

Region 10 - South Australia Section - 2024

PART A - SECTION SUMMARY

A.1 Executive Summary

- Section Executive Committee Member List

South Australia Section	Chair	Shela Cook
	Vice-Chair	Jignesh (Jay) Jokhakar(till June 2024)
	Treasurer	Bobby Yau
	Secretary	Jonathan Wheare
	Student Activity Chair	Xin (Vernon) Yuan
	Webmaster	Vacant
	Joint Technical Program	Vanika Sharma
Power & Energy Society	Chair	Vanika Sharma
	Vice-Chair	Ridma Kondasinghe
	Treasurer	Ridma Kondasinghe
	Secretary	Sahand Karimi-Arpanahi
Computer Society	Chair	Jonathan Wheare
	Vice-Chair	Adriel Cheng
	Treasurer	Hong Gunn Chew
	Secretary	Vacant
CAES	Chair	Leigh Powis
	Vice-Chair	Waddah Al-Ashwal
	Treasurer	Luke Rosenberg
	Secretary	Nasim Chitsaz
	Membership Development	Xin (Vernon) Yuan
C&SP	Chair	Ronald Mulinde
	Vice-Chair	Ishtiaq Ahmad
	Treasurer	Brian Wai-Him Ng
	Secretary	Jignesh (Jay) Jokhakar

AP/MTT	Chair	Shengjian Jammy Chen
	Vice-Chair	Debrata Karmoka
	Treasurer	Quoc Hung Dang
	Secretary	Morteza Shahpari
Young Professionals	Chair	Zhi Cao
	Vice-Chair	Qiang Gao
	Treasurer	Linxi Chen
	Secretary	Linxi Chen
Life Members Affinity Group	Chair	Keith Kikkert
	Vice-Chair	Don Sinnott
WIE Affinity Group	Chair	Anika Talukder
	Vice-Chair	Munirah Hadzic
	Treasurer	Anna Holland
	Secretary	Abigail Wicks
University of Adelaide Student Branch	Chair	Caleb Rodgers
Flinders University Student Branch	Chair	Anthony Eldrige
University of South Australia Student Branch	Chair	Aradhika Guha

- Section Highlights

For 2024, the South Australia Section had a year full of high-quality technical activities. In support of our members and the local community, the IEEE SA Section chapters, student and affinity groups held more than 59 (Some events were not yet reported at the time of the AGM), admin, technical, non-technical and pre-university events.

Name	Prof	Tech	Non-Tech	Admin	Hum	Pre-U	Total
South Australia Section	7	35	2	15	0	0	59

The IEEE SA Section Committee met seven times in 2024 (February, April, June, August, October, November and December (AGM)). The Section Committee members also maintained ongoing contact by email to deal with issues that could be handled electronically.

The SA Section Chair, Shela Cook attended the regular monthly meetings of the IEEE Australia Council meetings in 2024, chaired by Fouad Karouta, to coordinate with other

Australian Sections. This included an in-person meeting in Kuala Lumpur on 1 March 2024. The SA Section Chair also attended the Region 10 Annual Meeting, an in-person meeting in Kuala Lumpur on 2-3 March 2024

- Major Events (International, National)
- Major Chapter Activities
- Major Student and Affinity Group Activities
- Awards

In 2024 the South Australia Section has successfully hosted activities and sent delegates to conferences hosted within IEEE R10, Australia Council and New Zealand Council to strengthen relations with fellow IEEE volunteers.

Activities Summary

- Section Meetings
- Elections 2024 using VTools
- “Quantum Computing using Spin Qubits in Silicon” Technical talk (joint with Computing and WIE)
- “DISR & IEEE SA – Contributing to Australia’s Critical Technology Standard”(joint with DISR and IEEE Standards Association (JTP))
- Industry Networking Night 2024
- AGM 2024
- End of Year Dinner 2024

Section sent delegates to the following Conferences

- R10 Robotics Competition 2024 - Tokyo
- R10 SYWL 2024 - Tokyo
- ANZSCON 2024 - Auckland

A.2 Financial Report

- Summary

P/L	Approved Budget	Actual Figure
Income	A\$26,388.39	A\$91,353.37
Expenses	A\$24,680.00	A\$43,637.88
Net Operating Result	A\$1,708.39	A\$47,715.49

- \$44.6k in Radar 2023 reimbursement

PART B - ORGANIZATIONAL ACTIVITIES

B.1 Membership Development Activities

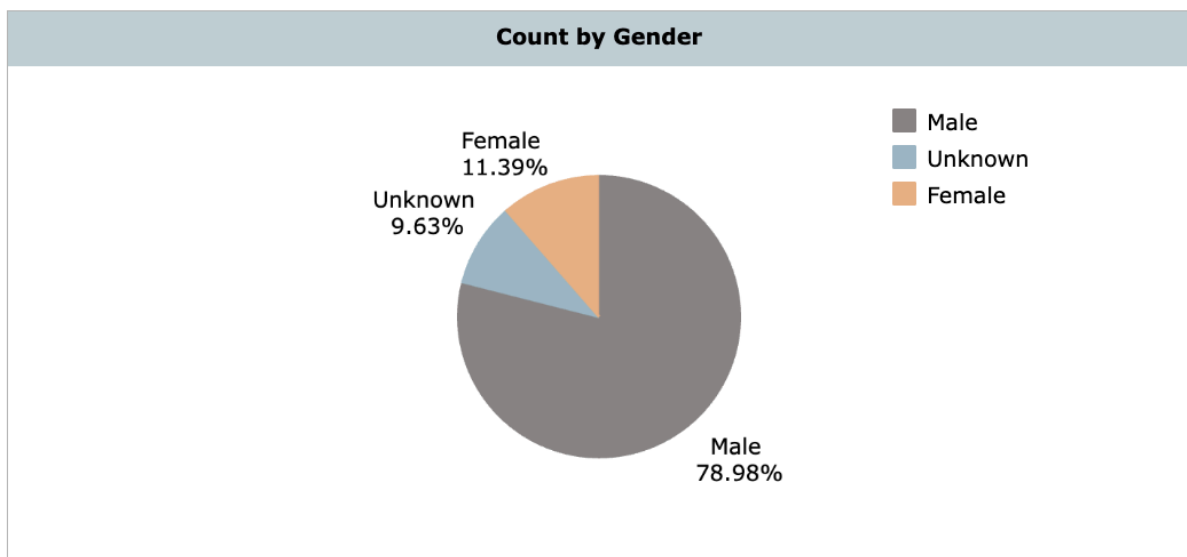
- Total number of active members in the past 3 years.
- Summary and evidence of work done to improve the value of membership, which leads to retention and growth of members

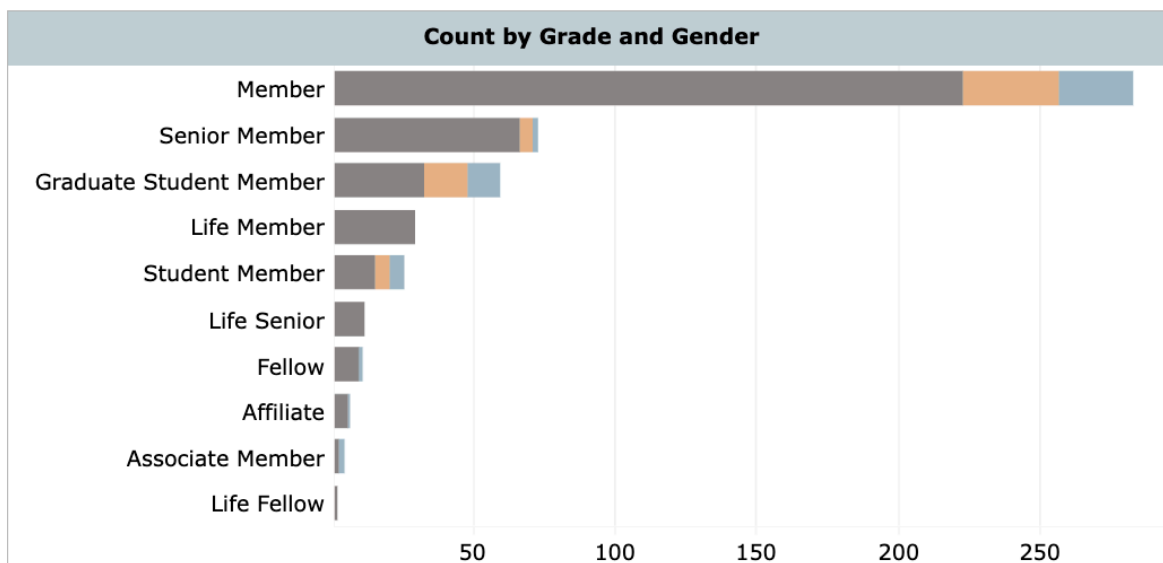
Our membership statistics for December 2024 are shown in the table below.

Count by Region and Grade			
Region	Grade Category	Grade	Total
R10	IEEE Grades	Associate Member	5
		Fellow	11
		Graduate Student Member	60
		Life Fellow	2
		Life Member	30
		Life Senior	12
		Member	283
		Senior Member	73
		Student Member	26
		Total	502
Grand Total		502	

The spread in terms of gender is shown below, with 11.39% female, 78.98% male and 9.63% unknown.

The count by grade and gender shows this information differently. The majority of female members are students, members or senior members.





B.2 Chapter Activities

- Total number of Chapters in the Section
- Number of Chapters formed in the current year
- Number of active Chapters (Chapters who have reported required number of meetings during the year)
- Summary of Chapter activities (Chapter wise with attachment table/information)

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

Computer Society

- Two technical talks
 - Effective Digital Twins Utilising Hybrid Architectures
 - Learning-based adaptive control: a path towards resourceful autonomous maritime agents
- Joint talk with Section and WIE

Communication/Signal Processing

- Mathworks seminar at DST EDN, (4 attendees)
- Mathworks seminar open to the public (9 attendees).
- Safety from Space Forum (15 attendees)
- New members to IEEE, and C&SP committee

Antenna Propagation/Microwave Theory & Techniques

- IEEE MTT-S DISTINGUISHED MICROWAVE LECTURE: MICROWAVE PHOTONIC RADARS: WHAT CAN PHOTONICS BRING TO RADARS?
- IEEE MTT-S DML SEMINAR - RF DESIGN FOR ULTRA-LOW-POWER WIRELESS COMMUNICATION SYSTEMS

Control/Aerospace and Electronic Systems

- Four short courses, number of attendees 79
- Seven Seminars and lab tours
- Five Executive Committee meetings.
- Social Event: Dinner at Adelaide Zoo with private tour.

Power Engineering Society

- **Site Visits:** Torrens Island Battery (*featured in R-10 IEEE PES newsletter*) and Flinders Solar Car as a *Joint Technical Program*.
- **Special Events:** DLP on Energy Transition to celebrate *IEEE Day* and a Women in Energy event to celebrate *International Women's Day*.
- **Webinars:** Topics included Power Quality & Harmonics and NEM Future Challenges.
- **Engagement Growth:** Participation increased significantly from 5 to over 100 members.
- **Collaborative Projects:** Co-organized an industry-led project for master's students.
- **Committee Activities:** Five Executive Committee meetings and a committee lunch to reflect on achievements and plan for the future.

B.3 Professional and Continuing Education Activities

- 4 short courses organised by CAES chapter on Over-the-Horizon Radar fundamentals - 79 attendees.

B.4 Students Activities

- Total number of Student Branches in the Section
- Number of Student Branches formed in the current year
- Section level student activities (student congress, paper and other contests, awards etc)
- Number of active Student Branches (Student Branches who have reported required number of meetings during the year)
- Summary of Student Branch activities (Student Branch wise with attachment table/information)

IEEE South Australia has three student branches: Adelaide University, Flinders University, and the University of South Australia. 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 University nominates the students, and the awardees receive a certificate and a cash prize. The student award prize-winners for the IEEE South Australia Section 2022 Student Award for Excellence in Engineering with an electrical and/or electronics emphasis are:

- Seung Hyun Lee, University of Adelaide
- Samuel Croft, Flinders University
- Brennan Joshua Watkins, University of South Australia

Student Industry Night 2024

The Section co-supported with CAES in hosting the student industry networking night. There were more than 200 students and at least 30 participants from industry.



B.5 Affinity Group Activities

- Young Professional (YP)
- Women In Engineering (WIE)
- Life Member (LM)

South Australia Section has three Affinity Groups: Young Professionals (YP), Women in Engineering (WIE) and Life Members Affinity Group (LMAG).

Young Professionals (YP)

List of official meetings that were held to plan YP activities for the year

1. 1st June 2024 (Virtual), IEEE attendees: 5
2. 10th June 2024 (Virtual), IEEE attendees: 4
3. 12nd August 2024 (Virtual), IEEE attendees: 4
4. 13th September 2024 (In person UofA): Number of registration: 28, IEEE attendees: 18, Guest: 2
5. 20th September 2024 (virtual), IEEE attendees: 5
6. 17th October 2024 (Virtual), Australia Council YP Meeting, IEEE attendees: 6
7. 24th October 2024 (UniSA in person), Electranet attendees: 4, E&E Students: 52, IEEE attendees: 6
8. 28th November 2024 (Flinders in person), IEEE attendees: 8

Women in Engineering (WIE)

List of official meetings that were held to plan WIE activities for the year

1. 10 March 2024 (in person, North Adelaide), IEEE attendees: 6, guest: 10
2. 7 April 2024 , IEEE attendees: 5 guest: 8
3. 14 May 2024, IEEE attendees: 5, guest: 9
4. 4 June 2024, IEEE attendees: 4, guest: 8
5. 26 July 2024, IEEE attendees: 5, guest: 9
6. 5 August 2024, IEEE attendees: 5, guest: 10
7. 13 August 2024, IEEE attendees: 4, guest: 12
8. 19 August 2024 (In person, Adelaide University), IEEE attendees: 6, Guest: 12
9. 20 August 2024, IEEE attendees: 5, guest: 11
10. 9 October 2024, IEEE attendees: 5, guest:9

Outside of these 10 scheduled meetings, a range of individual meetings were held with Department of Education, Kadina Memorial School and industry sponsors such as BAE Systems Australia, SAAB, Adelaide University and Flinders University.

WIE STEM Workshop

- Held at Kadina Memorial School for 3 days - 27th August to 29th August
- 75 girls in attendance (years 7 to 10), 18 Industry volunteers, 6 workshops, 2 technology demonstrations, 3 career talks and a parents' open night.
- A very positive response from girls and teachers requests for a future visit



Life Members Affinity Group (LMAG)

Chairman's Report for 2024, presented 27 November 2024

PROGRAMME FOR YEAR

The Retired Engineers Group presented the following events-with in-person Lectures held at the EA Chapman Lecture Theatre, together with Site Visits. The programme was wide ranging in topic selection. The visits aroused great interest in those that were able to attend.

No	Date	Presenter	Affiliation	Topic	Atn
1	7 Feb	Robert Chadwick	Electrification Hub Supervisor Flinders University, College of Science, Engineering	Flinders Solar Car Team and the 2023 World Solar Challenge	25
2	3 Apr	Dr. Dave Ormrod	Director Information Warfare, Defence SA	South Australia's Defence Industry	32
3	6 Jun	Professor Peter Pudney	Industrial and Applied Mathematics UniSA	Electric Vehicles	32
4	3 Jul	Andrew Short	Manager, Siemens Tonsley Park Energy Systems	Siemens Tonsley Park Energy Systems Plant Tour	18
5	7 Aug	Rick Matthews	AMSAT	AMSAT OSCAR 7, Operating 50 years	23
6	2 Oct	Dr. Mahesh Venkataraman	1414 Degrees Ltd Chief Technical Officer	SiBox Hot Silicon Energy Storage Technology and SiBrick Integrated Pyrolytic Hydrogen Reactor, Lecture and Pilot Plant visit	10
7	27 Nov	Cathryn McDonald	SA Power Networks	Operational Experience from a 100% Solar Network	TBA

B.6 Awards & Recognition Activities

- Award constituted by the Section
- Please list all Awards and Recognitions received by the Section, and members in the Section, from R10 and IEEE HQ during the year

Elevation of Wen Liang Soong to IEEE Fellow for contributions to performance improvement and high-speed operation of permanent magnet synchronous machines.

B.7 Communication Activities (Newsletter, Home Page, E-mail etc.)

- Newsletter (name and number of issues in the year)
- Home Page of the Section (give the URL and how often it is updated)
- Other means of contacts with Section members including social media

Section URL: <https://r10.ieee.org/saus/>

B.8 Industry Relations

- Membership growth and retention
- Activities for/with industrial members

Student Industry Night 2024 - 9 industry sponsors with more than 30 participants.

WIE STEM workshop - Industry sponsors such as BAE Systems Australia and SAAB.

B.9 Humanitarian Technology Activities

- Humanitarian Technology related activities supported by the Section including collaboration with other OUs.
- SIGHT Activities

N/A

B.10 Community Activities

- IEEE Social activities (Family day, IEEE day, Engineers Week)”

N/A

PART C - OTHERS

C.1 Special Events

- Please briefly describe the importance of special events and the outcomes achieved
- Funding secured from the IEEE and external sources including sponsorships

WIE STEM workshop - Sponsored by the Department of Education, South Australian Government. A very positive response from girls and teachers requests for a future visit.

C.2 Relationship with National and International Societies and Non-Government Organizations (NGO)

- Nature of relationship and details of any formal agreement signed
- Details of joint activities
- Benefit to IEEE members (for example discounts, access to technical information etc.)
- Benefit to Section (for example help in membership development, venue facilities, cost saving etc.)

The SA Section has a strong relationship with our professional colleagues in Engineers Australia, the Institution of Engineering and Technology (IET), and the Telecommunication Society of Australia (TSA). While there were ongoing technical meetings with the IET, the Joint Technical Program (JTP) ran events in 2024. The section, organised “DISR & IEEE SA – Contributing to Australia’s Critical Technology Standard”(joint with DISR and IEEE Standards Association for the JTP program.

C3. Collaboration with other IEEE Sections

- Support extended to neighboring Sections
- Joint activities with any other Section

In 2024 the sections sent some delegates to the following Conferences

- R10 Robotics Competition 2024 - Tokyo
- R10 SYWL 2024 - Tokyo
- ANZSCON 2024 - Auckland

C.4 Support extended to Sub-sections & Society Chapters within the Section

- Support extended for organising technical, educational and professional activities
- Joint activities for membership development
- Support extended for the formation of a Sub-section or transition of a Sub-section into a full Section
- PES - DLP Tour in 2025
- C&SP - Workshop in Jan 2025

C.5 Best Practices of your Section (which you would like to share with other Sections for the benefits of members)

Prudent financial management serves as the foundation of a robust and resilient financial position for the SA Section. By maintaining disciplined budgeting and seeking opportunity to generate revenue, the Section can optimise its financial stability and resilience. This strong foundation not only reinforces trust among members and stakeholders but also provides the flexibility to invest in initiatives that can foster future growth in membership and deliver value to our existing members via innovative programs.

C.6 Problems anticipated and suggestions for solutions, if any

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. 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. Finally to streamline officer handover procedures by updating the bylaws and election procedures.

PART D - GOALS AND PLANS

D.1 Continuation of project/activity in progress and their implementation plans

- C&SP Workshop - Late January 2025
- PES DLP - April 2025
- SYWL 2026 - Melbourne (Section to confirm type of support)
- Smart Cities 2027 - Q4 (Still being discussed with Business Events)

D.2 Goals and Future Plans

The **top priorities** for the IEEE SA Section in 2025 are:

1. **Collaborative leadership:** Empowering the Section Executive Committee (ExCom) team through the articulation of a clear vision in serving our members in South Australia, encouraging effective collaboration between the Section and Chapters/Affinity Groups, and establishing robust procedures for the Section ExCom.
2. **Membership engagement:** Reinvigorating the engagement with the local membership base through a variety of events, initiatives and awards. One such initiative is the Senior Membership Drive: Through the reestablishment of the Membership Development committee, the Section ExCom will proactively assist members to navigate through the process in becoming a Senior Member (<https://www.ieee.org/membership/senior/>).
3. **Professionalisation:** Providing value to our members by sponsoring technical conferences/workshops, running relevant training courses by well-known experts in the field, and establishing networking events to promote diversity in STEM.

D.3 Any innovative ideas to make IEEE more creative and value added for sustaining the membership retention and recruitment goals.

Here are a few innovative strategies to boost IEEE's membership retention and recruitment efforts while enhancing creativity and value:

1. **Personalised Member Journeys:** Create tailored engagement plans for members based on their professional interests, career stage, and goals. This could involve curated resources, mentorship programs, and exclusive events for specific fields or levels of expertise.
2. **Interactive Learning Experiences:** Develop gamified learning platforms or AR/VR-based workshops that provide members with immersive and engaging ways to learn cutting-edge technologies and skills.
3. **Innovation Challenges:** Organise regular global hackathons or design competitions that tap into members' technical expertise while fostering collaboration, innovation, and visibility for their work.
4. **Recognition Programs:** Enhance acknowledgment of members' contributions through digital badges, certificates, and "Member Spotlights" in newsletters or social media channels to increase a sense of belonging and pride.
5. **Dynamic Networking Opportunities:** Launch AI-driven platforms that match members with peers, mentors, or collaborators based on their interests and projects, facilitating meaningful connections globally.
6. **Social Impact Initiatives:** Introduce projects that allow members to apply their skills to address pressing global challenges, such as sustainability or digital inclusion, while showcasing IEEE's commitment to making a difference.
7. **Flexible Membership Tiers:** Offer dynamic membership tiers with varying levels of access to IEEE resources, making it easier for students, early-career professionals, and retirees to engage according to their needs.

By combining creativity with value-driven initiatives, IEEE can strengthen its reputation as a vibrant, forward-thinking community that members are proud to be part of.

D.4 Business Plan for Sustainable Growth and Financial Stability.

1. **Professional Activities:** The SA Section will continue to explore opportunities for professional activities for all our members. Some of the initiatives include:
 - a. Smart Cities conference 2027;
 - b. Annual Progress in Radar Research Workshop as part of the AES mini-conference series;
 - c. Annual Student-Industry engagement networking event;
 - d. Training courses in relevant technical areas.
2. **Membership Development:** One of the priority areas is the reinvigoration of the Student Branches in South Australia. Given the merger between the University of Adelaide and the University of South Australia in 2026, we seek to consolidate the Student Branches to ensure a strong foundation for future growth in student membership. The ExCom will be appointing Student Branch Counsellor at our next meeting.
3. **Financial Stability:** We will leverage our existing strong position to ensure that all programs and initiatives are sustainable in the long term. We have committed to invest our capital reserve in a fixed interest account, and maintain a balanced budget for our operating expenditure. This would allow us to make targeted investment on strategic initiatives that will contribute to sustainable growth of the SA Section.