

# Region 10 New Zealand North Section Report, 2024

## **PART A - SECTION SUMMARY**

### **A.1 Executive Summary – (Please follow the format given below)**

- **NZ North Section (R00301) Executive Committee Member List**  
2024 Committee
  - Chair: Kevin Wang
  - Vice Chair: Tek Tjing Lie
  - Treasurer: Nurul Sarkar
  - Secretary: Edmund LaiThe section officers were nominated and formally elected at the Section AGM.
- **Section Highlights**
  - **Strategic Plan 2025-2030:** The Section has drafted a new Strategic Plan (which was developed for 2025-2030) that continues from our previous Strategic Plan (which was developed for 2019-2023) for sustainable development. Following the idea of “One IEEE”, we are currently aligning our strategic plan draft with the IEEE HQ strategic plan mentioned during the R10 annual meeting.
  - **Events:** New Zealand North Section had a very successful year in 2024, with several national and international events, with numerous technical seminars organized under the Section’s support, as listed in Part B of this report.
- **Major Events (International, National)**
  - (International) IEEE Australia and New Zealand Student and Young Professionals Congress (ANZSCON)
  - (National) IAS/IES Chapter: Workshop on frontiers of power electronics and applications
  - (National) VTS Chapter: Workshop on Drone Swarms
  - (National) GRSS Chapter: New Zealand SAR Mission Hackathon
  - (National) EMBS Chapter: The Second IBTec/IEEE Symposium on Industrial-based Biomedical Engineering Research (SIBER-24)
- **Major Chapter Activities**
  - **Meetings:** The New Zealand North Section organized 20+ technical events during 2024. These included technical seminars, technical/professional meetings, workshops, field trips and social events.
  - **L31 Meeting Reports:** The details of the activities have been listed on the Section website and reported online via IEEE v-tools L31 Meeting Reports.
- **Major Student and Affinity Group Activities**
  - There are two active student branches: 1) The University of Auckland Student Branch and 2) Auckland University of Technology Student Branch.
- **Awards**
  - **AUT best Electrical and Electronic Engineering Graduate (BE):** We awarded a prize to the student who got the best grade in the BE (hon) course.
  - **University of Auckland Best Poster** for BE (hon) student in Electrical and Electronics, Computer Systems, and Software Engineering.

### **A.2 Financial Report – (Please follow the format given below)**

- Summary (as per submitted on NetSuite)
  - The financial report was submitted separately via NetSuite. The section finance is in a healthy condition with a total balance of NZ \$105,697.94 (including Cheque: \$79,937.88, Savings: \$5,646.07, Term deposit: \$20,113.99, and NextGen: [US\\$10,873.47@0.5654](#) = NZ\$19,231.46).

- Any other financial activities
  - None.

## **PART B - ORGANIZATIONAL ACTIVITIES**

### **B.1 Membership Development Activities**

- In 2024, our section adopted a different strategy for membership development, with the focus on developing members from industries and student members. IEEE can offer a bridging platform between STEM students and technology companies. Recruitment activities for student members (orientation and social events) have been organized by 2 student branches (University of Auckland and Auckland University of Technologies) to promote and recruit student members. Technical events such as internship practice interview and career development seminars are organized to engage local industries and student members, offering value to both sides. This strategy leads to an increase in no. of professional members (544) and student members (111), resulting in a total of 655 members in our section.

Year	2022	2023	2024
Total No.	517	509	544 (111)

### **B.2 Chapter Activities**

- There are 6 chapters in the section and 5 joint chapters (ComSoc, R&A, SP&IT, IM, GRSS) with New Zealand Central and South section). For joint chapters, only events organized by New Zealand North section are summarized below.
- All chapters in our section are active with at least 2 events organized in 2024, and 3 out of 4 joint chapters are active. The section is seeking opportunities to revive the Instrumentation & Measurement (IM) chapter.
- A joint EDS (electron device society) chapter is formed as a joint chapter with PELS (power electronics society) chapter in 2024.

- **Chapter Activities:**

- **IAS/IES Chapter**

- Workshop on frontiers of power electronics and applications
- Seminar: Innovative optical fibre sensor systems for a range of monitoring problems in industry, Prof. Ken T V Grattan, City University of London

- **Computer Chapter**

- Seminar: Industry evolution through the integration of IoT and AR, Dr. Yehoshua Aguilar Molina, the University of Guadalajara
- Webinar: Hardware/Software Co-Optimization for EdgeAI: the Hardware-aware Neural Architecture Search (HW-NAS) Approach, Prof. Smail Niar, INSA Hauts-de-France and LAMIH/CNRS

- **ComSoc Chapter (joint chapter)**

- 2024 Multiethnic Youth STEM Networking, Prof. Nurul Sarkar
- 2024 STEM outreach, Prof. Nurul Sarkar

- **PELS/EDS Chapter**

- Seminar: Characterization of magnetic properties of electromagnetic materials for developing high-performance electromagnetic devices, Prof. Youguang Guo, Univ. of Technology Sydney, Australia
- IEEE EDS 2024 MQ (Mini-Colloquia)/Workshop organised by IEEE PELS/EDS and IES/IAS Chapters of New Zealand North Section
- Seminar: Circuit Integration of Liquid Metal: Terminator-Inspired Electrical-Thermal Co-Design for Power Electronics, Prof. Jin Wang, Ohio State University, USA
- Seminar: Electrical Energy Conversion – from Medical Technology to Electromobility, Prof. Dr.-Ing. Parspour Nejila, The University of Stuttgart, Germany
- Seminar: Scaling Up to Millions of Electric Cars – Ubiquitous Access for the 90% Energy Problem for EVs, Dr. Philip Krein, Zhejiang University/University of Illinois at Urbana-Champaign Institute

- **R&A Chapter (joint chapter)**

- Seminar 1: Robots in hospital, Prof Inho Han, Pusan University, Korea
- Seminar 2: LLM for robots, Jong Yoon Lim, University of Auckland, NZ
- Seminar 3: Chatbot using DialogFlow, Joey Back, University of Auckland, NZ
- Seminar 4: Medical robotics, Prof Inho Han, Pusan University, Korea
- Seminar 5: Facial emotion expression, Isaac Lee, University of Auckland, NZ
- **SP & IT Chapter (joint chapter)**
  - Seminar: Optimization Algorithms for Signal Enhancement and Time Delay Estimation Efficiently Using Spatial Information, Prof. Kouei Yamaoka, the University of Tokyo, Japan
- **VTS Chapter**
  - Workshop on Drone Swarms (IEEE VTS Members Only)
  - Distinguished Lecture: EM Receivers for Severe Doubly Selective Fading Communication Channels, Prof. Yong Liang Guan, Nanyang Technological University, Singapore
  - Seminar: Vehicle-to-Vehicle Communications for Uncrewed Aircraft Systems, Prof. Kamesh Namuduri, University of North Texas (UNT), USA (joint event with Victorian Section VTS Chapter)
  - Distinguished Lecture: Autonomy in Airspace, Prof. Kamesh Namuduri, University of North Texas (UNT), USA
  - Distinguished Lecture: Electrifying Transportation: The Power of Power Electronics, Prof. Jin Wang, Ohio State University, USA
  - Australian and New Zealand VT Chapters planning meeting
- **EMB Chapter**
  - The Second IBTec/IEEE Symposium on Industrial-based Biomedical Engineering Research (SIBER-24)
  - Seminar: Signal Analysis Research, Prof. Sri Krishnan, Toronto Metropolitan University, Canada
- **GRSS Chapter (joint chapter)**
  - New Zealand SAR Mission Hackathon
  - Seminar: The Golden Age of Satellite Imaging Radar - Trends in SAR Instrument Development and Missions, Dr. Marwan Younis, German Aerospace Center (DLR), Oberpfaffenhofen, Germany

### B.3 Professional and Continuing Education Activities

In 2024, our section organized:

- 3x Distinguished Lectures
- 1x Hackathon
- 4x national workshop/symposium
- 16x technical seminars
- 2x STEM outreach events
- 1x international event IEEE ANZSCON (Australia and New Zealand Student and Young Professionals Congress)

### B.4 Students Activities

- 2x active student branches (University of Auckland and Auckland University of Technology)
- In 2024, the two student branches (jointly with the student branch from the University of Canterbury, New Zealand South section), organized the 2024 IEEE Australia and New Zealand Student and Young Professionals Congress (ANZSCON)
  - The congress hosted 30+ student and young professional members from Australia and New Zealand, involving different sections (e.g. NZN, NZS, Victorian, Queensland, NSW, Australia South)
  - The UoA student branch also organized a pre-congress technical event jointly with the IEEE Circuits and Systems Society (CAS)
- In 2024, both student branches organized several technical events jointly with local industries, just to name a few:
  - UoA student branch internship practice interview
  - UoA student branch job skill seminar
  - UoA student branch office trip to Fisher & Paykel Appliances Head Office
  - AUT student branch visit to Transpower Hamilton Control Centre



# ANZSCON|2024

IEEE Australia & New Zealand Student & Young Professionals Congress



**M.Sc. Shaila Arif**

Ph.D. Candidate at UoA

**MBA Loreen A. Ozolins**

IEEE Senior Member

**Ph.D. Felix Marattukalam**

Lead AI research consultant at Watchful

**Isha Patel**

UoC Motorsport Team Principal

## Pathway To The Future (Pannel)

## B.5 Affinity Group Activities

Unfortunately, our affinity groups are going through a transition period and there was no activities in 2024.

## B.6 Awards & Recognition Activities

- **Award constituted by the Section**
  - AUT best Electrical and Electronic Engineering Graduate (BE): We awarded a prize to the student who got the best grade in the BE (hon) course.
  - University of Auckland Best Poster for BE (hon) student in Electrical and Electronics, Computer Systems, and Software Engineering.
- Please list all Awards and Recognitions received by the Section, and members in the Section, from R 10 and IEEE HQ during the year
  - None

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

- Home Page of the Section. Our section website is constantly updated and maintained. It is our main location for event reporting. It also hosts our section by-law, policy documents and forms, and financial statements.
  - <https://ieeenorth.org.nz/>
- In recent years, the section (and its chapters) are exploring different types of social media such as LinkedIn and Facebook. Facebook remains popular in younger members, especially student members, while LinkedIn is more effective for professional members. A few LinkedIn examples are provided below:
  - IEEE New Zealand North (NZN) Section: <https://www.linkedin.com/company/ieee-new-zealand-north-chapter/posts/?feedView=all>
  - IEEE NZN UoA Student Branch: <https://www.linkedin.com/company/ieee-student-branch-uoa/?originalSubdomain=nz>
  - IEEE NZN WIE: <https://www.linkedin.com/company/ieee-women-in-engineering-new-zealand-north/?originalSubdomain=nz>
  - IEEE NZN PES Chapter: <https://www.linkedin.com/company/ieee-pes-new-zealand-north-chapter/posts/?feedView=all>

## B.8 Industry Relations

- As mentioned earlier, the section strategy in 2024 is to develop local industry and student members together, offering a platform for students and companies to engage, interact, and learn from each other. Several office visits and industry/student joint events are organized by our two student branches, summarized in section B.4.

## B.9 Humanitarian Technology Activities

- None

## B.10 Community Activities

- None

## **PART C - OTHERS**

### C.1 Special Events

- The student and young profession congress (ANZSCON 2024) has secured sponsorship from IEEE Circuits and Systems Society (CAS), with a joint pre-congress technical workshop
- IEEE NZN UoA student branch has secured a joint funding with the University of Auckland to organize a joint industry internship practice interview event



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

- None

## **C3. Collaboration with other IEEE Sections**

- As mentioned earlier, there are several joint chapters across the 3 New Zealand sections. Our section has maintained frequent communication with the New Zealand Central and South sections in organizing international events (e.g. TENCON, TENSYP, ANZSCON) and hosting DLs. We also maintain strong relations with several Australian sections (e.g. Queensland and Victorian sections).

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

- None

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

- We are establishing a strong focus to strength our industry connections and student relations (through student branch activities).

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

- None

## **PART D - GOALS AND PLANS**

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

We will continue to make the best use of our new Section website for running the Section. We are improving the Consultant Database hoping to provide better engagement with local industries.

### **D.2 Goals and Future Plans**

We drafted our new Section Strategic plan (2025-2030) in 2024, are we are currently performing minor realignment with the IEEE HQ strategic plan.

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

Provide more tangible benefits and values to members comparable to those experienced by American members. Discounts on conferences fees for members help, but this may not offer such value to industry members and student members (who are our future); it would be great if the IEEE could offer some subsidy, especially to student members. We believe that IEEE should reach out to 'middle school' i.e. students in the 7 to 12 year age group. We believe that IEEE should show its social impact on encouraging sustainability and resilience in our society, for example, the MOVE program may offer great social values to many countries.

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

- To have a very active membership drive especially for Undergraduate students.
- To offer more social and technical activities targeting industry members.
- To encourage Chapters to be more active in reaching out to their respective members and more activities.
- To regularly host international conferences