



INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

# QUEENSLAND SECTION

ABN 67 431 648 974

## ANNUAL GENERAL MEETING REPORT FOR 2022

PRESENTED AT  
Customs House Brisbane

ON  
11 NOVEMBER 2022

[ieee-qld.org](http://ieee-qld.org)

## Contents

Section Chair.....	3
Section Vice Chair.....	7
Section Secretary.....	8
Section Treasurer.....	9
Awards and Recognition.....	11
Aerospace and Electronic Systems Chapter.....	14
Computational Intelligence .....	17
Computer Chapter.....	18
Control Systems Robotics and Automation.....	20
Power and Energy/Dielectrics and Insulation.....	24
Microwave Theory & Techniques/Antennas & Propagation Societies.....	27
Power Electronics/Industrial Electronics/ Industry Applications Societies .....	29
Signal Processing/ Communications/ GRSS Queensland Chapter .....	30
Society on Social Implications of Technology .....	31
University of Queensland IEEE Student Branch .....	32
Queensland University of Technology Student Branch .....	35
IEEE HKN Mu-Kappa Chapter.....	37

## Section Chair

# Section Chair's Report



Dr. Alexandra Posoldova  
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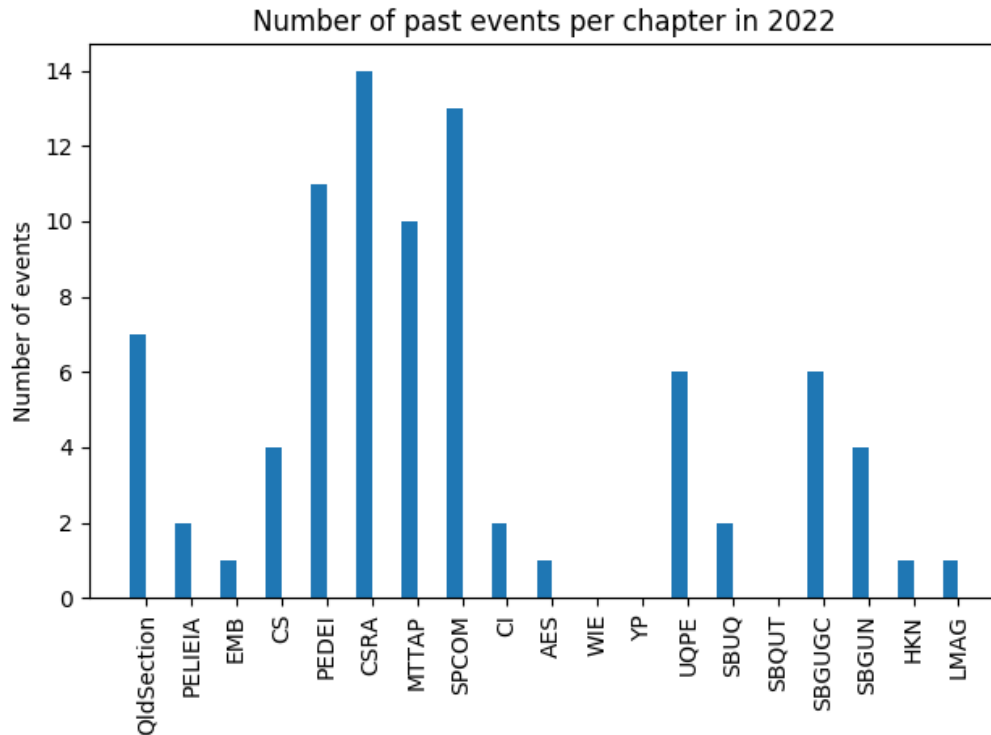
Dr. Alexandra Posoldova  
a.posoldova@gmail.com

It was my honour to serve as the Chair of Queensland Section for two years. I would like to reflect not only on this year, but also my two-year term and ever-changing conditions in relation to COVID19.

COVID19 restrictions started to ease at the beginning of 2022 and life in Australia returned to normal close to the end of the year. Queensland section continued to hold the monthly meetings virtually and I think it has become somehow convenient for many to do so. The meetings became shorter and more efficient. On the other hand, I have never met some of the committee members in person, and because connecting with likeminded people is one of the many benefits of volunteering, I do feel like going back to face-to-face meetings will be beneficial.

As the masks mandate and social distancing requirements eased, there were less, and less virtual events organised by technical chapter and student branches. A large majority of 2022 events were in person. The bar chart below shows the number of events organised per chapter, group and student branch.

There were twice as many events organised this year compared to the previous year. I am mostly proud of **Griffith Gold Coast and Nathan Student Branches**, which were revitalised this year and organised 10 events combined. I am also very impressed with **Power and Energy/Dielectrics and Electrical Insulation Societies (PEDEI)**, **Control Systems/Robotics and Automation (CSRA)**, **Microwave Theory and Techniques/Antennas and Propagation (MTTAP)**, and **Signal Processing, Communications, and Geoscience and Remote Sensing Societies (SPCOM)** Chapters for organising 10 or more events each.



Queensland section participated in **25<sup>th</sup> Anniversary of IEEE Australian Council** and together with other Australian sections contributed to the **Tree planting ceremony** to memorise this anniversary. **Region 10 director Deepak Mathur and director-elect Lance Fung** also joined in celebration. Pictures below show Deepak Mathur, Lance Fung and Ambarish Natu Chair of Australian Capital Territory planting tree and uncovering plaque in National Arboretum in Canberra in July this year.





It has become a great tradition to celebrate **IEEE Day** on 4<sup>th</sup> of October and one of the few events that the Queensland section has been hosting face to face in the past years. We were also honoured to host R10 Director Deepak Mathur at this time, who delivered a great presentation on R10 directions. The event was held at University of Queensland, organised by student branches. Images below capture some of the moments from this day.





The Queensland section will finish the year with Annual General Meeting and Dinner held in Customs House where this year PES travel award winners and outstanding volunteers will be awarded and new committee for 2023 announced.

It has been a unique experience to serve as the chair for 2 consecutive years. It is now time for others to take this position. I wish the Queensland section all the best in the upcoming years.

## Section Vice Chair



Dr Chandima Ekanayake  
chandima@itee.uq.edu.au

It was a pleasure to serve as the Section Vice Chair in 2021 and 2022. This year we have restarted number of in person activities, which helped to improve the member engagement. However still large number of activities, especially the technical seminars are held in online only.

So far this year, our chapters hosted/co-hosted 59 events. In contrast to last year some of these activities were in-person or hybrid events. Since online sessions had the opportunity to have international experts and provide the flexibility for local members it is expected that more future event will be held in hybrid mode.

In 2022, the IEEE day celebration held in The University of Queensland was a great experience for the section where R10 director Mr. Deepak Mathur attended in person and updated the current organizational developments in IEEE. Big thank goes to UQ student branches for helping the section to organize this event.

This year also we have provided number scholarships to students for attending conferences and workshops showing the sections desire to help young members who are going to be the future IEEE leaders.

Same as last year, all our regular executive committee meetings were run in online mode, in order to abide with the COVID restrictions. It is expected that committee meeting will be held in hybrid mode in 2023.

Working with all our committed volunteers was a great pleasure. This is my last year as the section vice chair and I wish all the best for the new committee for 2023.

Finally, I would like to thank all the IEEE volunteers and members for your support during 2022. I wish you all a Merry Christmas and Happy New year.

Chandima Ekanayake  
Vice Chair IEEE Queensland Section

## Section Secretary



Dr Rahul Sharma,  
rahul.sharma@uq.edu.au

It was an absolute pleasure to serve on the IEEE Queensland section's executive committee in 2022. I rejoined the committee 2021 after taking a break for 3 years and continued on this role in 2022. It was refreshing to serve as the secretary again after 2014. I find this role particularly rewarding as I got to closely observe the outstanding activities run by the whole section.

As the section secretary, my responsibilities were to prepare the documents associated with the organization, running and reporting of the monthly Section meetings, help the Section Chair as needed and perform miscellaneous activities such as new officer reporting. I also participated in judging the winner for the IEEE student thesis competition. All the nominations were of exceptional quality. I would like to congratulate the entrants and look forward to their association in IEEE Queensland activities in future.

There were 9 committee meetings held in 2022. Unfortunately, the COVID continued to cause challenges in the first half of 2022 and therefore all the meetings had to be exclusively run via Zoom. We hope to be going back to face to face meetings in 2023.

Going forward in 2023, I plan to transition to a different role whilst making continuing to support the new incoming secretary.

## Section Treasurer



Om Perakash  
opbatra2kn@gmail.com

As the Section Treasurer, my role was much more than distributing checks and paying the bills. The Treasurer is the Chief Financial Officer of the Section. I proactively managed the financial health of the Section. As the Treasurer, I was also an integral part of the Section administration and a key member of the Section Executive Committee. Following is my part; Overall Section financials are in healthy state.

## IEEE Queensland Section

Treasurer's Report:

Reporting Period

Date prepared:

Treasurer:

November 22 AGM Update

Jan 2022 - Oct 2022

Tuesday, 8 November 2022

Om Perikash

ANZ Brookside Shopping Centre (BSB 014-203)		Cheque Account 469430083
Date	Item	Amount
1/01/2022	Starting balance	\$15,305.76

## Income

4/03/2022	TRANSFER FROM ATO ATO67431648974I001	\$2,102.00
24/03/2022	TRANSFER FROM CLIENT TRUS IEEE SEEDFUND RFD	\$20,000.00
26/05/2022	TRANSFER REFERENCE 526001592	\$10,010.77
2/06/2022	TRANSFER REFERENCE 602001351	\$369.46
5/07/2022	CREDIT INTEREST FROM 9110-03931	\$50.00
11/07/2022	CREDIT INTEREST FROM 9110-03659	\$50.28
1/08/2022	INTL PAYMENT FROM THE INSTITUTE OF ELECT RICAL AND REF:2022072900599666	\$687.80
3/08/2022	TRANSFER FROM ATO ATO67431648974I001	\$283.00
19/09/2022	CREDIT INTEREST FROM 9147-58977	\$337.50
Income Subtotal		\$33,890.81

## Expenses

10/05/2022	ANZ INTERNET BANKING PAYMENT 426976 TO IEEE ACT Section	Donation to the National Arboretum	(\$100.00)
26/05/2022	ANZ INTERNET BANKING PAYMENT 293222 TO Joel Bulow	HKN Arduino and Membership reimburs	(\$197.78)
26/05/2022	ANZ INTERNET BANKING PAYMENT 293095 TO IEEE ACT Section	Donation to the National Arboretum	(\$50.00)
30/05/2022	ANZ INTERNET BANKING BPAY ENGINEERS AUSTRALI {768573}		(\$1,980.00)
30/05/2022	ANZ INTERNET BANKING PAYMENT 299499 TO Thomas Courtney	IEEE HKN Tritium Talk Catering	(\$1,185.07)
8/07/2022	ANZ INTERNET BANKING PAYMENT 536257 TO Linfeng Liu	HKN AGM Catering	(\$78.42)
8/07/2022	ANZ INTERNET BANKING PAYMENT 536551 TO John Gough	LMAG Meet and Greet	(\$43.90)
27/07/2022	ANZ INTERNET BANKING PAYMENT 879863 TO JiaKang Yang	PES Warwick Solar Farm Visit Jun22	(\$488.15)
27/07/2022	ANZ INTERNET BANKING PAYMENT 879634 TO JiaKang Yang	PES Day Celebration Apr21	(\$138.36)
27/07/2022	ANZ INTERNET BANKING PAYMENT 879223 TO JiaKang Yang	PES Last Day Event Dec21	(\$98.68)
18/08/2022	ANZ INTERNET BANKING PAYMENT 919547 TO Sunil Abraham	IEEE PESGM 2022 Denver	(\$1,000.00)
18/08/2022	ANZ INTERNET BANKING PAYMENT 915130 TO Ian VL and Emma L Clarkson	AES Seminar Catering	(\$653.00)
27/09/2022	ANZ INTERNET BANKING PAYMENT 598379 TO University of Queensland No1 acc	CH-111122 Customs House Deposit	(\$4,245.00)
7/10/2022	ANZ INTERNET BANKING PAYMENT 829669 TO Alexandra Posoldova	Dinner with R10 Director	(\$427.11)
7/10/2022	ANZ INTERNET BANKING PAYMENT 730545 TO Linfeng Liu	HKN Membership Fee Refund	(\$184.68)
10/10/2022	ANZ INTERNET BANKING PAYMENT 858250 TO University of QLD Union	IEEE Day Catering Inv 67225	(\$555.00)
18/10/2022	ANZ INTERNET BANKING PAYMENT 278076 TO Vinh Hao Le	IEEE ANZSCON reimbursement	(\$2,614.87)
18/10/2022	ANZ INTERNET BANKING PAYMENT 278265 TO Feifei Bai	IEEE ANZSCON reimbursement	(\$35.00)
25/10/2022	ANZ INTERNET BANKING PAYMENT 644346 TO Brisbane Conv Exhibition Centre	Radar Short course BCEC Inv 80414	(\$2,950.41)
25/10/2022	ANZ INTERNET BANKING PAYMENT 554049 TO Ian VL and Emma L Clarkson	Radar Fundamentals course Airfare	(\$2,213.11)
Expenses Subtotal			-\$19,238.54

IEEE NextGen Banking		Account 100270
Date	Item	Amount
1/01/2022	Starting balance	USD 2,901.60

## Income

1/01/2022	Interest Calculation: 12/1/2021 - 12/31/2021 @ .32%	USD 0.23
2/01/2022	Interest Calculation: 1/1/2022 - 1/31/2022 @ .32	USD 0.77
3/01/2022	Interest Calculation: 2/1/2022 - 2/28/2022 @ .32	USD 0.70
4/01/2022	Interest Calculation: 3/1/2022 - 3/31/2022 @ .33	USD 0.80
5/01/2022	Interest Calculation: 4/1/2022 - 4/30/2022 @ .35	USD 0.82
6/01/2022	Interest Calculation: 5/1/2022 - 5/31/2022 @ .40	USD 0.97
7/01/2022	Interest Calculation: 6/1/2022 - 6/30/2022 @ .46	USD 1.08
8/01/2022	Interest Calculation: 7/1/2022 - 7/31/2022 @ .56	USD 1.36
9/01/2022	Interest Calculation: 8/1/2022 - 8/31/2022 @ .68	USD 1.65
09/27/2022	PES High Performing Chapter Award 2022-2021 for Queensland Section Chapter	USD 820.00
10/01/2022	Interest Calculation: 9/1/2022 - 9/30/2022 @ .85	USD 2.05
Income Subtotal USD		USD 830.43

## Expenses

1/01/2022	Interest Calculation: 12/1/2021 - 12/31/2021 @ .32%	USD (0.18)
Expenses Subtotal USD		USD (0.18)

## Closing Balance

Assumed USD-AUD exchange rate

USD 3,731.85  
1.55

## Nett cash available

\$35,742.40

Nett worth (nett cash available + assets - liabilities)	\$123,242.40
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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
Radar 2023	\$12,500.00

## Awards and Recognition



Sudarshan Dahal  
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This year, IEEE Queensland Section nominated three members for R10 awards. Out of three, Dr Daniel Eghbal was successful in receiving Outstanding Volunteer Award.

Also, this year the IEEE Queensland section invited award nominations to recognize the contribution from section members in the following categories.

### 1. IEEE QLD Outstanding Young Professional

A Young Professional is someone who has graduated from his or her first professional degree within the past 15 years. This year, this award has been awarded to [Daiki Ichiyama](#) for his outstanding contributions in advancing signal processing and communications technologies.

### 2. IEEE QLD Outstanding Women in Engineering.

This year this has been awarded to **Dr Alexandra Posoldova** for showing outstanding Section leadership during very difficult times.

### 3. IEEE QLD Outstanding Student Volunteer

This year this has been awarded to **Joel Bulow** for outstanding contribution in leading the HKN group.

### 4. IEEE QLD Outstanding Volunteer Award

This year this has been awarded to **Dr Hugo Espinosa** for enhancing section activities by reviving student branches while chairing a section chapter and organizing quality events.

### 5. University Thesis Awards

This IEEE Queensland section did not receive sufficient nominations due to late university thesis submission deadlines. The section will offer these awards at a suitable time after the AGM and allowing sufficient time to judging panel.

The following categories of awards will be offered.

- The IEEE Student Prize for the best final year thesis in all fields of Electrical Engineering and Information Technology
- The ICPADM-Mat Darveniza IEEE Student Prize for the best final year thesis in Power Engineering
- The IEEE Queensland Section's Signal and Image Processing paper

### 6. IEEE APPEEC 2022 Travel Prizes

Following students have received IEEE APPEEC 2022 conference travel prizes. They are:

- a) Paper Title, "Comparative Study of Inertia Support for Networks with High Renewable Energy Penetration" by **Ning Ma** from the University of Queensland.
- b) Paper Title, "Dynamic Operating Envelopes-enabled Demand Response in Low-voltage Residential Networks" by **Gayan Lankeshwara** from the University of Queensland.
- c) Paper Title, "An Improved Linear Active Disturbance Rejection Control for Compensating Unbalanced Harmonic in Microgrid" by **Yue Qu** from Griffith University

Each will get \$1000 from the IEEE QLD Section.

## **7. IEEE PES General Meeting 2022 Conference Registration Fee Award**

**Sunil Abraham** from the Queensland University of Technology received IEEE PES General Meeting 2022 with AUD 1000 for the conference registration fee/Travel award as IEEE PES Graduate Student Member.

All the awards were decided by judging panels. The QLD section committee formed a committee of at least three members to serve on the judging panel after receiving nominations from the committee members.

Due to the low rate of the contribution for the retired officers, the following awards were not offered this year.

- Outstanding Contribution Award
- Recognition of Service Awards

## EA/IEEE liaison report



Prof Tapan Saha  
saha@itee.uq.edu.au

I have been a EA Queensland Electrical Branch Committee member for many years and my current term will end by the end of 2023. I have attended most of EA Queensland Electrical Branch Committee meetings.

This year, I have organised two joint events with IEEE PES and EA Queensland Electrical Branch.

### **Engineers Australia Queensland Electrical Branch and IEEE PES QLD Chapter joint events**

- 29th June 2022, Hardware testing of large-scale solar plant controllers, Facilitator: Prof Tapan Saha, Speakers: Dr Richard Yan, Dr Feifei Bai, and Dr Yi Cui; Hybrid, more than 100 attended.
- 20<sup>th</sup> October 2022, Real-time Power System State Estimation, determination of dispatch constraints and automated coordination for distribution networks; Facilitator: Prof Tapan Saha, Speakers: Dr Olav Krause, Dr Mollah Alam, and Dr Terese Milford. Hybrid, more than 100 attended.

IEEE QLD section attended the Electrical branch networking dinner, which was held on Thursday 16 June, at Customs House, 399 Queen Street, Brisbane.

# Aerospace and Electronic Systems Chapter



Vaughan Clarkson  
[v.clarkson@ieee.org](mailto:v.clarkson@ieee.org)

After a couple of lean years for the AES chapter in Queensland—not at all helped by COVID restrictions—I’m very pleased to report that activities have re-commenced. Two events were organised in 2022. As chance would have it, both involve presenters from the same small (but famous) town on the other side of the world: Pisa, specifically the University of Pisa.

The first event was a seminar presented by Prof. Marco Martorella, a frequent visitor to Brisbane. The seminar title was “3D Radar Imaging of Non-Cooperative Targets: concept, technology, demonstration”. QUT generously made their Owen J. Wordsworth room available for the event. Approximately thirty people attended the seminar. It was followed by a catered reception. The reception was made possible by special chapter funding from the AES Society with additional financial support from Whipbird Signals Pty. Ltd.



Figure 1 Prof. Marco Martorella presents his seminar (photo courtesy of Dhammika Jayalath).



*Figure 2 The reception following the AES seminar at QUT's Owen J. Wordsworth room (photo courtesy of Dhammika Jayalath).*

The second event to be organised has not yet taken place. It is being run in conjunction with the South Australia Section CAES chapter under the auspices of the AESS Short Course program. It is a two-day course on "Radar Fundamentals". The presenter will be Prof. Maria Sabrina Greco, who happens also to be President-Elect of the AES Society for 2024–25. The course is being held in Brisbane at the Brisbane Convention & Exhibition Centre on 21<sup>st</sup> & 22<sup>nd</sup> November, then being repeated in Adelaide at the University of Adelaide on 23<sup>rd</sup> & 24<sup>th</sup> November. Registrations are tracking well for the Brisbane course, with 17 enrolments at the time of writing. Registration will remain open until 11am, Monday, 14<sup>th</sup> November.

— Vaughan Clarkson  
Chair, Qld AES Chapter  
8<sup>th</sup> November, 2022

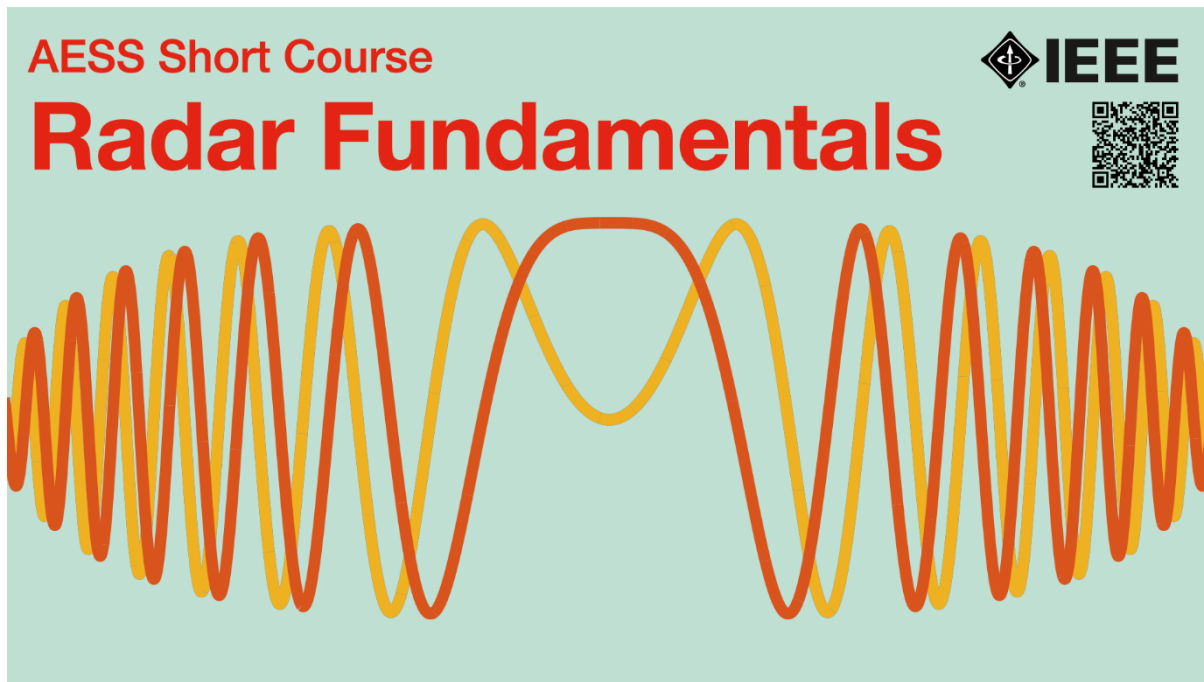


Figure 3 Banner advertisement for the Radar Fundamentals short course.

# Computational Intelligence



A/Prof Marcus Gallagher  
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It has been a pleasure to serve in the Chair role for the Computational Intelligence chapter in 2022. There is plenty of excitement around Artificial Intelligence, resulting in lots of events in Queensland and beyond. CIS Queensland is a little short on volunteers and I hope to grow this, as well as more members in 2023.

One exciting event for 2023 is that one of the flagship IEEE CIS Conferences, the International Joint Conference on Neural Networks (IJCNN) will be held on the Gold Coast in June. Prof Brijesh Verma is the General Co-Chair for this event. For more information see: <https://2023.ijcnn.org/>

Two local CI chapter events were organised in 2022:

- A technical seminar (online) by Prof Pascal Kerschke (TU Dresden, Germany), titled “Exploratory Landscape Analysis: From its Fundamentals to Current Trends” on 29th September.
- The 2022 UQ Workshop on Artificial Intelligence was co-sponsored by the CIS Queensland Chapter and held on the 31<sup>st</sup> October – 1<sup>st</sup> November. IEEE CIS members were invited and in-person and online attendance was free. The workshop had over 200 registrants and featured sessions of oral presentations and poster presentations. The IEEE CIS sponsored a \$100 prize at the workshop for the best technical presentation at the workshop, which was awarded to Vladimir Morozov for the presentation: “Predicting toxicity of a protein from its primary sequence”.

# Computer Chapter



**Dimitri Perrin**  
[dimitri.perrin@qut.edu.au](mailto:dimitri.perrin@qut.edu.au)

## **Committee:**

Chair: Dimitri Perrin

Vice-Chair: TBC

Secretary: TBC

Welcome to the Computer Society Chapter's Report for 2022. No one sought election for the Chair role at the end of 2021 (following Vladimir Estivill-Castro's relocation), and the role was initially vacant. I stepped into the role in May. As a result, activities (and therefore the focus of this report) have been pushed towards the second half of the year.

We have managed to deliver three events to date (including two co-hosted ones), and we have another one scheduled before the end of the year. The focus for next year will be on growing the committee (discussions with potential members are ongoing) and on having events throughout the entire year.

On 18 August, Dr Mark Micire (Woodside Energy) gave an online seminar on "NASA Spheres robotics work on the International Space Station (ISS)". This was co-hosted with the QLD Joint Chapter of the Control Systems Society and the Robotics and Automation Society and with the NSW Chapter of the Robotics and Automation Society. In 2012, NASA used Nexus S phones on the International Space Station to upgrade a trio of volleyball-sized SPHERES (Synchronized Position Hold, Engage, Reorient, Experimental Satellites). The SPHERES were initially developed by MIT for testing spacecraft guidance, navigation, and control algorithms in space. The Android-powered phones transform the SPHERES from test platforms into free-flying robots that can perform tasks the astronauts used to do, like recording sensor data and capturing video footage. In this talk, Dr Micire described how the Intelligent Robotics Group at NASA Ames modified and certified stock Nexus S phones for use on the Space Station. This involved hacking the hardware and destructively testing several units. Next, he talked about the software written to remotely operate the Smart SPHERES from Mission Control in Houston. Finally, he discussed how this led to the latest generation of free-flying robots working on the ISS called Astrobee.

On 13 September, Dr Rohitash Chandra (University of New South Wales) gave an online seminar on "Bayesian deep learning via MCMC sampling application to Robot path planning". This was co-hosted with the QLD Joint Chapter of the Control Systems Society and the Robotics and Automation Society and with the NSW Chapter of the Robotics and Automation Society. Bayesian models provide a probabilistic representation of parameters that have an advantage over single-point estimates with uncertainty quantification in model predictions. Markov Chain Monte Carlo (MCMC) sampling methods are typically used to implement Bayesian inference for estimating and uncertainty quantification of parameters in models. The progress of MCMC sampling for neural networks and deep learning models has been slow due to the curse of dimensionality, and multi-modal posterior distributions. Recent advances in parallel computing and proposal schemes in Markov Chain Monte Carlo (MCMC) sampling have opened the path for Bayesian deep learning. This seminar gave an overview of the implementation of Bayesian deep learning methods that begin with simple neural networks and extends to deep learning models such as autoencoders. It provided a roadmap of Bayesian inference via MCMC for uncertainty quantification for robot path planning with Lyapunov-based control that can be extended for drones.

On 23 September, A/Prof Laurianne Sitbon (Queensland University of Technology) gave an online

seminar on “Reframing Information Access as an Opportunity for Inclusive Communication”. The World Wide Web of 2022 is a platform for sharing, socialising and synthesizing vast amounts of information. However, for the approximately 3% of the population with intellectual disability, access remains limited. Specific accessible designs have attempted to support digesting new or complex information, as the key barrier to engagement with online information. Yet people with intellectual disability often do not fit a neatly labeled diagnostic category, often having a combination of underlying cognitive, communicative, motor and sensory conditions. This requires reframing how we approach technology design to focus on people's strengths rather than attempting to address ill-defined deficits. A/Prof Laurianne Siton presented what she and her team learnt through 5 years of fieldwork, co-designing interactive information access systems with adults with intellectual disability. She demonstrated with examples how iterative approaches that centre on people's competencies, and recognise support networks as part of key competencies, can help reframe our research positioning ensure future designs are both inclusive and respectful of individuals with intellectual disability.

On 22 November, Dr Jake Bradford (Queensland University of Technology) will give an online seminar on “The software and hardware solutions enabling CRISPR-based gene editing”. CRISPR-Cas9 has become a leading tool for gene editing, due to the ability to make very targeted modifications in virtually any genome of interest. The technology relies on using a customisable “guide RNA” whose sequence controls where the modifications will be made. However, designing these guide RNAs is not trivial. Identifying sequences that are unique enough not to lead to off-target modifications is particularly important. It is also computationally challenging. A given genome could have millions of potential CRISPR sites, and brute-force approach of the off-target evaluation would require comparing each site with every other site. In this presentation, Dr Bradford will provide a historical perspective of the computational techniques used to assess off-target risk, and provide details of how advanced data structures originally developed for searching web-scale collections of data can accelerate this task. he will also discuss how cloud computing can be leveraged for a scalable analysis of entire genomes.

# Control Systems Robotics and Automation



A/Prof. Thierry Peynot  
[t.peynot@qut.edu.au](mailto:t.peynot@qut.edu.au)

## **Committee:**

Chair: A/Prof. Thierry Peynot (Queensland University of Technology)  
Vice-Chair: Dr. Alejandro Melendez-Calderon (University of Queensland)  
Secretary: Dr. Navinda Kottege (CSIRO/Data61)

IEEE QLD Joint Control Systems/Robotics and Automation Societies Chapter concluded a very active year. We surpassed the number of events organised in the previous years by hosting/co-hosting **11 events** (by November), most of which were in a hybrid format, in-person and online. We continued to develop a productive collaboration with our sister chapter in NSW (IEEE NSW Robotics and Automation society chapter) and co-hosted a number of events with them. We had a wide variety of very engaging speakers addressing various aspects of Robotics and Automation Systems and/or Control Systems, and coming from different parts of Australia as well as around the world, including East and West coast of the USA and Singapore.

## **Event 1: 4 February 2022**

The first event of the year was held on the 4th of February 2022, with a seminar by Prof. Paulo De Souza from Griffith University, entitled “Deep Space Exploration with Robots”. The seminar was held in hybrid format, in-person at the Queensland Centre for Advanced Technologies (QCAT) of CSIRO, and online via Zoom. It was co-hosted by CSIRO's Robotics and Autonomous Systems Group and the NSW RAS chapter.

## **Event 2: 7 March 2022**

On 7 March 2022, our chapter was co-host of an online seminar by IEEE RAS Distinguished Lecturer A/Prof. Rong Su from Nanyang Technological University (NTU) Singapore, on “Resilient Resource Management in Multi-Process Manufacturing Systems”. The seminar was organised and co-hosted by the IEEE NSW RAS chapter.



Fig.1: Flyer of the seminar by IEEE RAS DL A/Prof. Rong Su

### Event 3: 22 April 2022

On the 22nd of April 2022, our chapter hosted a seminar by Dr. Akansel "Akan" Cosgun, Research Fellow at Monash University, entitled "Robots that interact with people, and learn from experience". The seminar was held in hybrid format, in-person at the Queensland Centre for Advanced Technologies (QCAT) of CSIRO, and online via Zoom. It was co-hosted by CSIRO's Robotics and Autonomous Systems Group and the NSW RAS chapter.

### Event 4: 26 April 2022

On 26 April 2022, our chapter hosted a seminar with the QUT Centre for Robotics, in collaboration with the IEEE NSW Robotics and Automation Society Chapter, by Prof. Michael Milford, Professor at QUT and IEEE Senior Member. The seminar was held in hybrid mode: both in-person, at the Queensland University of Technology (QUT) Gardens Point campus, and online. In this non-technical talk, Prof. Milford provided recommendations and tips on "Profile Building for the Modern Researcher with the Aid of Technology". It was co-hosted by the QUT Centre for Robotics.



Fig. 2: Prof. Milford presenting at the QUT Centre for Robotics, April 2022.

### Event 5: 10 May 2022

On 10 May 2022, we had a technical seminar by Dr. Donald Dansereau, Senior Lecturer at the

University of Sydney, entitled “Robotic Imaging: From Photons and Actions”. Don gave an overview of his recent research work at the intersection of computational imaging and robotics. Again the seminar was held in hybrid format, in-person at the QUT Centre for robotics, Queensland University of Technology (QUT) Gardens Point campus, and online via Zoom. It was co-hosted by the QUT Centre for Robotics and the NSW RAS chapter.

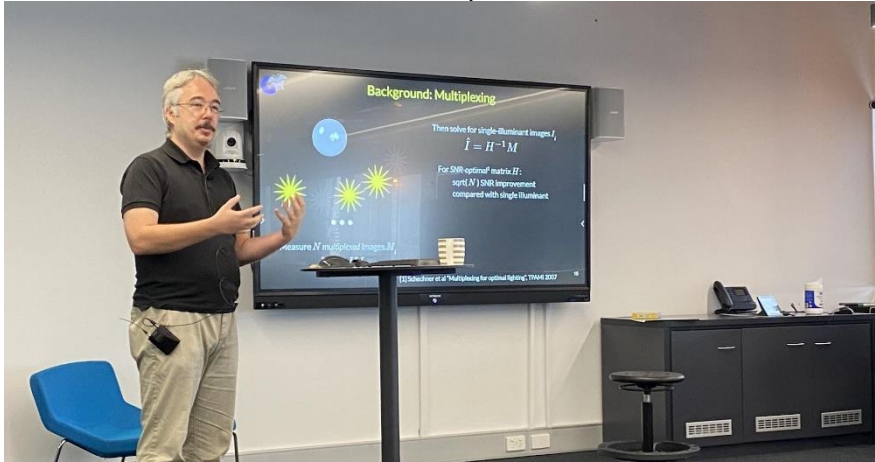


Fig. 3: Dr. Donald Dansereau discussing robotic imaging at QUT, May 2022.

#### Event 6: 17 May 2022

On 17 May 2022, we had a technical seminar by Dr. Julie Berrio (Steph) Perez, Research Fellow at the University of Sydney, which provided “An overview of intelligent transportation systems research at the University of Sydney”. Again the seminar was held in hybrid format, in-person at the QUT Centre for robotics, Queensland University of Technology (QUT) Gardens Point campus, and online via Zoom. It was co-hosted by the QUT Centre for Robotics and the NSW RAS chapter.

#### Event 7: 1 July 2022

On the 1st of July 2022, our chapter hosted a double seminar by Prof. Michael Wang and Dr. Chao Chen from Monash University. The first part, by Prof. Wang was entitled “Adaptive Grasping with Touch Sensing and Dry-Adhesive Contact”. The second part, by Dr. Chen, was on “The Monash Apple Retrieving System (MARS)”. The seminar was held in hybrid format, in-person at the Queensland Centre for Advanced Technologies (QCAT) of CSIRO, and online via Zoom. It was co-hosted by CSIRO's Robotics and Autonomous Systems Group and the NSW RAS chapter.

#### Event 8: 18 August 2022

On 18 August 2022, we hosted a technical seminar by Dr. Marc Micire, currently head of robotics at Woodside Energy, and formerly robotics group lead at NASA Ames Research Center and program manager at DARPA. He discussed the fascinating story of the “NASA Spheres robotics work on the International Space Station (ISS)”. The seminar was held in hybrid format, in-person at the Queensland University of Technology (QUT) Gardens Point campus, and online via Zoom. It was co-hosted by the QUT Centre for Robotics and the NSW RAS chapter.



Fig. 4: Dr. Mark Micire telling the story of the NASA Smart SPHERES in August 2022.

#### Event 9: 13 September 2022

On 13 September 2022, we hosted a technical seminar by Dr. Rohitash Chandra, Senior Lecturer in Data Science at the UNSW School of Mathematics and Statistics, on “Bayesian deep learning via MCMC sampling application to Robot path planning”. The seminar was held in hybrid format, in-person at the Queensland University of Technology (QUT) Gardens Point campus, and online via Zoom. It was co-hosted by the QUT Centre for Robotics and the NSW RAS chapter.

**Event 10: 3 October 2022**

On the 3rd of October 2022, our chapter hosted a seminar by Matthew Knights, Director of Sales at Boston Dynamics, entitled “Initial deployment of Spot, Boston Dynamics' agile mobile robot”. The seminar was held in hybrid format, in-person at the Queensland Centre for Advanced Technologies (QCAT) of CSIRO, and online via Zoom. It was co-hosted by CSIRO's Robotics and Autonomous Systems Group and the NSW RAS chapter.

**Event 11: 20 October 2022**

On the 20th of October 2022, our chapter hosted a technical seminar by Dr. William Maddern, Head of Mapping and Localisation at Nuro, an American autonomous vehicles company based in California. The talk was entitled “Delivering Autonomy: A deep dive into Nuro's robotic delivery vehicles”. The seminar was held in hybrid format, in-person at the Queensland Centre for Advanced Technologies (QCAT) of CSIRO, and online via Zoom. It was co-hosted by CSIRO's Robotics and Autonomous Systems Group and the NSW RAS chapter.

# Power and Energy/Dielectrics and Insulation



Prof Tapan Saha  
saha@itee.uq.edu.au

## Committee:

Chair:	Prof Tapan Saha
Vice-Chair:	Dr Nilesh Modi
Secretary:	Dr Nadali Mahmoudi
Treasurer:	David Batterham
Representative of WiP:	Dr Feifei Bai

## Queensland PES-DEIS Chapter has organised the following events during 2022.

### 1. Women in Power Seminar Series

IEEE PES/DEIS joint chapter initiated the Women in Power (WiP) Seminar Series. We are inviting highly successful global female leaders from power engineering to talk about the challenges of the modern power grid with high renewable energy penetrations and to introduce their innovative technologies to solve the problems. We have hosted 3 WiP webinars as below.

- On 11 February 2022, we invited Prof Yilu Liu, who is currently the UT-ORNL Governor's Chair Professor at the University of Tennessee (UT) and Oak Ridge National Laboratory (ORNL), USA. She is also a member of the US National Academy of Engineering, a member of the National Academy of Inventors, and a Fellow of IEEE. The topic for this seminar was "Benefit of Grid Edge Synchronized Measurements".
- On 19 August 2022, we invited Dr Terese Milford, who is a very successful Senior Engineer in Energex and Ergon Energy Network's Intelligent Grid New Technology team, in Australia. The webinar topic was "Advancing renewables in distribution networks through state estimation and dynamic connections".
- On 23 September 2022, we invited Prof Xiaoru Wang, who is a well-known professor working in the renewable energy area from Southwest Jiaotong University, China. The webinar topic is "How to make grid following VSC provide natural inertial response like a synchronous machine".

### 2. Regular Seminar Series

We have also planned regular IEEE PES seminar series and 8 seminars have already been hosted as below.

- On 4 March 2022, Mr Charles Henville from Canada was the speaker for the

seminar “The role of protection and control systems in maintaining reliable power”. Charles has been active in the IEEE for 35 years. He is a Life Fellow of the IEEE and a past distinguished lecturer of the Power and Energy Society.

- On 30 March 2022, Dr Franco D'Alessandro from Lightning Protection International Pty Ltd & PhysElec Solutions was the speaker for “Comprehensive Lightning Protection and the New Australian Standard AS 1768-2021”.
- On 6 May 2022, Dr Wei Du from Pacific Northwest National Laboratory, USA was the speaker for the seminar “Grid-Forming Inverters at Scale--A journey from a single microgrid to a bulk power system with 10,000+ Inverters”. This seminar attracted 125 participants.
- On 9 May 2022, Professor Iqbal Husain from North Carolina State University was the speaker for the seminar “Power Distribution System Modernization with Power Electronic Converters and Integrated Renewables”. Prof Husain is an IEEE Fellow.
- On 18 May 2022, Dr John McDonald from EDF (Electricité de France) was the speaker for the seminar “Leveraging transferable skills - pivoting from a PhD into a non-academic career”.
- On 4 July 2022, Prof Ian Hiskens from the University of Michigan, USA was the speaker for the webinar “Modelling, Dynamics and Control of Aggregate Load Models”. Prof Hiskens is an IEEE Fellow.
- On 13 September 2022, Prof Jovica V Milanović from The University of Manchester, UK was invited for a hybrid seminar with 3.5 hours at the University of Queensland for the topic of Demand modelling, profiling and management for efficient and secure operation of net-zero power networks. Prof Milanović is an IEEE Fellow.
- On 13 October 2022, Dr Lin Zhu from US Electric Power Research Institute (EPRI) was invited for the webinar “GridDamper: An Adaptive Power Grid Oscillation Damper”.

3. Engineers Australia Queensland Electrical Branch and IEEE PES QLD Chapter joint events

- 29th June 2022, Hardware testing of large-scale solar plant controllers, Facilitator: Prof Tapan Saha, Speakers: Dr Richard Yan, Dr Feifei Bai, and Dr Yi Cui
- 20th October 2022, Real-time Power System State Estimation, determination of dispatch constraints and automated coordination for distribution networks; Facilitator: Prof Tapan Saha, Speakers: Dr Olav Krause, Dr Mollah Alam, and Dr Terese Milford.

**IEEE PES APPEEC 2022 Conference Travel Award**

Three students have received IEEE PES APPEEC 2022 travel award with AUD 1000 for each including Gayan Lankeshwara (The University of Queensland), Ning Ma (The University of Queensland), and Yu Qu (Griffith University) as IEEE PES Graduate Student Member with an accepted paper to be presented during the conference.

**IEEE PES General Meeting 2022 Conference Registration Fee Award**

Sunil Abraham from the Queensland University of Technology received IEEE PES General Meeting 2022 with AUD 1000 for the conference registration fee as IEEE PES Graduate Student Member.

**IEEE PES Queensland Chapter 2021 Outstanding Engineer Award and IEEE PES Queensland**

**Chapter 2021 Outstanding Volunteer Award**

Queensland PES-DEIS Chapter called for nominations from the Chapter Members for these 2021 awards. Two nominations were received for the IEEE PES Queensland Chapter 2020 Outstanding Engineer Award and their names will be announced during the AGM dinner. One is for less than 15 years' experience engineer and the other is for more than 15 years' experience. One nomination was received for the IEEE PES Queensland Chapter 2021 Outstanding volunteer award, which will be also announced during the AGM Dinner.

**IEEE PES Region 10 Chapter Chair Meeting**

After the pandemic, Region 10 IEEE PES Chapter Chair Meeting was held in Singapore on November 1st, 2022. Dr Nadali Mahmoudi, Secretary of the PES-DEIS Queensland Chapter attended the event.

**2022 IEEE ANZSCON**

Australia & New Zealand Students and Young Professionals Congress (ANZSCON) was held on 1-2 October 2022, Adelaide, South Australia. Three people from our chapter received the travel award including Dr Feifei Bai (\$35, attending virtually), Jiakang Yang (\$1321.6), and Vinh Hao Le (\$1321.6).

**2022 IEEE MGA Volunteer Leadership Training (VoLT) Program**

IEEE organised VoLT Program for volunteers who have the desire to continue growing as IEEE volunteers and lead their local units. This program was started on 20 September 2022 and it will be finished on 16 November 2022. 65 IEEE volunteers have been selected from around the world for this program. Dr Feifei Bai from our chapter has been awarded for attending this VoLT program.

# Microwave Theory & Techniques/Antennas & Propagation Societies



Hugo Espinosa  
[h.espinosa@griffith.edu.au](mailto:h.espinosa@griffith.edu.au)

## Committee

Chair: Hugo Espinosa

Vice-Chair: Arslan Nizami

Welcome to the Microwave Theory & Techniques/Antennas and Propagation (MTT/APS) Chapter. Since the beginning of the year, we have hosted and co-hosted several online and in-person technical seminars from the MTT/APS communities. Such seminars were delivered by experts from industry, academics, and Distinguished Lecturers.

The online delivery of some of the seminars allowed us to collaborate with other Australian Chapters. The host chapter organised the event, and all other Australian chapters supported it by promoting it within their networks and assisting, as required. These collaborations have resulted in higher rates of attendance, participation, engagement, and networking opportunities. Special thanks to Chapter Chairs Morteza Shahpari (SA), Fatemeh Babaeian (Victoria), David Powell (ACT), Syed Muzahir Abbas (NSW), and Mohan Jacob (Northern Australia), for their support in co-hosting our events, and for inviting QLD to co-host theirs.

Eight events have been organised so far, with two upcoming seminars scheduled for the end of the year. With a total of 218 attendees, and an average of around 27 attendees per session, we ensured that the selected topics were current, trending, and innovative. The list of presentations is as follows:

1. Distinguished Lecturer Prof Changzhi Li (Texas Tech University, USA)

*"Portable radar systems for life activity sensing, anomaly detection, and human tracking"*

Online March 2<sup>nd</sup>, 2022

2. Distinguished Lecturer Prof Jasmin Grosinger (Graz University of Technology, Austria)

*"Rf design for ultra-low-power wireless communication systems: efficiently miniaturizing and passively sensing"*

Online March 30<sup>th</sup>, 2022

3. Prof Masayuki Fujita (Tokyo Institute of Technology, Japan)

*"Advanced terahertz devices and systems based on silicon photonic structures and resonant tunnelling diodes toward 6g and beyond"*

Online April 28<sup>th</sup>, 2022

4. Dr Marta Guardiola (MiWEndo Solutions, Barcelona, Spain)

*"Novel applications of microwave imaging: colorectal cancer early detection. Challenges in algorithm and device development, from the idea to the clinical trials"*

Online May 26<sup>th</sup>, 2022

5. Dr Grace Lim Soo Yong (The University of Nottingham in Malaysia, Malaysia)

*"Propagation modeling and measurements in complex environments for 5G communications"*

Online June 30<sup>th</sup>, 2022

6. Prof. Shiyoshi Yokoyama (Kyushu University, Japan)

*"Polymer photonics – challenges and approaches for a highly scalable platform in ultradense optical communications"*

Online July 1<sup>st</sup>, 2022

7. Prof Levent Sevgi (Istanbul ATLAS University, Turkey)

*"Electromagnetic diffraction modeling & simulation"*

In-person September 20<sup>th</sup>, 2022

8. Prof Levent Sevgi (Istanbul ATLAS University, Turkey)

*"Electromagnetic guided wave theory"*

In-person September 20<sup>th</sup>, 2022

For the first time since COVID-19, we had the pleasure to host a Distinguished Lecturer at Griffith University in Brisbane. Prof Levent Sevgi from Istanbul ATLAS University, Turkey, visited Australia in September. We assisted him with organising his tour around the country, where he delivered presentations in Adelaide, Melbourne, Sydney, Canberra, Brisbane, and Cairns. Below are some of the photos of Prof Sevgi's presentations, his visit to the School of Engineering and Built Environment at Griffith University, and a social dinner with colleague academics, PhD students and undergraduate students.

The year is almost coming to an end, and we would like to thank the QLD Section for their invaluable support throughout the year. We look forward to organising more interesting presentations in the near future. I would also like to thank PhD candidate and Vice-Chair Mr Arslan Nizami for his valuable contributions to the Chapter.



# Power Electronics/Industrial Electronics/ Industry Applications Societies



Dezso Sera  
[dezso.sera@qut.edu.au](mailto:dezso.sera@qut.edu.au)

## **Committee**

Chair: Dezso Sera

Vice chair: Mahinda Vilathgamuwa

Treasurer: Roshani Dulmini Kumarihami Karunathilake Ralahamilage

Secretary: Junwei Lu

This year, PEL/IE/IA joint chapter has managed to organize or co-sponsor several technical activities. This chapter contributes to the Power, Energy and Clean Technologies (PECT) seminars organized by Queensland University of Technology (QUT). The seminar in November held by Dr. Nishad Mendis of Bureau Veritas, Melbourne will be technically co-sponsored by the chapter.

The QLD IEEE PE/IE/IA Chapter (Prof. Mahinda Vilathgamuwa) has organized an IEEE Distinguished Lecture by Dr. Tobias Greyer of ABB System Drives division in Switzerland, to be held on the 15<sup>th</sup> of November 2022. The title of the talk is “Model predictive control in power electronics: a critical review and recent industrial products”, and it will introduce the main predictive control methods available today, alongside with the lesser-known methods providing a comprehensive introduction to the subject of model predictive control in power electronics.

On the 12<sup>th</sup> of September, the PEL/IE/IA societies joint chapter of IEEE Queensland section, QUT School of Electrical Engineering and Robotics, Griffith University and University of Queensland jointly organized an online PhD symposium on “Power Electronics and Power Systems”. The speakers were seven outstanding PhD students from Queensland University of Technology, Griffith University and University of Queensland who presented their research findings in 10 minutes with 5 minutes Q&A session.

# Signal Processing/ Communications/ GRSS Queensland Chapter



Manuel Schmidt

Committee:

Chair: Manuel Schmidt

Vice Chair: Jun Zhou

This was my first year as chair of SP/COM/GRS in Queensland and I had to learn a lot about the IEEE internal processes and appreciated the help of our secretary Daiki Ichiyama. I enjoyed serving the IEEE community and am pleased to say that we hosted 10 successful technical activities. The monthly journal club event continues to be well attended and has covered papers on topics from quantum computing, to machine learning and cryptography. We also organized a workshop on patents in machine vision and a seminar by Prof Jeffrey Walker from Monash University on 6 September with the title "Soil moisture mapping for sustainable agriculture".

I look forward to our December social event and the continued success of the chapter in 2023.

# Society on Social Implications of Technology

## Committee

Chair: Samuli Haataja (Griffith)

Vice Chair and NSW coordinator: Kayleen Manwaring (UNSW)

QLD coordinator: Tim McFarland (UQ)

Secretary: Elizabeth Englezos (Griffith)

International coordinator: Greg Adamson

Communications officer: James Gauci

Past Chair: Kieran Tranter (QUT)

NT coordinators: Mark Ames & Mark Brady (CDU)

VIC coordinator: Marc Cheong (Melbourne)

The Society on Social Implications of Technology (SSIT) Australia welcomed a new chair and many new committee members in 2022. We were involved in organising a number of activities and events. These included a workshop with the 'Dignity, Inclusion, Identity, Trust and Agency' (DIITA), an IEEE Standards Association Industry Connections program, on 'Towards a Trusted, Inclusive Online World' in Melbourne, Victoria (28 September 2022); a talk by Srikanth Chandrasekaran (IEEE Standards Association) to the Defence Science Technology group in Adelaide, South Australia (4 October 2022); and a panel on 'Law and autonomous systems' as part of the Ethics Day at the IEEE International Symposium on Technology and Society conference (online) with two panellist from our committee (12 November 2022). We hope to organise more events, including in Queensland, and continue building our membership in 2023.

# University of Queensland IEEE Student Branch

**Committee:**

Chair: Deren Teo (deren.teo@uq.net.au)

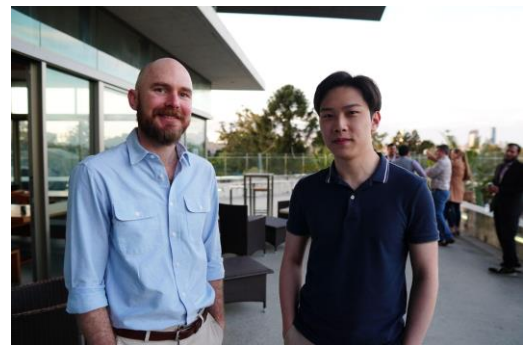
Vice Chair: Wendi Ma (wendi.ma@uq.net.au)

Secretary/Treasurer: Yuanlong Jiang (yuanlong.jiang@uq.net.au)

Counsellor: Richard Yan (ruifeng@itee.uq.edu.au)

This year, the branch faced a shortage of committee members, making it difficult to arrange events. As a result, the branch primarily co-hosted events with other UQ IEEE branches and societies. This proved reasonably successful and will likely continue in the coming year.

In June, the branch collaborated with the HKN and PES branches to arrange a visit to UQ's Warwick solar farm. The branch was responsible for promoting the event to undergraduate members. This event was successful, with the full event (transport) capacity being filled.



In August, the branch collaborated with UQ MARS (Mechatronics and Robotics Society) in hosting an industry presentation by the CEO of Eliiza, James Wilson, representing the Mantel Group. James presented on how machine learning and artificial intelligence are used in industry and provided advice on entering a career in this space.

Finally, in early October, UQ was proud to host IEEE Day for the Queensland section. This event was jointly organised alongside the HKN and PES branches. Committee members from all branches were involved in planning the event and coordinating it on the day. The celebration included talks by Queensland section chair Alexandra Posoldova, and Region 10 Director Deepak Mathur, followed by refreshments and networking.

Next year, the branch intends to continue co-hosting events alongside the other UQ branches and societies. The branch has a particularly strong connection with the executive committee of UQ MARS, and hopes to further capitalise on this with jointly organised and mutually beneficial events.

# University of Queensland IEEE PES Student Branch

## Committee

**Chair:** Jiakang Yang

**Vice-Chair:** Yunda Xu

**Secretary:** Vinh Hao Le

**Treasurer:** Anupam Dixit

**Media Officer:** Hankun Cui

**Chapter Advisor:** Professor Tapan Saha

UQ IEEE PES student branch had a successful year by hosting a number of technical/social hybrid events. Starting with the celebration of IEEE PES Day on April, the branch held an online quiz with questions with regards to IEEE Australia, PES, and electrical engineering, with cake cutting afterwards.

What follows is the biggest event of the year, the Warwick Solar Farm Visit. We managed to involve UQ School of ITEE to sponsor AUD 1200 for the coach taking more than 40 IEEE members and non-members from electrical engineering major in UQ to Warwick Solar Farm – the very reason UQ becomes the world's first university to generate its 100% electricity usage. Professor Tapan Saha gave an amazing tour, with a speech introducing the world-leading research activities on-going in UQ.

We have also held AEMO control centre visit dedicatedly for IEEE PES members in UQ due to limitation to the number of attendees from AEMO side. Demonstration of National Electricity Market (NEM) Simulator was shown by AEMO staff members. A further discussion on AEMO's point of view in potential collaboration opportunities with research institutes was made.



PES Day Celebration



Warwick Solar Farm Visit



Warwick Solar Farm Visit





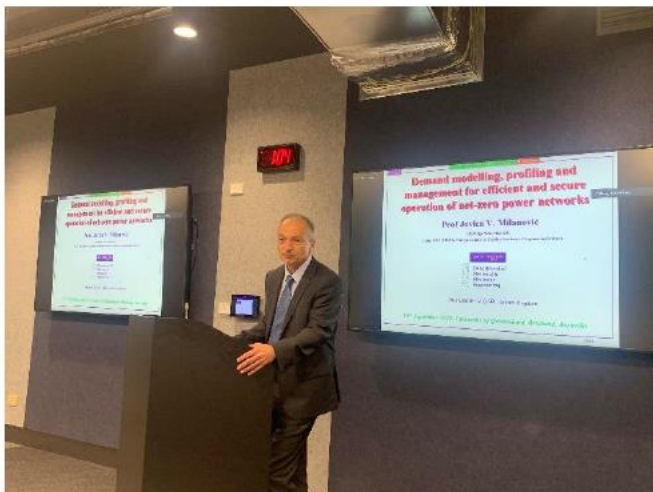
AEMO Control Centre Visit



This

year's activities also featured some seminars/technical talks involving some of the most well-known scholars in the world, including Dr Wei Du from Pacific Northwest National Laboratory (PNNL), and IEEE PES Distinguished Lecturer Prof. Jovica Milanović from The University of Manchester, UK. Both seminars turned out to be huge success and attracted 128 attendees, and 73 attendees, respectively.

Overall, this was an amazing year at UQ IEEE PES Student Branch. The committee members worked hard for it and we could not be prouder of the outcomes.



Hybrid Seminar by Prof. Jovica Milanović

# Queensland University of Technology Student Branch

## Committee:

Chair: Alexandra Makieieva ([oleksandra.makieieva@qut.edu.au](mailto:oleksandra.makieieva@qut.edu.au))

Vice Chair & Treasurer: Amin Mokaribolhassen ([a.mokaribolhassen@qut.edu.au](mailto:a.mokaribolhassen@qut.edu.au))

Secretary: Shaetrun Pathmanathan ([shaetrun.pathmanathan@ieee.org](mailto:shaetrun.pathmanathan@ieee.org))

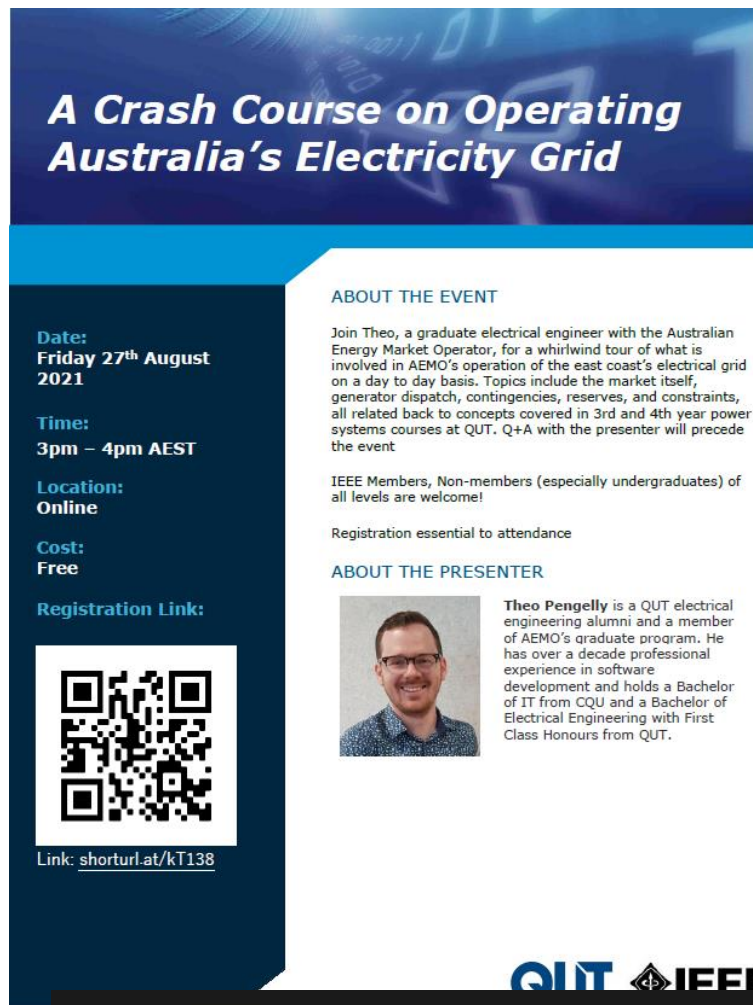
Counsellor: Ghavameddin Nourbaksh

As part of this year's campaign to attract students and provide valuable information for their career, QUT IEEE chapter acknowledged the population of students who are in their senior undergraduate year, research assistance or beginning postgraduate studies. In their interests, we had partnered with alumni of the university to develop

seminars and topic talks of particular interest to course areas. One such was a talk given by Mr [Theo Pengelly](#).

The session was received with much praise and appreciation among the remote attendees, looking forward to the next session.

The next event will be on the 24th of November in collaboration with the IEEE Queensland Educational Activities section. This presentation gives an overview of the driving forces behind grid transformation with high penetration of large-scale renewables and Distributed Energy Resources (DER). In this presentation, the chair of the IEEE Queensland Educational Activities and graduate engineer from Energy Queensland share their experiences from working on industry projects. This will be the first in person event since the easing of gathering restrictions. The funding for catering of this event was supported by the R10 EA.



**A Crash Course on Operating Australia's Electricity Grid**

**Date:**  
Friday 27<sup>th</sup> August 2021

**Time:**  
3pm – 4pm AEST

**Location:**  
Online

**Cost:**  
Free

**Registration Link:**

Link: [shorturl.at/kT138](https://shorturl.at/kT138)

**ABOUT THE EVENT**

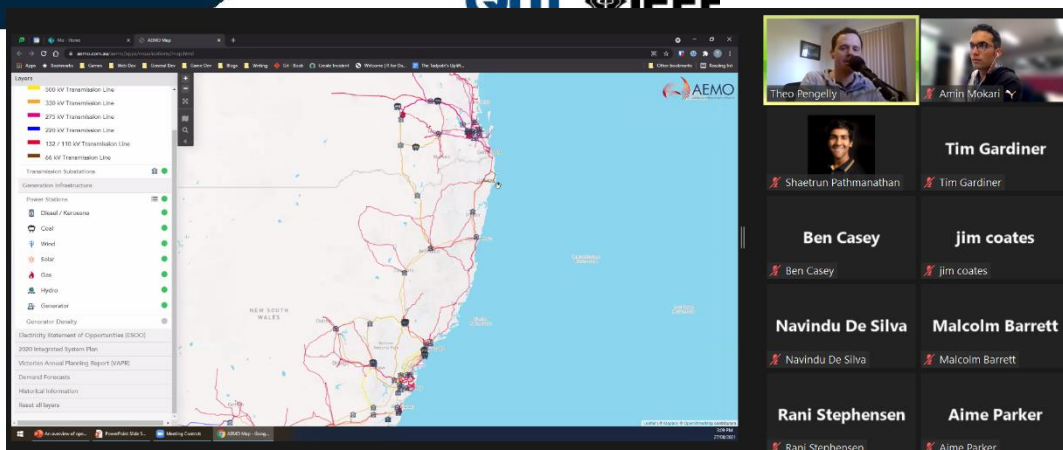
Join Theo, a graduate electrical engineer with the Australian Energy Market Operator, for a whirlwind tour of what is involved in AEMO's operation of the east coast's electrical grid on a day to day basis. Topics include the market itself, generator dispatch, contingencies, reserves, and constraints, all related back to concepts covered in 3rd and 4th year power systems courses at QUT. Q+A with the presenter will precede the event

IEEE Members, Non-members (especially undergraduates) of all levels are welcome!

Registration essential to attendance

**ABOUT THE PRESENTER**

**Theo Pengelly** is a QUT electrical engineering alumni and a member of AEMO's graduate program. He has over a decade professional experience in software development and holds a Bachelor of IT from CQU and a Bachelor of Electrical Engineering with First Class Honours from QUT.



**Future Work**

As part of encouraging senior undergraduate and postgraduate students for membership and career strategy, the chapter has invited Dr Afsaneh from EY to discuss her postdoctoral career adventures. In IEEE QUT's first event of 2022, she will give a summary of different types of market modelling jobs and clients, required skills for running such modelling and available internship programs at EY.

As always, IEEE QUT will welcome alumni to share their experiences for the betterment of its members and participants wholly. We look forward to and welcome collaboration, coalition and cooperation.

# IEEE HKN Mu-Kappa Chapter

## Committee

**Chair:** Samuel Moll

**Vice-Chair:** Yunda Xu

**Secretary:** Hankun Cui

**Treasurer:** Liu Linfeng

**Media Officer:** Christopher Malau

**Faculty Advisor:** Professor Tapan Saha

**Website:** <https://hkn.ieee.org/hkn-chapters/all-chapters/mu-kappa-chapter>

The IEEE HKN Mu-Kappa Chapter has hosted four successful events this year.

**David Finn – Tritium Keynote Presentation:** The keynote presentation focused on the progression of the start-up from its early days of producing Gold Controller motor inverters for solar vehicles to where it is today, an established company mass producing EV fast chargers that are installed around the globe. The talk focused on critical points in the growth of the business that gave direction to where it is today, and the opportunities and challenges presented at each. A large takeaway here was that, crucially a business needs to target the market it is supplying as this ultimately determines what kind of products are going to sell. Following this, a Q&A was held where attendees asked David about technical aspects of the technology and where he sees the industry going. After the event catering was provided and David and the attendees engaged in further discussions. From 223 registrations, approximately 200 people attended the event with the demographic being split between students of UQ and those with a professional interest either in growing a business, electrification or generally.



**Warwick Solar Farm Visit:** The event provided an on-site solar farm visit experience for both chapter members and coursework students. Professor Tapan Saha delivered an informative speech about the solar farm's construction and operation. Multiple cutting-edge technologies developed by UQ researchers have been applied to the Warwick solar farm to optimise solar energy generation. It was a great event with about 50 attendees. All of them enjoyed the day and gained a greater understanding of modern electricity grids and renewable energy generation.



**IEEE Day Celebration:** Speech by IEEE R-10 Director Mr Deepak Mathur. Spoke about direction of IEEE in region 10 and changes being made in the forming of region 11. After the event catering was provided.



**Funder's Day Celebration:** Started with induction of two new members and followed with sharing events experience and playing games with Mu Alpha Chapter.



Overall, we have had a fantastic year at IEEE HKN Mu-Kappa Chapter! We look forward to many more events to come in 2023!