

IEEE Singapore Section Report - 2022

PART A - SECTION SUMMARY

A.1 EXECUTIVE SUMMARY

POSITION	NAME
Chairman	Muhammad Faeyz Karim
Vice Chair (Awards & Recognition Chair)	Sahoo Sanjib Kumar
Secretary (eBroadcast Chair)	Shao Xuguang, Michelle
Treasurer (Conference Chair)	Arokiaswami Alphones
Immediate Past Chairman (Awards & Recognition Chair)	Ong Ling Chuen, Michael
Committee Member - Membership Chair	Ravinder Pal Singh
Committee Member - Student Activities Chair	Nicholas Wong
Committee Member - Professional Activities Chairs	Amit K Gupta / Aishwarya Bandla
Committee Member - Industrial Activities	Tan Yen Kheng
Committee Member - Educational Activities Chairs	Goh Wang Ling / Ma Maode
Committee Member - Coordinator for Life Members AG	Gooi Hoay Beng

2022 has been a slow year for the IEEE Singapore Section together with all the Chapters but things did pick up after the 2nd half of the year, when Singapore open up for international conference. Despite the challenge, the Section managed to organize 202 events, out of which 131 are technical, 13 professional, 47 administrative and 11 non-technical, as of 18 November 2022. I would like to thank all the active volunteers in Singapore for their time and effort that made the various events possible and even successful for many.

Growing the membership base remains a challenge and our goal would be to strive for a sustainable increase in members. We hope these new members will be engaged in various IEEE activities and would appreciate the value of professional networking.

1. ACCOMPLISHMENT AND CONTRIBUTIONS OF THE LATE PROF LAWRENCE WONG

We received sad news of the passing of Prof Lawrence Wong on 12 October 2022.

Prof. Lawrence Wong was the Professor in the Department of Electrical and Computer Engineering and the Deputy Director (Strategic Development) at the Interactive and Digital Media Institute (IDMI) in National University of Singapore (NUS).

Prof. Wong was an IEEE Life Senior Member. He was a well-respected and dedicated IEEE leader who served as the Vice President of IEEE MGA in 2015-2016, IEEE Region 10 Director in 2011-2012, Chair of IEEE Singapore Section in 1993-1996 and in many other IEEE capacities. His contributions to IEEE, Region 10 and Singapore Section were exemplary.

At the 45th AGM on 24 November 2022, the meeting held a one-minute silence in honour of Prof Wong's contribution.

2. ELEVATED IEEE FELLOWS – 2022

1. Andrew Tay

for contributions to hygro-thermo-mechanical failure prevention of semiconductor packaging

2. Cecilia Laschi

for contributions to soft robotics

3. Chunyan Miao

for contributions to multimodal signal processing and AI technologies for aging-at-home and population health

4. Hoay Beng Gooi

for contributions to energy storage in microgrids

5. Xiaokui Xiao

for contributions to database privacy and graph data management

6. Zhengguo Li

for contributions to video encoding and streaming optimization and edge-preserving filters

3. MEMBERSHIP RENEWAL FOR NOMINATED COMMITTEE MEMBERS

All nominated ExCo members need to renew their membership for the coming year, before submitting their nomination forms. This will ensure that the Section office can update the IEEE vTools with the new committee at the beginning of the year and signatories of Chapter bank accounts can be updated promptly.

4. E-BROADCAST

Regular broadcasts containing information on seminars, talks, conferences, social events and membership benefits have been sent to IEEE members in Singapore. This was well coordinated by Dr Michelle Shao, who is also the Section Secretary.

5. SECTION WEBSITE

With the help of Dr Nicholas Wong, the website had been updated with all the Section and Chapter Committee Members' details. Chapters who wish to post any events or information in the website should contact Nicholas. Members with any feedback about the website could contact the Section Secretariat.

A.1 FINANCIAL REPORT

Our consolidated financial position continues to remain healthy. The level of reserve is not excessive as the Section comprises 33 sub-entities (30 Chapters and 3 Affinity Groups), each recognized as a full-fledged IEEE Organizational Unit in terms of its privilege to organize events and manage its own finance.

The Section also helped to open 13 conference bank accounts for the conferences – 9 for 2022 and 4 for 2023, with the OCBC Bank.

Our Treasurer Prof Arokiaswami Alphones, together with the Section Accountant, Ms Joy Leong have worked tirelessly over the past year to maintain our accounts in an efficient manner, and would like to thank them for their invaluable services.

PART B - ORGANIZATIONAL ACTIVITIES

B.1 MEMBERSHIP DEVELOPMENT PROGRAMS

IEEE Singapore Section Membership has been steady despite the pandemic or other ongoing geo-political uncertainties. As at October 2022, there are 2,330 active members. The breakdown of the members in various grades is summarized below:

IEEE Grade Description	Active Members (2022)
Student Members	103
Graduate Student Members	327
Associate Members	23
Members	1,293
Senior Members	453
Fellow	63
Life Members	31
Life Seniors	28
Life Fellow	9
TOTAL	2,330

The renewal activity for 2023 is already underway, it does not yet impact counts - members who have not renewed yet for 2023 are still included in active member counts. We will continue to attract new members through various channels. Please reach out to the Membership Development team or the Section Secretariat if your Chapter happens to organize an event where new member sign-ups could be expected.

Our corporate pass for Singapore Flyer has expired. Effective October 2022, we have signed up for the new attraction - Wild Wild Wet. The members are able to book the attraction through our Section webpage. Each booking admits four persons (one member and three guests) to the attraction. The usual terms and conditions for fair use and sharing among members apply.

B.2 CHAPTER ACTIVITIES

The Singapore Section has 30 Chapters and 3 Affinity Groups. As of 18 November 2022, 202 activities have been reported via the vTools system. Activities taking place after 18 November 2022 were reported subsequently after completion of the activities.

L31 submission status based on IEEE vTools System as at 18 November 2022:

SN	Section / Chapters / Affinity Groups	Tech	Profes sional	Admin	Non- tech	Total
1	Aerospace and Electronic Systems/Geoscience and Remote Sensing Joint Chapter	7	0	2	0	9
2	Broadcast Technology Chapter	6	0	3	1	10
3	Circuits and Systems Chapter	11	0	3	3	17
4	Communications Chapter					0
5	Computational Intelligence Chapter	5	1	0	0	6
6	Computer Chapter	0	0	1	0	1
7	Consumer Technology Chapter	0	1	0	0	1
8	Control Systems Chapter					0
9	Council on RFID Chapter	11	0	5	0	16
10	Education Chapter					0
11	Electromagnetic Compatibility Chapter	5	0	2	0	7
12	Engineering in Medicine and Biology Chapter	5	0	6	0	11
13	Industrial Electronics Chapter	2	0	2	0	4
14	Industry Applications/ Power Electronics Joint Chapter	3	0	4	0	7
15	Intelligent Transportation Systems Chapter	6	0	3	1	10
16	Magnetics Society Chapter	10	0	0	0	10
17	Microwave Theory and Techniques/ Antennas and Propagation Joint Chapter	2	0	0	0	2
18	Nanotechnology Council Chapter					0
19	Nuclear and Plasma Science Chapter	9	1	0	0	10
20	Oceanic Engineering Chapter	7	1	2	0	10
21	Photonics Chapter	2	0	0	0	2
22	Power and Energy Chapter	6	0	0	2	8
23	Reliability/ Electronics Packaging/ Electron Devices Chapter	0	0	1	0	1
24	Robotics & Automation Chapter	2	0	0	0	2
25	Singapore Section	4	0	0	0	4
26	Sensors Council Chapter					0
27	Signal Processing Chapter					0
28	Solid-State Circuits Chapter	4	0	2	1	7
29	Systems, Man and Cybernetics Chapter	8	0	2	1	11
30	Technology and Engineering Management Chapter					0
31	Vehicular Technology Chapter	4	0	0	0	4
32	Life Members Affinity Group	4	0	1	1	6
33	Women in Engineering Affinity Group	8	9	8	1	26
34	Young Professionals Affinity Group					0
		131	13	47	11	202

B.3 PROFESSIONAL AND CONTINUING EDUCATION ACTIVITIES

Together with the Women in Engineering (WIE) Affinity Group and the IEEE Asia-Pacific office, the IEEE festival was celebrated by organizing different online and in-person activities on various days in October.

The different activities received encouraging responses. Below is a picture taken on the Social Event day on 29 October 2022, with 120 participants.



B4. STUDENT ACTIVITIES

IEEE Singapore Section has 4 active Student Branches - NUS, NTU, SUTD and SIT. and 2 IEEE-HKN Branches – NUS and SUTD. These Student Branches organize regular educational workshops and competitions for the IEEE Student Members and for reaching out to non-members. They serve as platforms for connecting IEEE Members and the Student Members. They are also effective channels for IEEE to reach out to young Engineering students in the local universities.

B.5 AFFINITY GROUP ACTIVITIES

1. IEEE WOMEN IN ENGINEERING AFFINITY GROUP

(A) ACTIVITIES FOR THE YEAR 2022:

The IEEE WiE Singapore group has actively contributed to a multitude of activities listed below:

Administrative	9
Nontechnical (Networking, Social):	10
Professional (Personal Development, Industry)	5
Technical (Conferences, Webinar)	10
Total (Dec 2020 to Nov 2021)	34

- **Administrative Meetings (9)**

WIE AdCom regularly met in-person, hybrid mode, over web platforms (Zoom) to discuss, plan, and organise our various meetings over the course of the year 2022. We organised nine administrative meetings for the year 2022;

1. IEEE WIE October Internal meeting 10/25/2022 20:00
2. IEEE WIE September Internal meeting 9/15/2022 18:00
3. IEEE WIE July Internal meeting 7/6/2022 18:00
4. IEEE WIE May Internal meeting 5/30/2022 18:00

5. IEEE WIE April Internal meeting 4/29/2022 18:00
6. IEEE WIE March Internal meeting 3/24/2022 18:00
7. IEEE WIE February Internal meeting 2/28/2022 18:00
8. IEEE WIE January Internal meeting 1/31/2022 18:00
9. IEEE WIE December Internal meeting 12/28/2021 12:00

Besides, WIE jointly organised active WhatsApp group to discuss administrative meetings with Young Professional Affinity Group in Singapore to prepare IEEE Singapore Festival 2022

Apart from face-to-face meetings, executive members also communicate with each other via the WiE AdCom WhatsApp group to keep the information up to date.

Nontechnical, Professional, and Technical events are further strategised into three event pillars to engage various stakeholders: WiE Tech, WiE Networking, and WiE Mentor.

- **WiE Tech (10)**

1. Singapore Healthcare Engineering Forum 2022 12/9/2022 9:00
2. Sakura Online Program Connecting with IoT Technology: Day5 11/13/2022 10:00
3. IEEEESGFest2022 - Technical Talk on Digital Twins 10/28/2022 13:00
4. Sakura Online Program Connecting with IoT Technology: Day4 10/8/2022 11:00
5. Sakura Online Program Connecting with IoT Technology: Day3 9/13/2022 11:00
6. Sakura Online Program Connecting with IoT Technology: Day1 8/25/2022 11:00
7. Tech Talk on Coverage Path planning for Reconfigurable Floor Cleaning Robots 8/16/2022 16:00
8. The 8th IRC conference on Science, Engineering, and Technology (IRC-SET) 2022: WIE Special Session 8/6/2022 10:00
9. IEEE iNTUition v8.0: Hackathon Judge board WiE 2/27/2022 13:30
10. Singapore Healthcare Engineering Forum 2021 (SHEF 2021) 12/3/2021 9:00

- **WiE Networking (10)**

1. IEEEESGFest2022 - Social event: Singapore Bowling Family Day 2022 10/29/2022 16:00
2. Women in Tech Leadership (SWITCH) 10/27/2022 9:00
3. Celebrating 2022 International Woman's Day 3/8/2022 15:00
4. The Newcastle University Teaching and Learning Conference 3/31/2022 9:00
5. IEEEESGFest2022 - Inauguration and Re-Engineer Panel Discussion 10/4/2022 19:00
6. Celebrating International Women Day (IWD): Women who inspire: Frontline engineering heroes and innovators of the pandemic 3/25/2022 14:00
7. IEEE WIE Singapore Panel Session: 2022 IEEE ISGT Asia 11/3/2022 16:00
8. IEEEESGFest2022 - Returning Mother Conference 2022: Panel Discussion 10/28/2022 11:00
9. APS 2021 WiE Panel Discussion: Challenges Ahead, but Fear NOT 12/10/2021 12:05
10. Research and Innovation for industry applications, women empowerment, and career building 12/10/2021 10:00

- **WiE Mentor (5)**

1. Female student FYP mentoring session 5/31/2022 12:00
2. Interactive and inspirational session of the series Women in Engineering, science, and tech 2022, Episode 2 5/12/2022 18:00
3. Interactive and inspirational session of the series Women in Engineering, science, and tech 2022, Episode 1 2/17/2022 19:30
4. Interactive and inspirational session of the series Women in Engineering, science, and tech Episode 4 12/28/2021 11:00
5. IRC WIE special session 8/6/2022 9am

(B) FUTURE PLANS:

WiE SG will continue to work with various community collaborators, including NTUC, BNY Mellon, Schneider Electric, and other IEEE WIE groups and chapters in other countries. We will explore connections with Singapore institutions such as ASTAR, NUS, NTU, SIT, etc., to promote and mentor young female engineers. The team plans to organise WiE special session at a tech leadership

conference, continue WiE networking, and work on a community establishment for mentorship and career events.

(C) SUMMARY:

We had organised **9 administrative meetings**, which drove the whole year for exciting activities. WiE strategised our events in 3 event pillars: WiE Networking Nights, WiE tech and WiE Mentor. WiE Singapore also built collaborations with several WiE groups in Region 10 and participated and organised several events under the regional banner. Internally, WiE worked with strong partners, including the IEEE Singapore office, YP Singapore, EMB Singapore, PES Singapore and local organisations such as NTUC Associate, IRC.

In total, we have **25 activities** in terms of social, technical, networking and promoting an event for the year 2022. We appreciate the strong support from IEEE Singapore Section, IEEE R10 WIE. We believe WIE SG can contribute more interesting and meaningful events and activities both in social and technical and serves as a communication bridge for women engineers and scientists with the world-leading IEEE science and technology community.

In the coming year, we will continue to work closely with our collaborators, networks and enhance connection with professional bodies to promote women engineers in Singapore.

2. IEEE YOUNG PROFESSIONALS AFINITY GROUP

(A) ACTIVITIES FOR THE YEAR 2022:

- **Administrative Meetings**
 - 5 May 2022 | Committee meeting @ Plaza Singapura
 - 20 July 2022 | Event planning meeting with IEEE Asia Pacific Office @ Solaris
 - 3 August 2022 | Committee meeting @ Zoom
 - 19 August 2022 | Meeting with IEEE Sri Lanka Section and IEEE Asia Pacific Office @ Solaris
 - 7 November 2022 | Event planning meeting with IEEE Asia Pacific Office @ Solaris
- **Technical Seminars and Talks**
 - 4 October 2022 | Inauguration of IEEEESGFest2022 and Re-Engineer Panel Discussion: “Emerging Technologies and the Society” @ Online
 - 28 October 2022 | Returning Mother Conference: Panel Discussion @ Fusionopolis
 - 28 October 2022 | Talk on “Digital Twins” @ Fusionopolis
- **Social Events**
 - 1 August 2022 | Lunch with Steve Welby @ The Star Vista
 - 29 October 2022 | IEEE Singapore Bowling Family Day @ Planet Bowl at Civil Service Club

(B) FUTURE PLANS:

- Continuing annual IEEE Singapore Festival
- Technical/professional development workshop series
- Student branch collaborations
- Recruitment events

(C) SUMMARY:

The IEEE Young Professionals Singapore Affinity Group continues to engage with recent graduates, students, early-career professionals, and general members in the IEEE Singapore community. We have continued our popular IEEE Singapore Festival in celebration of IEEE Day, through a longstanding collaboration with the IEEE Women in Engineering Singapore Affinity Group, and with strong support from the IEEE Singapore Section, the IEEE Asia Pacific Office, and other Singapore technical society chapter supporters. This year, we organised the IEEE Singapore Bowling Family Day, which was highly subscribed and was the first in-person social event for the entire IEEE Singapore community since the COVID-19 pandemic began. Future ambitions include increased student and industry engagement.

3. IEEE LIFE MEMBER AFFINITY GROUP (LMAG)

(A) ACTIVITIES FOR THE YEAR 2022:

- **Administrative Meetings**
LMAG Virtual Meeting to Nominate 2023 LMAG Chair, Vice-Chair, and Committee Members – 20 October 2022
- **Technical Seminars and Talks**
Achieving Energy Efficiency with Motor-Driven Systems - an Insight View by Prof K S Lock – 27 January 2022

Working with AI: Real Examples of Human-Machine Collaboration by Prof Steven Miller – 29 March 2022

IEEE LMAG Singapore Webinar: How to Become a Good Reviewer by Prof H B Gooi – 28 July 2022

Technical Visit to Mandai MRT Depot - Maintenance and Control Centre of TEL by Mr Shahrin Bin Abdol Salam, TEL MD – 4 August 2022
- **Social Events**
Tea Tasting Event scheduled on 26 Nov 2022 (Sat) afternoon – organized by **Dr Tony Yee**

Year-End Meal Gathering scheduled in December 2022

(B) FUTURE PLANS:

Although there are more than 80 Life Members in Singapore, many have chosen not to be contacted/disturbed. The incoming LMAG committee will try its best to organize activities that best suit the needs of life members. At the same time, the 2023 LMAG Committee will also continue its tradition of conducting a few technical talks/webinars/visits that can cater to younger IEEE members and/or technical professionals.

LMAG Singapore wishes to collaborate with LMAG Japan or other LMAG in IEEE R10 to organize activities of interest for their life members in the next few months.

(C) SUMMARY:

Although our 2022 activities are somewhat hindered by COVID-19 situations in Singapore, we managed to conduct one physical technical visit in August 2022. This is a big improvement since in 2021 all our seven meetings/webinars/ AGM cum Year-End Meal Gathering were conducted virtually. Our next Tea Tasting event will be a physical one. Hopefully our Year-End Meal Gathering can also be conducted in a physical restaurant.

B.6 AWARDS & RECOGNITION ACTIVITIES

Singapore Section Awards

1. The **Outstanding Volunteer Award** was presented to **Aishwarya Bandla**.

Aishwarya's contributions include:

1. **Re-Engineer** - Expert panel discussion series introduced to discuss emerging technologies and key professional development skills

2. **R10 WIE**

MentorHer - Connecting IEEE students and young professional mentees to senior IEEE professionals as mentors

We as WIE - R10 WIE professional activities interactive talk series on professional development

3. **EMB SG Tech Talks** - Feature local and international visiting researchers to share their work and interact with EMB Singapore community

4. **Global EMB YP** - EXCO member

5. **Sparklers Summit 2021** - Program Committee Member and Speaker

6. **Returning Mothers Conference 2021**

7. **Career and Leadership Aid Program 2021**

8. **Youth Endeavours for Social Innovation using Sustainable Technology 2021**

9. SWITCH 2022 - Moderated Women-in-Tech Panel

2. The Best Chapter Award goes to **Oceanic Engineering Chapter**.

For promoting latest industry practices and research achievements in Oceanic Engineering to members:

1. **Singapore Autonomous Underwater Vehicle Challenge (SAUVC) and Workshop** - With Endorsement from the UN Decade of Ocean Sciences

- 49 teams participated by submitting videos of their AUVs as part of pre-qualification requirements
- AUV Symposium
- Student technical workshop on autonomous vehicles and sensing
- IEEE OES Distinguished lecture

2. **Technical events and networking activities**

- Distinguished Lectures Dr Stojanovic Milaca and Dr John Potter
- Webinar on Machine Learning
- Talk by President of OES on Acoustic Monitoring

3. **Panels organized by Chapter members** - Townhall for early career Young Professionals

4. **Singapore AUV Challenge** - Flagship international event to engage and promote student interest in underwater technology

PART C - OTHERS

C.1 Special Events - NIL

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

- IES-IEEE Joint medal of excellence being continued. The Institution of Engineers, Singapore (IES) and the Institute of Electrical and Electronics Engineers, Inc. (IEEE) intend to continue with the IES/IEEE Joint Medal of Excellence Award. The aim of the award is to promote engineering as a profession and to recognize an individual for his/her contributions in Engineering that have had far-reaching impacts on society. The award is expected to inspire the young to take up engineering as a profession. This award is highly prestigious and the recipient will be recognized not only in Singapore but also the region and around the world.

PART D - GOALS AND PLANS

D.2 Goals and Future Plans

Membership Development

To attract new members as well as make existing ones retain their membership.

1. Tie up with hotels and popular attractions for special discounts
2. Hold regular net-working events with topics that are of interest members
3. To add other attractions as membership benefits

Engaging Students

To increase support for HKN activities. To encourage the HKN chapters to lead outreach activities in schools.

To continue to support activities like Graduate Student Symposium (GSS) organized by YP at NUS and towards membership development.

Engaging Industry

The section EXCO has formed a sub-committee headed by Dr. Amit Gupta to brainstorm about ways to promote IEEE membership among industry professionals in Singapore.

Industry Activities:

Industry activities team has started co-organizing activities and events inspite of pandemic restrictions.