



IEEE SOUTH AUSTRALIA SECTION

2019 ANNUAL REPORT

Annual General Meeting

5 December 2019

Public Schools Club

Part A Section Summary

A.1 Executive Summary

In my first 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 running of the committee during this year. These include: Vice-chair –Luke Rosenberg, Treasurer –Brian Ng, 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: Shela Cook, Harrison Lees and Ella Pietraroia.

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 can re-engage, as they are the future of the section. To this end, we had several network and social events run throughout the year. I would like to thank both Scott Sleep and Elizabeth Hodgins for organising these events.

Dr Sherry Randhawa
Chair IEEE SA Section, 2019
sherry.randhawa@ieee.org

SECTION EXECUTIVE COMMITTEE MEMBER LIST

South Australia Section	Chair	Sherry Randhawa
	Vice-Chair	Luke Rosenberg
	Treasurer	Brian Ng
	Secretary	Soumaya Jaber
WIE Affinity Group	Chair	Elizabeth Hodgins
	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	Waddah Al-Ashwal
	Treasurer	Michael Evans
	Secretary	Leigh Powis
C&SP	Chair	Ngoc Hung Nguyen
	Treasurer	Brian Ng
AP/MTT	Chair	Shengjian Jammy Chen
	Vice-Chair	Christophe Fumeaux
	Treasurer	Bobby Yau
	Secretary	Wendy Lee
Young Professionals	Chair	Scott Sleep
	Treasurer	Elizabeth Hodgins
	Secretary	Vincent Chong
IET Retired Engineers Group	Chair	Don Sinnott
	Vice-Chair	Keith Kikkert
	Treasurer	Don Grigg

	Secretary	Jim Emery
Ocean Engineering-Australia Council Joint Chapter	SA rep	Karl Sammut
Power & Energy Society	Chair	Quazi Uddin
	Vice-Chair	Wai-Kin Wong
	Treasurer	Jamal Alameddine
	Secretary	Athmi Jayawardena
Web master		Bobby Yau
Retired Engineers Liaison/Section History		Michael Evans
Student Activity coordinator		Brian Ng
University of Adelaide Student branch		Harry Lees
Flinders University Student Branch		Shela Cook
University of South Australia Student Branch		

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 2019 and held 6x Section meetings (including AGM).

AP/MTT	PES	CAES	Computer	C&SP	YP	WIE	LMAG	Section JTP
6	2	6	2	4	3	3	6	10

The IEEE SA Section Committee met six times in 2019 (February, April, June, August, October and December (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 one of the ten JTP technical meetings.

The SA Section Chair, Sherry Randhawa, attended the regular meetings of the IEEE Australia Council meetings in 2019, chaired by Stefan Mozur, in order to coordinate with other Australian Sections.

The SA Section Chair also attended the Region 10 Section Chairs meeting in Melbourne in March 2019 to meet the Region 10 leadership team, the IEEE Australia Council team, and IEEE Headquarters office bearers.

PART B - ORGANIZATIONAL ACTIVITIES

B.1 Membership Development Activities

Our membership statistics for 2019 (IEEE OU Analytics as of 3 December 2019) are shown in the table below.

Current Grade Description	Count of Members (2019)
Associate member	4
Fellow	6
Graduate, Student member	45
Life Fellow	2
Life Member	16
Life Senior	5
Member	326
Senior Member	64
Student member	12
Affiliate	15
TOTAL	495

Overall, SA section total count of members in 2019 is down by 6% compared to 2018. This is mainly due to the decrease in ordinary members from 361 to 326 this year.

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 2019 Student Award for Excellence in Engineering with an electrical and/or electronics emphasis are:

- Daniel Mignanelli, University of Adelaide
- Darcy Dunn-Lawless, Flinders University

These awards were presented to each of the student at the 2019 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, whilst University of South Australia branch had a chair in 2018, unfortunately there was no representative for 2019. This is something which needs to be addressed for the next year.

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.



Visit to Port Augusta, 18-20 Nov 2019 by the WIE affinity group to promote STEM to country schoolgirls.

B.5 Other Organizational Activities

The Section Committee supported Sherry Randhawa to attend the 2019 IEEE R10 meeting in Melbourne. 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 one of the ten JTP technical meetings and presentations held in 2019.

5 March 2019

The strategy toolbox for improved safety in design of critical assets by Quazi Uddin, CPEng FSEng LSSBB

Leaving the industry default bottom-up approach and adapting a new top-down approach; Identifying whole of asset life issues and incorporating into the equipment design phase to minimise lifecycle cost; Analysing equipment-human interaction interfaces to identify potential hazards and design proactive measures; Identifying required design changes to minimise, eliminate or provide easier access to maintenance activities Improved design specifications, testing strategy and vendor evaluation as part of buying process and Engaging a cross-functional asset safety evaluation team to identify major lifecycle concerns.

19 March 2019

Towards identifying the Somerton Man, Prof. Derek Abbott, Uni of Adelaide

The Somerton Man was found dead on Somerton Beach, South Australia in 1948. The mystery is that over 70 years later no one has been able to identify the man. This talk will begin by quickly reviewing the mystery and then will describe how the numerous skills of an electrical engineer (eg. imaging, cryptography, use of conditional probability, bioinformatics, and software engineering) can be utilised to bring us closer to a solution, and also providing us with tools that can be of assistance with the problem of human identification in general.

16 April 2019

Dr David Hobbs (Biomedical Engineering at Flinders University)

Development of a new gaming system to assist the development of children's with cerebral palsy

11 June 2019

Resonate Consultants - presentation Matthew Stead CEO of Resonate Consultants; Matthew is the Managing Director of Resonate Acoustics and Ping Services. He has over 24 years of experience as a professional acoustic consultant in Adelaide, Melbourne and the USA with an internationally recognised noise and vibration consultancy. He specialises in noise, vibration and EMI for sensitive research and medical institutions.

The presentation will cover the Ping Monitor Technology device that uses a patent technology that can be applied to other technology where acoustic condition monitoring and surveillance if required. Examples applications include drone monitoring, mining equipment condition monitoring and monitoring of bearings in rail infrastructure.

20 June 2019

SCADS - Survivable Communications and Autonomous Delivery Service, Mathew Elliot, Defence Science and Technology (DST) Group, Edinburgh

DST Group is developing SCADS, an autonomous swarming framework that supports 'data-ferrying' to allow the exchange of user information when end-to-end connectivity cannot be achieved, including urban environments, where line of sight cannot be achieved, or denied RF environments, where an adversary seeks to prevent RF communications. In such environments, SCADS makes use of additional autonomous assets (e.g., Unmanned Airborne Vehicles – UAVs) bearing communications resources and leveraging delay tolerant network protocols to provide communications between disconnected nodes. SCADS uses emergent behaviour techniques to minimise the coordination management traffic required between nodes, avoiding the need to centrally control them. The underlying research into multiple data-ferrying behaviours operating in difficult environments will be presented, as well as results from a recent successful real-world trial providing data-ferrying between disconnected ground nodes using multiple UAVs.

23 July 2019

"Naval Group Australia - Building the Submarine Engineering Workforce of the Future" Gérard Autret Naval Architect for surface ships, Platform Manager for the next French SSBN in 2011. Gary Swarbrick currently the Chief Technical Officer with Naval Group Australia.

The presentation will outline the journey Naval Group is taking to recruit and retain the engineering workforce required to deliver this multi-generational program, spanning a wide range of technical and specialist roles. Naval Engineering team will not only be at the front and centre of designing and building the Attack class submarines, but also the development of

prototype rafts and the design, commissioning and operation of highly advanced shore-integration and test facilities.

20 August 2019

“Introduction to Submarine Batteries” by Mr Claude Messina, Program Manager, PMB Defence Engineering

The submarine performance for diesel-electric submarines is driven by its batteries. How the battery affects the submarine performance and vice versa is not always well understood. In many cases, this has resulted in submarine batteries being a commodity item rather than a strategic asset. Learn more about submarine batteries and how they can help deliver a superior submarine.

17 September 2019

Site Visit - Prof Karl Sammut - Flinders University leading research on Maritime Autonomous Vehicles. A tour of his facilities at Tonsley campus.

15 October 2019

STUDENT PAPERS NIGHT

Students from our three South Australian universities present their final year projects whilst competing in the IET Rex Jones Student Presentation Prize.

20 November 2019

Present Around the World - Present around the world and student paper night will split next year to two events. Student paper night will involve only undergraduate students. PATW will have only 6 participants undergraduates, postgraduate, and young professionals.

I would like to thank Quazzi Udin for all his efforts over the past year in being the SA section representative on the JTP organising committee.

C.2 Special Events

C.2.1 Student- Industry Networking Event

This year the section held again its Student-Industry Networking Event on Wednesday 9 October 2019 at the Ingkarni Wardli Building, University of Adelaide. It was attended by 100 university students, YP and WIE along with representatives from about 8x 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. This year, breakout sessions were organised where companies ran a seminar in the tutorial rooms for interested students. 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 Waddah Al-Ashwal, Shela Cook, Luke Rosenberg, and Brian Ng for all their efforts in organising the event this year.



C.2.2 2019 IEEE SA Section End of Year Social Cocktail Event

This year the section held an end of year social cocktail event for members on the 5 December 2019.

C.3 Collaboration with other IEEE Sections

Collaboration with other neighbouring IEEE Sections has been handled through IEEE Australia Council.

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

Whilst the section does have a strong bank balance and has financial stability, I hope that for the coming year, the section will try different strategies to engage with potential members, particularly young professionals and postgraduate university students. I hope to see further engagement and leadership from our young members. I also look forward to continuing to see new Chapters being formed that can attract younger members to IEEE-SA section.

Dr Sherry Randhawa
Chair IEEE SA Section
3 December 2019
sherry.randhawa@ieee.org