IEEE WIE and encourage new students to become a member of IEEE WIE society.



The second event hosted by IEEE WIE- 19 July 2019

The second event was “academia and industry from two professional electrical engineers’ point of view”. We invited two professional Electrical Engineers, Dr Martin from UQ and Dr Mokhtari from Deloitte consulting company to talk about their experiences, views and observation from being in academia and industry. Our guest speakers talked about their opportunities and challenges experienced in both industry and academia. This event was very well appreciated by attendees.

What Is Coming Up:

We (IEEE WIE team) are planning to host a WIPE panel discussion (forum) at the 9th International Conference on Power and Energy Systems (ICPES2019) which will be held in December 2019 in Perth.

QUT Student Report



Tara Shabab
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Committee:

Chair: Tara Shabab
 Vice Chair: Babak Jeddi
 Secretary: Jenniffer Zapata Giraldo
 Treasurer: Mohsen Khorasany

Connect with us and follow us on:



IEEE QUT Student Branch Activities:
 January 2019 – July 2019

Seminar by QUT Student Branch:



“*Bio-inspired biofabrication in cardiovascular tissue engineering*” seminar by Mr. Navid Toosi Saidy was held on 27 March 2019 at Queensland University of Technology. Navid Toosi Saidy is a PhD candidate in regenerative medicine group at the institute of health and biomedical innovation, QUT. His research project involves the convergence of advanced biomaterials and additive manufacturing techniques to fabricate scaffolds for cardiovascular tissue engineering applications. Tissue Engineered heart valves aim to overcome the disadvantages of current heart valve prosthesis by providing an alternative mechanically stable valve that also supports tissue growth and remodelling. The convergence of Melt Electrospinning Writing and a biomimetic design approach enables a new paradigm for the manufacture of functional scaffolds with highly controlled microarchitectures, biocompatibility, and

stringent nonlinear and anisotropic mechanical properties required for heart valve tissue engineering.

Joint Seminar by IEEE Engineering in Medicine and Biology Society / IEEE QUT Student Branch:



“*The potential of motion sensor signals for early detection of health problems in elderly people*” seminar by Prof. Dr.med. Hugo Saner from the University of Bern, Switzerland was held on 27 May 2019. Physical activity, especially for older adults, is emerging as a critical factor for healthy aging. Continuous assessment of physical activity could thus not only help in detecting health changes but also allow for better management of physical activity targeted interventions.

We look forward to seeing you at our next events.

UQ PES Student Branch

Committee:

Chair: Sameera Samarasinghe
 Vice Chair: Ebby Thomas
 Secretary: Indira Alcaide



The past year was a successful year for UQ IEEE PES Student chapter. The 2019 PES student chapter AGM was held on 8 January 2019 with the participation of current, past, new members and the student branch advisor Professor Tapan Saha. During the AGM, new committee members were elected for the year 2019. Newly elected committee members are Sameera Samarasinghe as Chair, Ebby Thomas as the vice chair and Indira Alcaide has appointed as Secretary



The Second event in 2019 was UQ IEEE PES student chapter representing IEEE QLD section in a First-Year Engineering Student Orientation event organized by the Faculty of EAIT, The University of Queensland on 19 February 2019. This was a great

opportunity for the UQ IEEE PES Student chapter to promote IEEE among the fresh Engineering undergraduates. Many new students visited our stall to learn about IEEE and its membership benefits



The third event of the UQ PES student chapter was a social event. The event was organised on 16 March 2019 in celebration with "Clean up Australia Day" and UQ IEEE student chapter, PhD students from UQ PES group and their family members cleaned up Guyatt Park, St Lucia. It was a successful event and we are proud of ourselves for giving something back to Mother Nature by cleaning the environment

The most recent event was the **2nd Global IEEE PES day** celebration on 30 April 2019 with the participation of many UQ PhD students. Our advisor Professor Tapan Saha addressed the attendees highlighting the history of IEEE/IEEE QLD chapter