

**IEEE SOUTH AUSTRALIA SECTION**

**2018 ANNUAL REPORT**

**SUBMITTED TO REGION 10**

# Part A Section Summary

## A.1 Executive Summary

In my second annual report, as Chair of IEEE South Australia Section, I would like to express my thanks to all the Executive committee members for their support and making it possible for the smooth functioning of the committee during this year. These include: Vice Chair –Sherry Randhawa, Treasurer –Ivan Lee, and Secretary – Soumaya Jaber.

I also would like to express my gratitude to all the Technical Chapter and Affinity Group Chairs and the members of the respective committees, as well as the leadership teams of our Student Branches.

This year my intent was to continue to see that we support and re-invigorate student branches and Young Professionals in the section, so they re-engage, as they are the future of the section. The section has made some steps this year to turn this around. We have re-established the University of SA student branch, we have established the student-industry networking event and we have extended YP AG to jointly run technical presentations with other Chapter/Societies. Though more need to be done so our young members take on the leadership roles in the section.

This year the section had members attend on the organising committee on the RADAR 2018 international Conference.

Dr Pina Dall'Armi-Stoks  
Chair IEEE SA Section, 2018  
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## SECTION EXECUTIVE COMMITTEE MEMBER LIST

South Australia Section	Chair	Pina Dall'Armi-Stoks
	Vice-Chair	Sherry Randhawa
	Treasurer	Ivan Lee
	Secretary	Soumaya Jaber
WIE Affinity Group	Chair	Victoria Stevens
	Vice-Chair	Shela Cook
	Treasurer	Sherry Randhawa
	Secretary	Tianshu Chu
Computer Society	Chair	Andrew McDonnell
	Vice-Chair	Andrew Commons
	Treasurer	Latha Madhuri Pratti
	Secretary	Samya Bagchi
CAES	Chair	Luke Rosenberg
	Vice-Chair	Fangpo He
	Treasurer	Michael Evans
	Secretary	Leigh Powis
C&SP	Chair	Brian Ng
	Treasurer	Ivan Lee
AP/MTT	Chair	Withawat Withayachumnankul
	Vice-Chair	Bevan Bates
	Treasurer	Bobby Yau
	Secretary	Shengjian Jammy Chen
Young Professionals	Chair	Scott Sleep
	Vice-Chair	
	Treasurer	Marek Dziadosz-Findlay
	Secretary	
IET Retired Engineers Group	Chair	Don Sinnott
	Vice-Chair	Keith Kikkert
	Treasurer	Jim Emery
	Secretary	Don Grigg
Ocean Engineering-Australia Council Joint Chapter	SA rep	Karl Sammut
Power & Energy Society	Chair	Wai-Kin Wong
	Vice-Chair	Mohammed Haque
	Treasurer	Athmi Jayawardena
	Secretary	Quazi Uddin
Web master		Bobby Yau
Retired Engineers Liaison/Section History		Michael Evans
Student Activity coordinator		Brian Ng
University of Adelaide Student branch		Elizabeth Hodgins
University of South Australia Student Branch		Arnav Belapurkar
Flinders University Student Branch		Shela Cook

Our Section had a year full of high quality technical activities. In support our members and the local community IEEE SA Section and chapters had close to 42 x technical and professional activities during 2018 and held 6x Section meetings (including AGM).

<b>AP/MTT</b>	<b>PES</b>	<b>CAES</b>	<b>Computer</b>	<b>C&amp;SP</b>	<b>YP</b>	<b>WIE</b>	<b>LMAG</b>	<b>Section JTP</b>
<b>11</b>	<b>2</b>	<b>8</b>	<b>?</b>	<b>4</b>	<b>0</b>	<b>2</b>	<b>6</b>	<b>9</b>

The IEEE SA Section Committee met six times in 2018 (February, April, June, August, October and November (AGM)). The Section Committee members also maintained ongoing contact by email to deal with issues that could be handled by electronic means.

As part of the IEEE SA Section participation in the Joint Technical Program (JTP) Electrical, the IEEE SA Section hosted up to 2x of the 9x JTP technical meetings.

The SA Section Chair, Pina Dall'Armi-Stoks, attended the regular meetings of the IEEE Australia Council meetings in 2018, chaired by Zia Ahmed, in order to coordinate with other Australian Sections.

The SA Section Chair attended the Region 10 Section Chairs meeting in Langkawi, Malaysia in March 2018 to meet the Region 10 leadership team, the IEEE Australia Council team, and IEEE Headquarters office bearers.

SA section Chair gave an invited talk at the Electrical and Electronic Engineers Student Branch of Adelaide University (EEESAU) End of Year dinner ball on 27<sup>th</sup> October 2018.

SA section Chair was on the organising committee of the RADAR 2018 International Conference and WIE/YP Co-Chair for IEEE R10 TENSYP 2018.

# PART B - ORGANIZATIONAL ACTIVITIES

## B.1 Membership Development Activities

Our membership statistics for 2018 (IEEE OU Analytics as of 17<sup>th</sup> Nov 2018) are shown in the table below.

Current Grade Description	Count of Members
Associate member	5
Fellow	4
Graduate, Student member	45
Life Fellow	2
Life Member	14
Life Senior	6
Member	361
Senior Member	64
Student member	11
Affiliate	15
<b>TOTAL</b>	<b>527</b>

Overall, SA section total count of members in 2018 is up compared to 2017. From November 2017 to November 2018 our members have increased by 12. Though this is considered a slight increase in members it is positive as it is moving in the up direction.

The SA Section was congratulated and recognized in 2018 by IEEE MGA MRRC for achieving its membership development goals. One of the recognition was for Outstanding Section Membership Retention Performance and the other was for Outstanding Section Membership Recruitment and Retention Performance.

The membership development goals were developed based on our Section's three year performance. SA section was commended for continuing to grow IEEE membership in the SA Section. Our effort in both recruiting and retaining your members is truly making a difference both locally and in the overall growth of IEEE.

With the positive increase in members and also these membership recognition it is positive. However, we should not be complacent and continue to work on increasing membership numbers.



2018 Outstanding Section Membership  
Recruitment and Retention Performance  
South Australia Section



2018 Outstanding Section Membership  
Retention Performance  
South Australia Section

## **B.2 Chapter Activities**

IEEE South Australia section has five active chapters: Computer, Communication/Signal Processing, Antenna Propagation/Microwave Theory & Technique, Control/Aerospace and Electronic Systems, and Power Engineering Chapter.

In addition the Australia Council has Australia wide Instrumentation & Measurements Society (IMS) chapter and the Ocean Engineering Chapter.

A new petition has been submitted for the establishment of an Electromagnetic Society Chapter, as part of the South Australia Section.

The technical activities for each of the current chapters are shown in their respective AGM reports.

## **B.3 Students Activities**

IEEE South Australia has three student branches at Adelaide University, Flinders University, and the University of South Australia. In order to encourage more student members, the Section presents an award to a student at each of the three South Australian universities for the best achievement in electrical and electronic courses. The students are nominated by the University, and the awardees receive a certificate and a cash prize. The student award prize-winners for the IEEE South Australia Section 2018 Student Award for Excellence in Engineering with an electrical and/or electronics emphasis are

Luke Smith – (2018) -Adelaide University  
Lucas Moss- (2018) -Flinders University  
Timothy Chiknaikin (2018) - University of South Australia.

These awards were presented to each of the student at the 2018 SA Section's End of Year Social Cocktail Event.

The Student Branches at The University of Adelaide and Flinders University continued their high levels of activity. However, University of South Australia branch has just got a chair, so hopefully in the coming years it too will be active like the other two university student branches.

Brian Ng was the Student Activities Coordinator of the SA Section in 2018, and has done a fantastic job in supporting the student branches. Ivan Lee represented the SA section on the judging panel for the Australia Council Student Paper Prizes.

## **B.4 Affinity Group Activities**

South Australia Section has three Affinity Groups: Young Professionals (YP), Women in Engineering (WIE) and Life Members Affinity Group (LMAG). The reports for these Affinity Groups are included in their respective AGM reports.

## **B.5 IEEE Region 10 TENSYP 2018**

The SA section supported Tianshu Chu (WIE secretary) to attend and present at the IEEE R10 TENSYP 2018 in Sydney from 4<sup>th</sup> to 6<sup>th</sup> July 2018. Tianshu participated in the WIE/YP panel session on Early Careers and Presented on the WIE-SA section STEM activities as part of the WIE/YP session.

Tianshu provided a presentation to the SA section committee about what she learnt and acquired from attending TENSTYMP 2018.

## **B.6 IEEE R10 SYWL Congress**

The Section Committee supported Soumaya Jaber (Section secretary, WIE, and student) to attend the IEEE R10 SYWL Congress Bali Indonesia 30<sup>th</sup> August to 2<sup>nd</sup> September 2018. Soumaya provided a presentation to the SA section committee about what she learnt and acquired from attending SYWL Congress 2018.

## **B.5 Other Organizational Activities**

The Section Committee supported Pina Dall'Armi Stoks to attend the 2018 IEEE R10 meeting in Langkawi, Malaysia. The trip was subsidised by Region 10.

## **Part C- External Engagements**

### **C.1 Relationship with National Societies**

The IEEE-SA Section has also a very strong collaboration with our professional colleagues in Engineers Australia, the Institution of Engineering and Technology (IET), and the Telecommunication Society of Australia (TSA) through the Joint Technical Program (JTP) and IET Retired Engineers Group. As part of the IEEE SA Section participation in the Joint Technical Program (JTP) Electrical, the IEEE SA Section hosted two of the 10 JTP technical meetings and presentations held in 2018.

#### **20<sup>th</sup> March 18 Site visit: RedFlow (Host: Simon Hackett, Managing Director of RedFlow)**

RedFlow has designed its unique zinc-bromine flow batteries for stationary energy storage applications ranging from its ZCell residential battery to its scalable ZBM2 batteries for industrial, commercial, telecommunications and grid-scale deployment. Redflow, a publicly-listed company (ASX: RFX), produces high energy density batteries that are sold, installed and maintained by an international network of system integrators. Simon Hackett, Managing Director of Redflow, will lead the site visit which will include a presentation on the technical characteristics of the battery design and performance, and a tour of the battery deployment lab on site.

#### **17<sup>th</sup> April 18 Presentation by Professor Mark Taylor (Biomedical) -**

Hip and knee replacements are one the most successful elective surgeries, with failures rates of 5% or lower after 10 years. Although successful, there is still room for improvement, for example to meet the demands of younger, more active patients. Given the success of total joint replacement, this present challenges in trying to evaluate new designs, to ensure that they are at least as good as, or better than existing devices. Computational modelling has been used for over 40 years to assess the performance of primary joint replacement and the current state of the art will be described. Unfortunately, joint replacements do fail and need to be removed and

replaced. These failures are often associated with significant bone loss and revision joint replacements consist of an array of components to fill the defect and provide adequate fixation. In comparison with primary joint replacement, there have only been a few attempts to assess the performance of these complex devices. The challenges and approaches for modelling revision joint replacement will be discussed.

**15<sup>th</sup> May 18 Storing Renewable Energy to Create a Low Carbon Campus, Dr Stephen Berry, University of South Australia**

In the context of local and global efforts under the Paris Accord to reduce anthropogenic greenhouse gas emissions, the University of South Australia is taking action to decarbonise its operational impact through the application of renewable energy and energy storage technologies. Stage 1 of the decarbonisation program is to create a full-scale renewable generation and energy storage demonstration facility at the Mawson Lakes campus in Adelaide meet much of our operational energy needs. A key plank of this project is installation of an electrolyser to utilise surplus renewable energy to produce and store hydrogen, and an associated hydrogen fuel cell to generate electricity on demand. When linked to the planned on-campus photovoltaic array and flow battery facility, this system transforms an irregular intermittent renewable energy resource into an on-demand electricity generator, able to provide additional electrical supply during periods of peak load as well as during periods of little or no renewable energy generation. The presentation explores the socio-technical issues driving the project, and the manner in which technological innovation is providing solutions for a low carbon campus.

**19<sup>th</sup> June 18 - Mobile Phone Records Used as a Fuzzy Fingerprint of Crime, Prof Reg Coutts, Coutts Communications Pty Ltd**

Ten years ago Prof Coutts was asked to participate in a post-conviction inquiry into a murder case in which the investigators and lawyers misinterpreted mobile telephone records. The case and his assessment became a feature of an ABC 4 Corners investigation as cited on Web site [www.couttscommunications.com](http://www.couttscommunications.com). Since then, Prof Coutts and his barrister colleague in Canberra have become concerned about the inaccurate use of mobile telephone records to place the whereabouts of a telephone (and its user) as evidence in criminal trials. In the years since, matters have not improved, and in 2015 the Commonwealth Government enacted new requirements for the Australian Telecommunication companies (Telcos) to keep certain metadata for at least two years to assist crime enforcement. As well as discuss the ways such data can safely be used, In this talk, Prof Coutts will share with the audience some of the intended and unintended consequences of such moves here and overseas to ‘improve security’ in a post 9/11 world.

**17<sup>th</sup> July 18 - Radar development in Australia: from World War II to the Jindalee Operational Radar Network - Dr Don Sinnott**

Abstract – Since the earliest days of military radar application Australia has had a vibrant radar research community, principally in government laboratories. The bombing of Darwin in 1942 led to development, construction and deployment of Australia’s first radars but the next major step in Australian-designed radars had to wait until the 1960’s. Researchers, benefitting from earlier experiments on radar tracking of missiles launched from Woomera, began to plan and implement over-the-horizon radar systems designed for defence surveillance off Australian’s northern coast. The outcome has been the Jindalee Operational Radar Network (JORN).

**21<sup>st</sup> Aug 18 Site Visit: to the new Royal Adelaide Hospital (RAH)**

**18<sup>th</sup> Sep 18 Talk/site visit**



**23<sup>rd</sup> Oct 18 - Student Papers Night**

**20<sup>th</sup> Nov 18 - Royal Australia Air force Wedgetail Technology Capability Presentation**

I would like to thank Mohammed Haque and Mark Pszczel for all their efforts over the past number years in been the SA section representatives on the JTP organising committee.

I would also like to take this opportunity to Thank Quazi Uddin who has kindly volunteered to be SA section representative on the JTP for 2019.

## **C.2 Special Events**

### **C.2.1 Student- Industry Networking Event**



This year the section held again its Student-Industry Networking Event on Wednesday 3<sup>rd</sup> October 2018 at the Ingkarni Wardli Building, University of Adelaide. We had up to 72x people attend the event which included students, YP and WIE along with representatives from about 13x companies/organisations. Companies/organisations that attended included RADLogic Pty Ltd, Cohda Wireless, UniSA, ElectraNet, Defence Science & Technology Group (DST), Defence Force Recruiting, GPA Engineering, SA Power Networks, Redarc, Dematec Automation Group and BAE Systems. Both students and industry representatives who attended the event indicated that the event was beneficial and would be interested to be part of it if it is held in future.



Thank you to Shela Cook, Luke Rosenberg, and Brian Ng for all their efforts in organising the event this year.

### **C.2.2 2018 IEEE SA Section End of Year Social Cocktail Event**

This year the IEEE SA section, after consultation with members decided to hold a different style of event instead of the annual distinguished lecture dinner. This year the section held an end of year social cocktail event for members on the 19<sup>th</sup> November 2018.

### **C.3 Collaboration with other IEEE Sections**

Collaboration with other neighbouring IEEE Sections has been handled through IEEE Australia Council. In addition, we have collaborated on preparations for a joint Conference for IEEE RADAR 2018 (Brisbane 2018). Section is co-finance sponsor with IEEE QLD section for RADAR 2018. Pina Dall'Armi-Stoks is on the RADAR 2018 organising committee representing the section.

### **C.4 Problems ongoing/anticipated**

The Section anticipates that finding young people to be active IEEE members and volunteers is one of the biggest challenges that our section is facing in the future. This problem is also faced by many other sections around the world. Young members are under increasing time pressure from their employers and finding time for IEEE volunteering is a challenge. Another major concern is that we need to develop new Chapters that are in-tune with new directions in the industry.

## **Part D – Concluding Remarks**

I wish the very best for the 2019 SA section committee in moving forward the section. I hope to see more engagement and leadership from our young members and for them to take the lead in organising interesting events and activities. I also look forward to continuing to see new Chapters being formed in SA section that can attract younger members to IEEE-SA section.

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