

IEEE QUEENSLAND SECTION NEWSLETTER

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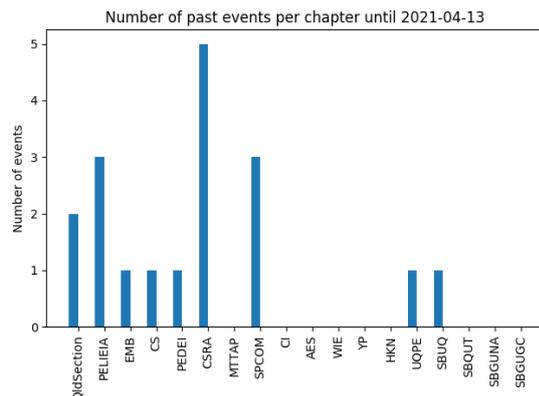
Section Chair's Report



Dr. Alexandra Posoldova
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Welcome to the first newsletter issue of IEEE Queensland Section in 2021.

I am excited to take up the role of chair of the IEEE Queensland section this year. With ongoing pandemics, we continue to hold committee meetings online. We established a new way to hold monthly meetings with the intention to be more efficient, focused on important items and an increased understanding of the health status of each chapter. Every 3 months, we discuss events organised by every chapter and affinity groups, share highlights and see if any chapter is falling behind and requires assistance. Below is a bar graph showing the total number of events organised by each chapter/affinity group since the beginning of this year.



At the end of last year, we held a very successful Annual General Meeting followed by dinner. We had the highest number of attendees in years and 3 sponsors, DigSilent, Noja Power and Powerlink. During the AGM meeting, we handed Undergraduate Student Thesis Award to Somayeh Hussaini, Jade Newing and Chen Jianing. PES Travel Prize Award was awarded to Ruiyuan Zhang, Lei You, Mohammad Imran and David Amoateng. During the AGM dinner, we were honoured to recognise outstanding volunteers in the following categories:

- Outstanding Young Professional Award – Mehdi Mosadeghy
- Outstanding Women in Engineering Award – Negareh Ghassemi
- Outstanding Student Volunteer Award – Farzad Farajizadeh
- PES Outstanding Award – Tim George.

The highlight of the night was keynote talk from Prof. Tamara Davis who let us choose our own adventure and the crowd voted on the topic they were most interested in. The golden end of the AGM dinner program was the magic show by Josh Norbido whose show was full of magic surprises.



Full AGM report can be found [here](#).

Lastly, I would like to share a highlight of the IEEE Region 10 annual meeting that was again held online to stay COVID safe same as the Australian Council annual meeting. The main focus of the annual meeting was on diversity of members, attracting more students and young professionals to nurture the leaders of the next generation. The highlights of this meeting are:

- FUTURE50 discount code for students and young professionals to join IEEE or renew membership.
- Volunteer Platform to help potential volunteers find the best position for them.
- NextGen – new financial system to make financing more transparent and easier to use.
- R10 event funding portal – unified platform providing overview of funding opportunities - <http://events.ieeer10.org/>
- Section Congress Virtual Meeting - educating volunteers on bylaws and volunteer responsibilities.

I am looking forward to working with the Queensland section committee and IEEE volunteers. This year, we have the highest position occupancy in the past couple of years. We are in the process of funding Life Member Affinity group and adding Geoscience and Remote Sensing to Signal Processing and Communications joint chapter. Follow IEEE Queensland Section on linked in for updates:

[linkedin.com/company/ieee-queensland-secti](https://www.linkedin.com/company/ieee-queensland-secti)

Section Treasurer's Report



Dr Vaughan Clarkson

v.clarkson@ieee.org

Please find attached a summary of the Treasurer's report for the month of April. As you can see, it's almost a nil report. The only transaction was an interest payment of 76 US cents.

IEEE Queensland Section

Treasurer's Report:

Date prepared:

Treasurer:

May 2021 Meeting Report

Monday, 10 May 2021

Dr Vaughan Clarkson

ANZ Brookside Shopping Centre (BSB 014-203)		Cheque Account 469430083	
Date	Item	Amount	
1/4/21	Starting balance		\$30,010.75
Closing Balance			\$30,010.75
IEEE Concentration Banking		Account 100270	
Date	Item	Amount	
1/4/21	Starting balance	USD	2,502.00
Income			
1/4/21	Interest paid	USD	0.76
Closing Balance		USD	2,502.76
Assumed USD-AUD exchange rate			1.3
Nett cash available			\$33,264.34
Nett worth (nett cash available + assets - liabilities)			\$128,264.34
Assets: Term Deposits		Value	
ANZ 014203-911003931			\$25,000.00
ANZ 014203-911003659			\$25,000.00
ANZ 014203-914758977			\$25,000.00
Assets: Conferences (book value)		Value	
ISGT-Asia 2021			\$20,000.00

Computer Chapter



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DICTA technically sponsored by IEEE Queensland CS Society

The 2021 International Conference on Digital Image Computing: Techniques and Applications (DICTA 2021) <http://dicta2021.dictaconference.org/>

29 November to 1 December 2021 at Gold Coast Australia,

is the main Australian Conference on computer vision, image processing, pattern recognition, and related areas. DICTA was established in 1991 as the premier conference of the Australian Pattern Recognition Society (APRS). DICTA 2021 is technically cosponsored by the IEEE Queensland CS Society and the International Association for Pattern Recognition (IAPR).

Computer vision is a field of artificial intelligence that trains computers to interpret and understand the visual world. Using digital images from cameras and videos and deep learning models, machines can accurately identify and classify objects — and then react to what they “see.” From the perspective of engineering, computer vision seeks to understand and automate tasks that the human visual system can do. The problem of computer vision appears simple because it is trivially solved by people, even very young children.

The internet is comprised of text and images. It is relatively straightforward to index and search text, but in order to index and search images, algorithms need to know what the images contain. For the longest time, the content of images and video has remained opaque, best described using the meta descriptions provided by the person that uploaded them. Understanding the content of digital images may involve extracting a description from the image, which may be an object, a text description, a three-dimensional model, and so on. A given object may be seen from any orientation, in any lighting conditions, with any type

of occlusion from other objects, and so on. A true vision system must be able to “see” in any of an infinite number of scenes and still extract something meaningful.

The 2010 textbook on computer vision titled “Computer Vision: Algorithms and Applications” provides a list of some high-level problems where we have seen success with computer vision.

- Optical character recognition (OCR)
- Machine inspection
- Retail (e.g. automated checkouts)
- 3D model building (photogrammetry)
- Medical imaging
- Automotive safety
- Match move (e.g. merging CGI with live actors in movies)
- Motion capture (mocap)
- Surveillance
- Fingerprint recognition and biometrics

Today, almost any venue that we visit offers loading a form for COVID contact tracing by a QR code. QR codes almost everywhere. You see them at stores, on products, on screens. QR codes are part of the ISO/IEC 18004 standard.

Similarly, many libraries, more notably, OpenCV, offer many implementations of the algorithms from computer vision and image processing. It is amazing that now we can submit a photo as a query and request similar images to it. That is, we can use visual queries in search engines.

IEEE Queensland Computer Society WEBINAR



Title: Social media Abuse Detection and Trend Prediction using Text Mining

Speaker: Dr Richi Nayak, Program Leader: Applied Data Science, Queensland University of Technology

Date and Time : Wednesday 26th of May 2021, 5:30 PM (Brisbane time)

Zoom link:

<https://zoom.us/j/93397720900?pwd=UG1sMXNDVURzTWRqSIBud3ErZWp5QT09>

Abstract: The proliferation of social media has created new norms in society. Incidents of abuse, hate, harassment and misogyny are widely spread across social media platforms. Simultaneously, social media platforms facilitate sharing meaningful ideas and thoughts. In this talk, I will explore the 'bad' and 'good' of social media and present two novel applications with innovative text mining methods. The first application will be 'Twitter Misogynist Abuse Detection' with a progressive Transfer Learning-based Deep Learning approach. The second application will be 'Emergent Trend Discovery' with a rank-centred clustering approach. Outcomes of these applications boost the social media monitoring capability and can assist policymakers to focus on key issues.

Bio: Richi Nayak is Leader of the Applied Data Science Program at the Centre of Data Science and Associate Professor at Queensland University of Technology, Brisbane Australia. She has a driving passion to address pressing societal problems by innovating Data Analytics technologies underpinned by fundamental research in Data and Text Mining. Her research has resulted in the development of novel solutions to address industry-specific problems in Marketing, K-12 Education, Agriculture, Digital humanities, and Mining. She has made multiple advances in social media mining, deep neural networks, multi-view learning, matrix/tensor factorization, clustering and recommender systems. She has authored over 180 high-quality refereed publications that have attracted over 3400+ citations and h-index of 30. Her research leadership is recognised by multiple best paper awards and nominations at international conferences, QUT Postgraduate Research Supervision awards, and the 2016 Women in Technology (WiT) Infotech Outstanding Achievement Award in Australia. She holds a PhD in Computer Science from the Queensland University of Technology and a Masters in Engineering from IIT Roorkee, India



Women in Engineering Affinity Group



Marie-Luise Wille, Chair of IEEE WIE QLD

m.wille@qut.edu.au

WIE QLD Section Committee:

Chair: Dr Marie-Luise Wille

Vice-Chair: Dr Alka Jaggessar

Secretary: Dr Phong Tran

We are starting 2021 with a new committee. I am happy to resume the Chair role and welcome two new team members to the WIE QLD team. We have recruited Alka Jaggessar, who is an Early Career Researcher at QUT and Advance Queensland Fellow and Phong Tran, a Senior Research Fellow at QUT. 2020 has been a challenging year for us all, therefore we hope that 2021 will be a better year with more activities and a reconnecting with the community.

For 2021 our focus is to reconnect with our members and start with an event about 'effective communication'. We are planning future events together with Young Professionals about career shaping and professional development. We also would like to strengthen the Australian wide IEEE Women in Engineering Forum and organise a couple of social gatherings to strengthen the community spirit within SE QLD and to provide our members a platform for networking and support.

Please connect with us on facebook to stay up to date for events and don't hesitate to contact us if you have any suggestions or feedback for our committee.

Power and Energy - Dielectric Electrical Insulation



Prof Tapan Saha
[@ieee.org](mailto:tsaha@ieee.org)

'Grid Reliability and its Vital Signs' **An IEEE PES Distinguished Lecture**

IEEE PES Queensland Chapter has successfully organized an IEEE PES distinguished lecture.

In the lecture, Dr. Jessica Bian provided insights on the underlying vital signs of grid health condition

Frequency, voltage and network events are vital signs, which may tell us about the bulk power system. On Feb. 26, 2021, IEEE PES Queensland Chapter organized a Zoom session to discuss power system reliability and its vital signs. Dr. Jessica Bian, an IEEE PES distinguished lecturer delivered a session on power system condition monitoring and risk assessment using vital signs.

Dr. Bian is widely recognized as a pioneer in the field. She has spearheaded electric industry's reliability metrics and grid risk assessment. Under her leadership, a total of 18 industry-wide reliability indicators were established to determine grid reliability, adequacy, and associated risks. Currently Dr. Bian is the Vice President of Grid Services at Grid-X Partners.

In the session, Dr. Bian explained the need to investigate the vital signs underlying the power system's health and the methods to accurately assess these signs. She provided an opportunity for the attendees to explore the reliability aspects of bulk power system so that they can develop a systematic, integrated understanding of how to assess the bulk power system reliability. In her lecture, Dr. Bian also introduced a number of additional indicators including energy emergency alerts, transmission outage rates, protection system operations, and resource reserve margin. Most importantly, Dr. Bian provided ranges, trends, and driving factors that influence changes in these indicators.

The lecture was well received by the 60+ attendees from both academics and practitioners. A number of attendees said they would like to incorporate the vital signs introduced in the lecture as indicators to improve the visibility of power system health condition.

IEEE PES Queensland Chapter



5 - 8 December 2021
Brisbane Convention and Exhibition Centre

2021 IEEE PES Innovative Smart Grid Technology – Asia

10th IEEE PES Innovative Smart Grid Technologies Conference – Asia

The 10th IEEE Power and Energy Society (PES) International Innovative Smart Grid Technologies (ISGT) Conference – Asia (IEEE PES ISGT-Asia 2021) will be held at Brisbane Convention and Exhibition Centre, Queensland from **5th to the 8th of December 2021**.

IEEE PES ISGT Asia 2021 is supported by Energy Queensland, Powerlink, Australian Power Institute, CIGRE Australia, Australian Committee for Power Engineering (ACPE), the University of Queensland, QUT and Griffith University.

Our Conference theme is *'Resilient renewable energies and grid transformations'*. IEEE PES ISGT-Asia 2021 will have the participants from academia, industry, research and development organisations, regulators, market operators, government organisations, and power and energy sector utilities to discuss, share and exchange ideas related to the state-of-the-art innovations in smart grid technologies for the future grid transformation.

IEEE PES ISGT-Asia 2021 will provide a vibrant platform for knowledge sharing among the stakeholders of the electricity industry to address challenges and opportunities in renewable energy and the need of future grid transformation to provide a sustainable and resilient pathway for better management of impacts of climate change.

The 2021 program will feature keynote lectures, plenary sessions, panel discussions, CEO forums, industry exhibits, paper and poster presentations by experts from industry and academia on the smart grid and renewable energy technologies. Special sessions will be organised for students, young professionals and women in power engineering to discuss the issues impacting their career goals. Local site visits of industry/academic state-of-the-art facilities will be a part of the IEEE PES ISGT-Asia highlight.

The IEEE PES Innovative Smart Grid Technologies Asia (IEEE PES ISGT-Asia 2021) Conference chaired by Prof. Tapan Saha (tk_saha@ieee.org) invites you to submit an abstract and/or full paper for the 10th IEEE PES ISGT-Asia Conference.

SUBJECT AREAS

- Smart Grids and Active Distribution Networks
- Intelligent Grid Planning, Operation and Management
- Renewable Generation and Distributed Energy Resources
- Computational Intelligence, ICT and Blockchain Applications in Smart Grids
- Peer to Peer Energy Trading and Energy Management
- Demand response
- Advance diagnostics of Solar and wind farms
- Microgrids, Standalone Power Systems, and Virtual Power Plants

- Intelligent Condition Monitoring and Asset Management
- Distribution System State Estimation, Distribution PMUs and Grid Visibility
- Data Analytics and Big Data Applications in Power Systems
- Cyber Security of Electricity Grid Assets
- Electric Transportation and Impacts on Grid
- Power quality impacts and analysis
- Power electronics applications for power systems
- Control applications for power and renewable energy systems
- Energy economics and policies
- Energy storage and applications in power systems

We have sponsorship opportunities in the conference. Please contact

isgt2021@arinex.com.au

Important Dates

Ensure to mark your calendars with these upcoming key dates:

Full papers Open **NOW OPEN**

Abstracts Open **NOW OPEN**

Submissions Close **30 June 2021**

Registrations Open **14 May 2021**

Event Dates **5 - 8 December 2021**

Contact:

<https://iee-isgt-asia.org/>

isgt2021@arinex.com.au

Hosted By



IEEE PES-DEIS Queensland Chapter invites application for PESGM 2021 virtual conference registration fee award

IEEE PESGM is the annual premier power engineering conference with regular attendances of 3,000 plus professionals and students. This year PES GM conference will be held in virtual form from July 25-29, 2021. IEEE Queensland Section PES/DEIS joint Chapter now accepts applications for 2021 IEEE Power & Energy Society (PES) Queensland Chapter Conference registration fee Award for attending IEEE PES GM 2021 in virtual form.

If you are eligible, please submit your application on or before **30th May 2021** as per the process described below. This year we are offering up to a maximum of total A\$1500 for the registration fee. IEEE Queensland section extend the support for eligible **undergraduate students and industry engineers as below**.

Eligibility Criteria

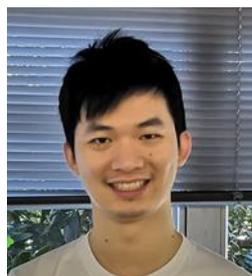
1. Candidates must hold a current IEEE PES membership (undergraduate student, graduate student or full member). Full time candidature in a research higher degree (Masters by research or PhD) or full-time undergraduate student at one of the universities in Queensland Section or a full-time employee of an industry located in Queensland who has completed his/her latest full-time graduate degree in last 5 years and under the age of 35 years on 30th April 2021.
2. Candidates having an accepted full paper for the IEEE PES General Meeting of the current year of award, will be given priority for the award. However, students not having a paper can also apply. Same rule applies for industry engineers of less than 35 years of age and who have graduated during the last five years.

Early Bird Rates Regular/On-Site On or before: 11 July 2021

Category	Registration Fee	Co-contribution	QLD Section Award
IEEE PES Undergraduate Student Member	US\$50	US\$10	US\$40
IEEE PES Undergraduate Student Member Author	US\$200	US\$25	US\$175
IEEE PES Graduate Student Member	US\$75	US\$25	US\$50
IEEE PES Graduate Student Member Author	US\$225	US\$25	US\$200
IEEE PES Member (As per 1)	US\$100	US\$50	US\$50
IEEE PES Member Author (As per 1)	US\$300	US\$50	US\$250

3. Interested candidates are advised to apply for the registration fee award by 30th May 2021 to PES Queensland Chapter Chair Prof Tapan Saha (saha@itee.uq.edu.au) with the following documents
 - a. Mention whether you have a paper for the conference or not.
 - b. Provide your IEEE PES Membership category evidence
 - c. If you have a paper accepted, please submit the accepted full paper to the PES Chapter Chair with review report.
 - d. Industry employee need to pay US\$50 for the registration fee from their own/industry fund
 - e. Proof that the industry employee is a graduate in last 5 years and a full-time employee of an industry located in Queensland Section and maximum 35 years of age by 15th April 2021.

UQ IEEE PES Student Branch



Xin Zhong, Chair of UQ IEEE PES Student Branch

x.zhong1@uq.net.au

UQ IEEE PES Student Branch Committee:

Chair: Xin Zhong

Vice-Chair: Anupam Dixit

Secretary: David Amoateng

Treasurer: Jiakang Yang

Faculty Adviser: Prof. Tapan Saha

In 2021, though we have COVID-19 restrictions from time to time, the UQ IEEE PES Student Branch still managed to have two in-person events: IEEE Membership Drive and Quiz Competition – Celebration of PES Day. These physical activities were helpful to promote IEEE and PES to non-members. Also, they allowed all IEEE and PES members to actively engage in the big society and build their professional network.

Event: IEEE Membership Drive

Speakers: Prof. Tapan Saha, David Amoateng

Date and time: 12th of March, 3 – 4 pm

The IEEE Membership Drive event was held in collaboration with the UQ IEEE Student Branch on 12th of March, aimed at introducing IEEE and PES to students, and also giving 50% discount to new member registration. During the event, Prof. Saha gave an extremely informative and motivating presentation with respect to IEEE and PES, and also talked about the benefits of being a member based on his own over 20-year experience. In the end, we were happy to successfully recruit 10 new IEEE and PES members



IEEE Membership Drive Picture

Event: Quiz Competition – Celebration of 2021 PES Day

Speakers: Xin Zhong, David Amoateng

Date and time: 22nd of April, 4:30 – 5:30 pm

The Quiz Competition – Celebration of 2021 PES Day event was held under the theme of “Clean Energy Revolution” on 22nd of April. The quiz is composed of interesting electrical and general awareness questions. In the end, Aravinda, Yunda and Indira won the first place, second place and third place, respectively. Right after the quiz competition, we had a quick gathering to celebrate the PES Day.

Hopefully, this quiz competition helped people remember the origin of PES Day, and also delivered them the information regarding current technologies and solutions for building a cleaner world!



Quiz competition



Celebration after quiz competition



The University of Queensland, Mu Kappa Chapter



Joel Bulow, Member of the UQ HKN Honor Society

j.bulow@uq.net.au

UQ HKN Honor Society Committee:

Chair: Aobo Zhou

Vice-Chair: Indira Alcaide-Godinez

Secretary: Dr Ruiyuan Zhang

Faculty Adviser: Prof Tapan Saha

Event: Introduction to Arduino Workshop

Speakers: Jianing Chen and Samuel Moll, The University of Queensland.

Date and Time: Wednesday 21st of April 2021, 5:30 PM (Brisbane time)

The University of Queensland's IEEE HKN Mu-Kappa Chapter held an "Introduction to Arduino" for students at UQ. Primarily targeting first year engineering students who are using Arduino in the Semester 1 group project, our aim was to provide some instruction and teaching about how Arduino's can be used. Samuel Moll and Jianing Chen ran the session for a lecture theatre of nearly 100 students, providing some fun demonstrations, information about Arduino architecture; how to use breadboards, example code and libraries for commonly available components to quickly build up sub-system prototypes; and maybe most importantly, how to make sure you don't blow anything up! The focus was on practical engineering, and students were shown examples of how to implement digital and analog sensors and push buttons when developing system logic to influence the behaviours of PWM-controlled servo and DC motors - quite ambitious for a 90 minute session!

As well as providing learning outcomes, we wanted our event to act as an opportunity for students to get to know each other. And what better way than to provide a free pizza dinner afterwards! This was a great chance to hear feedback from the students, as well as answer the many questions they had about IEEE and our HKN Chapter.

First year engineering can be quite daunting, especially since many students have never programmed before. By hosting this event we were able to make students feel more comfortable not only with the Arduino, but with making friends. We had great support from the

UQ Engineering faculty and from our esteemed HKN mentor, Dr. Tapan Saha, and given the success of the evening, we hope to host more events like this in the future.



Follow us on Facebook to stay up to date for events.

Facebook: <https://www.facebook.com/IEEEHKNMuKappa>

Microwave Theory & Techniques/Antennas & Propagation Societies



Hugo Espinosa

h.espinosa@griffith.edu.au

Committee

Chair: Hugo Espinosa

Vice-Chair: Hing Kan

Welcome to the Microwave Theory & Techniques/Antennas and Propagation Chapter, we have prepared an exciting program for this year. The program includes, among others, presentations from industry representatives, as well as from Distinguished Lecturers of the MTT/APS communities. Most of the presentations will be conducted online, but we will try to organise the local presentations in person at Griffith University, Nathan Campus.

Every presentation will be hosted at the end of each month. More specific details about the date and time of each presentation will be made available through IEEE vTools Events, this also includes the access link to the online presentations.

See the flyer in next page for more information about the presentations and the presenters, you are all welcome to attend!



Seminar and Webinar Series 2021

IEEE MTT/APS – Queensland Section, Australia

Name and affiliation	Title	Date/Time (Brisbane, AUS) [#]	Venue
Prof Cynthia Furse <i>Distinguished Lecturer</i> The University of Utah	History and future of implantable antennas	June	Online*
Mr Manfred Huschka Vice President RF Business, AGC Multimaterial General Division	Laminates for mmWave PCBs: different solutions for all-RF multilayer, hybrid multilayer and double-sided PCBs	July	Online*
Mr Darren Webster General Manager <u>Vectalabs</u>	TBC	August	Griffith University
Prof Zhongxiang Shen <i>Distinguished Lecturer</i> Nanyang Technological University	Absorptive Frequency-Selective Structures	September	Online*
Prof Levent Sevgi <i>Distinguished Lecturer</i> Istanbul OKAN University	Radiowave propagation modeling and simulation	October	Online*
Prof Krishnasamy T Selvan SSN College of Engineering Chennai, India	Reflectarrays and RCS reduction metasurfaces	November	Online*

* Online presentations using Zoom, the access link will be released closer to the presentation date through IEEE vTools Events.

Date and time to be confirmed prior each event through IEEE vTools Events.

Organised by

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