

# IEEE New Zealand Central Section Report

## 7 February 2021

### **PART A - SECTION SUMMARY**

#### **A.1 Executive Summary**

- **Section Executive Committee Member List**
  - Chair: Yi Mei
  - Vice Chair: Chanjief Chandrakumar
  - Immediate Past Chair: Murray Milner
  - Secretary: Murray Milner
  - Treasurer: Donald Bailey
  - Membership Development: Qi Chen
  - Webmaster: Richard Harris
  - Industry Coordinator: Sridhar Pulikanti
  - Young Professionals: Hoai Bach Nguyen
  - Women in Engineering: Kanwal Zaidi, Bing Xue
  - Victoria Student Branch Chair: Fangfang Zhang
  - Massey Student Branch Chair: Abhipray Paturkar
  - Student Counsellor: Mengjie Zhang, Donald Bailey
  - Central CI Chapter Chair: Mengjie Zhang
  - NZ Joint SP/IT Chapter Chair: Yusuke Hioka
  - NZ Communications Chapter Chair: Nurul Sarkar
  - NZ I&M Chapter Chair: Akbar Ghobakhlou
  - Central Power and Energy Chapter Chair: Ramesh Rayudu
  - Xiang Gui
  - Gourab Sen Gupta
  - Steven Le Moan
  - Andrew Lensen
  - Fanglue Zhang
  - Alex Doronin
  
- **Section Highlights**
  - Despite the challenges caused by COVID-19, the New Zealand Central Section still has had another successful year in 2020. Although many events had to cancel or switch to virtual and the number of events decreased compared with 2019, we still managed to hold many events (in-person or virtual) for members across many areas of interest. Many of these events involved Distinguished Lecturers from around the world. It is these activities which members find most interesting and enable us all to keep at the forefront of research within our fields of interest.
  - In 2020 we again successfully held our two most prestigious events, being the Postgraduate Symposium and the Combined Institutions Breakfast. The first of these events is primarily focused on our student members, while the latter is focused on our industry collaboration. These events were again well received by members. More details on these events are provided below.
  - After one year without a Young Professional Affinity Group coordinator, we have successfully appointed a new YP coordinator in July 2020. The YP Affinity Group became much more active since then, and held two committee meetings and a networking event (with more than 30 attendees) in the second half of the year.
  - We have successfully re-formed the Women In Engineering Affinity Group in 2020. The WIE group had a committee meeting and co-sponsored an online event "Advancing Women through Engagement in Technical Activities during Corona Crisis" with IEEE NSW section and Bangladesh Section on 17th September 2020.
  
- **Major Events (International, National)**

- 16 September 2020: the 1st IEEE Communications Society (ComSoc) Distinguished Lecturer (DL) Virtual Lecture organised by the IEEE Joint NZ North, South, and Central ComSoc Chapter with Professor Mohammed Atiquzzaman (University of Oklahoma), USA as the speaker on the topic of Connecting Space Assets to the Internet: Challenges and Solutions, held via Zoom with free registration.
  - 17 September 2020: IEEE IMS Virtual Distinguished Lecturer Webinar Series: “A Dynamometer for the Heart - Nature's Engine” by Prof. Andrew Taberner from the University of Auckland.
  - 9 Oct 2020: IEEE VTS Distinguish Speaker (DS) and IEEE ComSoc Distinguish Lecturer (DL) Prof Yi Qian was invited to give a Distinguish Lecture on “Teaching and Research in Information and Communication Network Security”.
  - 28 October 2020: the 2nd IEEE Communications Society (ComSoc) Distinguished Lecturer (DL) Virtual Lecture organised by the IEEE Joint NZ North, South, and Central ComSoc Chapter with Professor Arumugam Nallanathan, (Queen Mary University of London), UK as the speaker on the topic of Artificial Intelligence in Massive IoT Networks, held as a Zoom Meeting with free registration.
  - 25-27 November 2020: the 35th Conference on Image and Vision Computing New Zealand (IVCNZ) was held at Victoria University of Wellington. IVCNZ is a premier international academic conference held in NZ on all aspects of computer vision, image processing, computer graphics, virtual and augmented reality, visualization, and HCI applications related to these fields. This year, due to COVID-19, international travel to NZ is disallowed. The conference was held in a hybrid style, so national attendees can meet in-person and international attendees can join via Zoom. The conference successfully attracted 50+ attendees from all over NZ, and 20+ international attendees joining virtually.
  - 25-27 November 2020: the IEEE NZ Central Section, as part of the IEEE Communication Society in New Zealand, annually supports the international conference now known as ITNAC. Last year it was held in Auckland at the AUT University premises. This year the conference returns to Australia and was held in Melbourne with assistance from RMIT University from 25-27 November, largely in a virtual format. The next NZ version of this conference is expected to be held in 2022.
- **Major Chapter Activities**
    - IEEE NZ Central Computational Intelligence Society Chapter
      - 10 January 2020: The Chapter invited Dr Wenlong (Bruce) Fu from Industry (SAP, Auckland) to give a talk on genetic programming for text classification and natural language processing. Good discussions have been made.
      - 24 January 2020: The Chapter invited Dr Jiangshu Wei from China to present his work on deep learning, particularly restricted Boltzmann machines. Over 30 IEEE members, students and others attended the talk and participated the discussions.
      - 14 February 2020: The Chapter invited a Young Professional Mr Boxiong Tan to present his recently accepted work by EvoCOP on a group GA for resource allocation in container-based clouds. Nearly 40 people from IEEE members, students and others attended the talk and participated the discussions.
      - 17 April 2020: Dr Ying Bi presented her recent work on Genetic Programming-Based Feature Learning for Facial Expression Classification. The Chapter discussed with her and provided comments and suggestions for her work.
      - 24 April 2020: Dr Qi Chen presented her recent work on Improving Symbolic Regression based on Correlation Between Residuals and Variables. The Chapter discussed with her and provided comments and suggestions for her work.
      - 01 May 2020: Dr Yahui Jia presented his recent work on A Memetic Level-based Learning Swarm Optimizer for Large-scale Water Distribution Network Optimization. The Chapter discussed with him and provided comments and suggestions for his work.
      - 15 May 2020: Dr Hang Xu presented his recent work on Segmented Initialization and Offspring Modification in Evolutionary Algorithms for Bi-objective Feature Selection. The Chapter discussed with him and provided comments and suggestions for his work.
      - 29 May 2020: Dr Ghassem Narimani presented his recent work on Learning Wireless Channels and Signal Processing in Wireless Sensor Networks. The Chapter discussed with him and provided comments and suggestions for his work.

- 12 June 2020: A Student Member Bin Wang presented his recent on Particle Swarm Optimisation for Evolving Deep Neural Networks for Image Classification by Evolving and Stacking Transferable Blocks. The Chapter discussed with him and provided comments and suggestions for his work.
- 11 September 2020: Discussion on the exploration and exploitation in evolutionary computation. Over 40 members of the Chapter and students discussed the differences between them, and how they are related to genetic operators such as crossover/mutation, and local search and memetic computing.
- 18 September 2020: Discussion on the explainability, interpretability and understandability of the learned/evolved models. Over 10 members of the Chapter expressed their understandings and debate these key terms in the context of evolutionary computation and neural networks.
- 09 October 2020: ECRG Seminar: “Discussions on new ways to disseminate research including Github for paper writing”, by Drs. Yi Mei and Andrew Lensen. Over 35 people from IEEE members, students and others attended the talk and participated the discussions.
- 23 October 2020: ECRG Seminar: “Thesis writing, presentation and experience sharing”, by Dr. Ying Bi, a Postdoc at ECRG, VUW. Over 40 people from IEEE members, students and others attended the talk and participated the discussions.
- 06 November 2020: ECRG Seminar: “Algorithms for Reconstructing Cancer Evolution from Single-Cell Sequencing Data”, by Dr Alex Gavryushkin, a Senior Lecturer from University of Otago.
- 13 November 2020: ECRG Seminar: “Does compute – a quick introduction to the slurm scheduler and Raapoi HPC” by Andre Geldenhuis, a Research Software Engineer at the Centre for Academic Development at Victoria University of Wellington.
- 25 November 2020: Keynote speak at IVCNZ2020: “Evolutionary Deep Learning and Its Applications to Image Classification” by Prof Mengjie Zhang. 60+ attendees joined the keynote and participated the discussions.
- 04 December 2020: ECRG Seminar “Surrogate Models for Genetic Programming in Dynamic Flexible Job Shop Scheduling” by Fangfang Zhang. Nearly 40 people from IEEE members, students and others attended the talk and participated the discussions.
- IEEE Joint NZ Communications Society Chapter
  - 26 June 2020: Invited Talk on “A Sustainable Internet Data Dissemination Architecture by Utilizing the Existing Public Transport Networks” by Dr. Rashmi Munjal from Auckland University of Technology.
  - 16 September 2020: the 1st IEEE Communications Society (ComSoc) Distinguished Lecturer (DL) Virtual Lecture organised by the IEEE Joint NZ North, South, and Central ComSoc Chapter with Professor Mohammed Atiqzaman (University of Oklahoma), USA as the speaker on the topic of Connecting Space Assets to the Internet: Challenges and Solutions, held via Zoom with free registration.
  - 9 Oct 2020: IEEE VTS Distinguish Speaker (DS) and IEEE ComSoc Distinguish Lecturer (DL) Prof Yi Qian was invited to give a Distinguish Lecture on “Teaching and Research in Information and Communication Network Security”.
  - 28 October 2020: the 2nd IEEE Communications Society (ComSoc) Distinguished Lecturer (DL) Virtual Lecture organised by the IEEE Joint NZ North, South, and Central ComSoc Chapter with Professor Arumugam Nallanathan, (Queen Mary University of London), UK as the speaker on the topic of Artificial Intelligence in Massive IoT Networks, held as a Zoom Meeting with free registration.
  - *Unfortunately, the New Zealand Wireless Workshop which was to be held in Wellington in 2020 was cancelled due to the COVID-19 conditions applying at the time of the scheduled event.*
- IEEE Joint NZ Instrument and Measurement Society Chapter
  - 12 March 2020: IEEE I&M NZ Chapter Business Meeting 2020 held over Skype. The committee discussed whether to offer financial support for some students attending I2MTC (to which students are we referring?). The motion to support the students was carried unanimously. The roles of chair, treasurer, and secretary proposed at the previous meeting held in Palmerston North, were confirmed unanimously at this meeting by the committee.

- 17 September 2020: IEEE IMS Virtual Distinguished Lecturer Webinar Series: “A Dynamometer for the Heart - Nature's Engine” by Prof. Andrew Taberner from the University of Auckland.
  - IEEE Joint Power and Energy Society Chapter
    - 15 May 2020, Webinar on Wellington Electricity operations and procedures, by Ray Hardy, Wellington Electricity
    - 19 May 2020, Webinar on New Zealand Power System Operations, by Vong Nyuk, Transpower
    - 4 Dec 2020, Webinar on Regulatory Aspects of Implementing Advanced Technology, by Jessica Bain, Grid-X Partners, USA
  - IEEE Joint NZ Signal Processing and Information Theory Chapter
    - 27 October 2020: Seminars of postgraduate students on the theme of “signal processing techniques for unmanned aerial vehicles”. Two PhD student (one from the University of Auckland and the other from Auckland University of Technology) gave the presentations on their research achievements.
    - 20 November 2020: IEEE NZ SP/IT Chapter Seminar. Prof Mark Poletti from Callaghan Innovation and Dr Yusuke Hioka from University of Auckland gave the presentations on their research.
- **Major Student and Affinity Group Activities**
  - 29 August 2020: The IEEE Postgraduate Symposium was held at Victoria University of Wellington in Kelburn, Wellington. This event involved presentations from 27 PhD students from Victoria University of Wellington, Massey University (Palmerston North) and University of Otago (Wellington) to present their research work. In addition, there were approximately 40 fellow students who enjoyed the presentations. The two best presentations were recognized and awarded with prizes.
  - 17 Nov 2020: The IEEE New Zealand Central Section Young Professionals Affinity Group held an event entitled “Transitioning from Academia to Industry”, which explored the necessary skills and strategies to smoothly move out of an academic (university) environment and into a career within the industry. There were 4 invited speakers and a panel discussion, and about 30 participants attended the event. Following the panel discussion, pizza was provided to support the networking.
  - The IEEE New Zealand Central Section WIE Affinity Group participated in a T-shirt design competition hosted by Association for Women in Sciences (SWIS) for women in STEM (Science Technology Engineering and Math). Our WIE Chair Kanwal Zaidi won the T-shirt competition with her design.
- **Awards**
  - Our CIS Chapter received \$500 USD from IEEE Computational Intelligence Society as a reward to the activities held in 2019.

## A.2 Financial Report

- Summary (as per submitted on NetSuite)
- The Profit and Loss for the IEEE NZCS as recorded in NetSuite for the year (Adjust 2020) is summarized as follows:

<b><u>Sales</u></b>	
Total - Sales	\$12,706.63
Gross Profit	\$12,706.63
<b><u>Overheads</u></b>	
Total – Overheads	\$3,488.41
Operating Profit	\$9,218.22
Net Profit/(Loss)	\$9,218.22

- The Balance sheet for the IEEE NZCS as recorded in NetSuite for the year (Adjust 2020) is summarized as follows:

<b><u>Current Assets</u></b>	
Bank	
Total Bank	\$23,244.14
Total Current Assets	\$23,244.14

Current Assets Less Current Liabilities	\$23,244.14
Total Assets Less Current Liabilities	\$23,244.14
Total Assets Less Total Liabilities	\$23,244.14
Capital and Reserves	\$0.00
Retained Earnings	\$14,025.92
Net Income	\$9,218.22
Total Capital and Reserves	\$23,244.14

- Any other financial activities
  - Not Applicable

## **PART B - ORGANIZATIONAL ACTIVITIES**

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

- Total number of active members in the past 3 years.
  - 2018: 273
  - 2019: 264
  - 2020: 266
- Summary and evidence of work done to improve the value of membership, which leads to retention and growth of members
  - Each year letters are sent to members within the Section coverage area who are late to pay their fees for the new year.
  - We have had an active program of section activities, particularly focused on Chapter activities to encourage more participation by members with specialist interests.
  - We have had a strong program within the two universities associated with the section, particularly with postgraduate students. This is reflected in the strong participation with the joint Postgraduate Presentation Day. However, for undergraduate students, the local university engineering societies are more visible, and we need to better coordinate with them.
  - We have active representation from industry on the committee.

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

- Total number of Chapters in the Section: Five
  - Chapter of the Computational Intelligence Society
  - Chapter of the Power and Energy Society
  - Joint Chapter of the IEEE Instrumentation and Measurement Society (joint with NZ North and NZ South)
  - Joint Chapter of the IEEE Communications Society (joint with NZ North and NZ South)
  - Joint Chapter of the Signal Processing and Information Technology Societies (joint with NZ North and NZ South)
- Number of Chapters formed in the current year
  - None
- Number of active Chapters (Chapters who have reported required number of meetings during the year)
  - Five
- Summary of Chapter activities (Chapter wise with attachment table/information)
  - See above

### **B.3 Professional and Continuing Education Activities**

Summary of continuing Educational activities including conferences, technical activities, training courses, and distinguished lecture programs with attachment table / information

- 26 June 2020: Invited Talk on "A Sustainable Internet Data Dissemination Architecture by Utilizing the Existing Public Transport Networks" by Dr. Rashmi Munjal from Auckland University of Technology.
- 16 September 2020: the 1st IEEE Communications Society (ComSoc) Distinguished Lecturer (DL) Virtual Lecture organised by the IEEE Joint NZ North, South, and Central ComSoc Chapter with Professor Mohammed Atiqzaman (University of Oklahoma), USA as the speaker on the topic of Connecting Space Assets to the Internet: Challenges and Solutions, held via Zoom with free registration.

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- 27 October 2020: Seminars of postgraduate students on the theme of “signal processing techniques for unmanned aerial vehicles”. Two PhD student (one from the University of Auckland and the other from Auckland University of Technology) gave the presentations on their research achievements.
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- 20 November 2020: IEEE NZ SP/IT Chapter Seminar. Prof Mark Poletti from Callaghan Innovation and Dr Yusuke Hioka from University of Auckland gave the presentations on their research.

## B.4 Students Activities

- Total number of Student Branches in the Section
  - Two – Massey University and Victoria University of Wellington
- Number of new Student Branches formed in the current year
  - None
- Section level student activities (student congress, paper and other contests, awards etc)
  - 29 August 2020: The IEEE Postgraduate Symposium was held at Victoria University of Wellington in Kelburn, Wellington. This event involved presentations from 27 PhD students from Victoria University of Wellington, Massey University (Palmerston North) and University of Otago (Wellington) to present their research work. In addition, there were approximately 40 fellow students who enjoyed the presentations. The two best presentations were recognized and awarded with prizes.
- Number of active Student Branches (Student Branches who have reported required number of meetings during the year)
  - Two
- Summary of Student Branch activities (Student Branch wise with attachment table/information)
  - As per above.

## B.5 Affinity Group Activities

- **Young Professional (YP)**
  - We have had a lull in YP activities since 2019 due to the departure of 2-3 key members. We have been seeking for new coordinators since then. In July 2020, we were pleased to welcome Dr Hoai Bach Nguyen to join the Committee and take the YP coordinator position.
  - Since we had a new YP coordinator (Dr Hoai Bach Nguyen), the YP Affinity Group becomes much more active. We had the following major events:
    - 17 Nov 2020: The IEEE New Zealand Central Section Young Professionals Affinity Group held an event entitled "Transitioning from Academia to Industry", which explored the necessary skills and strategies to smoothly move out of an academic (university) environment and into a career within the industry. There were 4 invited speakers and a panel discussion, and about 30 participants attended the event. Following the panel discussion, pizza was provided to support the networking.
    - Oct and Nov 2020: Held two Affinity Group committee meetings.
    - Aug 2020: Supported the IEEE Postgraduate Symposium.
    - Oct 2020: Participated in the Joint Institutions Breakfast Seminar.
  - Early in 2021, we have invited several new committee members that will join the YP Affinity Group, and arrange more activities in the new year.
- **Women In Engineering (WIE)**
  - The WIE Affinity Group has been silent in 2019 due to the maternity leave of our two key members/coordinators.
  - Fortunately they have been back from the leave in 2020, and the WIE affinity group was reformed earlier this year with formal notification on 6 October 2020 and now has a strong committee to provide leadership. A program of activities is being planned. Financial support

has been committed by the Section. The WIE group has undertaken the following activities during 2020:

- Provision of support for the Victoria University of Wellington and Massey University Student Branches for the holding of their Postgraduate Presentation Symposium in Wellington,
  - Participation in the Joint Institutions Breakfast Seminar.
  - Participation in a t-shirt design competition hosted by Association for Women in Sciences (AWIS) for women in STEM (Science Technology Engineering and Math).
  - Arranged online meetup for WIE Affinity Group members to discuss the way forward on September 16th 2020.
  - Co-sponsored online event "Advancing Women through Engagement in Technical Activities during Corona Crisis" with IEEE NSW section and Bangladesh Section on 17th September 2020.
- **Life Member (LM)**
    - The Section has seen a growth in Life Members over the last year and we expect this trend to continue as our membership ages.

## **B.6 Awards & Recognition Activities**

- **Award constituted by the Section**
  - The key awards constituted by the Section are those in support of the Postgraduate Presentation Symposium.
  - These awards for best presentation are presented each year at the Symposium.
- **Please list all Awards and Recognitions received by the Section, and members in the Section, from R10 and IEEE HQ during the year**
  - None

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

- Newsletter (name and number of issues in the year)
  - Not Applicable
- Home Page of the Section (give the URL and how often it is updated)
  - The Section website is updated regularly with activity information, both as announcements of upcoming events, and reports on the events as they happen. The URL is <http://www.ewh.ieee.org/r10/nzc/>
  - The website is kept regularly up to date by our very active webmaster Professor Richard Harris – Richard ensures that all activities involving the Section are recorded on the website in a timely manner and he frequently chases committee members to ensure that reports on recent events are recorded quickly, with photos where possible.
- Other means of contacts with Section members including social media
  - Members are notified of upcoming events through e-notices.

## **B.8 Industry Relations**

- Membership growth and retention
  - We are fortunate to have a new industry based member who has volunteered to take on the role of Industry Coordinator for 2020. However, the COVID-19 constraints made it very challenging for us to organise events. We have tried our best under the COVID-19 constraints, and hopefully will organise more events in 2021 if the COVID-19 situation becomes better.
- Activities for/with industrial members
  - We successfully held the annual Joint Institutions Breakfast Seminar in Oct 2020. We invited Andrew Rushworth who is Managing Director of Zero Emission Vehicles Limited, and the event successfully attracted 28 attendees from various institutions (14 from IEEE, 6 from IET, 5 from ENZ and 3 external visitors).
  - As part of Industry relations activity, and adapt to the new norm under the COVID-19 constraints, we plan to include webinars by prominent industry speakers (national or international). We will exercise more on the methods of webinar program execution and organise webinars in 2021.
  - We shall explore the options of joining the company as a member rather than its employers.

## **B.9 Humanitarian Technology Activities**

- Humanitarian Technology related activities supported by the Section including collaboration with other OUs.
  - None
- SIGHT Activities
  - None

## **B.10 Community Activities**

- IEEE Social activities (Family day, IEEE day, Engineers Week)”
  - We had some social activities along with the Postgraduate Symposium and the “Transitioning from Academic to Industry” YP event.
  - We planned to have a BBQ AGM 2020, but had to cancel due to unexpected situation caused by COVID-19.
  - We will have a BBQ committee meeting in the end of Jan 2021 to increase/maintain engagement.

## **PART C - OTHERS**

### **C.1 Special Events**

- The primary Special Event held during 2020 was the Combined Institutions Breakfast Symposium.
- This event included joint sponsorship from IEEE, IET and ENZ.
- The event was also jointly funded by the three institutions.
- The Section opened a Concentration Bank account, which is essential for the Concur Expense claim process to work. We have transferred a nominal sum of US\$330 into the Concentration Bank Account.
- The Section has also identified the issue for the CB Account to be used for the Sections outside the US. For example, any foreign exchange transaction between the local bank (e.g. Westpac NZ) account and the CB account will cost around 10% of the total value of the transaction as the bank fees. We have reported the issues and provided feedback back to the IEEE Headquarter. Fundamentally the full Concur Expense process has not been fully tested in all situations involving foreign currency transactions and for the New Zealand Central Section represents a costly and backward step in financial management. The Section has made it very clear to IEEE headquarters that the New Zealand Central Section will not be using the Expense reimbursement process until such time as it can deliver cost effective financial transactions with the efficiency of our current processes.

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

- Nature of relationship and details of any formal agreement signed
  - Engineering New Zealand (ENZ)
    - Collaboration Agreement signed some years back, and needs to be renewed. We have started communicating with ENZ in 2020, but the progress is slow due to the negative effect caused by COVID-19. We have tried our best under the constraint of COVID-19, and will continue the process in the new year.
    - Joint events held annually
    - Considerable overlap in membership
  - Institute of Engineering and Technology (IET)
    - Collaboration Agreement signed some years back, and needs to be renewed. We have started the communication with IET, and received a very positive response from IET who have agreed the renewal in principle and are keen to develop closer relationships especially in regard to YP activities. However, again due to COVID-19, the progress is a bit slow. We will continue the process on the agreement renewal and closer collaboration with IET in the new year.



- IEEE NZCS Secretary (and Immediate Past Chair) is also an IET Wellington Network Committee member
  - Considerable overlap in membership
  - Several joint events held annually
- Details of joint activities
  - Primary joint event with ENZ and IET held annually is the Combined Institutions Breakfast event.
  - Other events held on a collaborative basis as appropriate.
- Benefit to IEEE members (for example discounts, access to technical information etc.)
  - IEEE members get to access technical seminars and other events which would not be otherwise possible without multiple membership fees
- Benefit to Section (for example help in membership development, venue facilities, cost saving etc.)
  - Greatly increased range of activities for members with less organizational effort
  - Leverage the scale and scope of three organizations for the benefit of members
  - Reduces competition for members between these three organizations

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

- Support extended to neighboring Sections
  - Many activities are undertaken collaboratively with the New Zealand North and South Sections
  - Several Chapters are Joint with the North and/or South Sections in order to ensure scale and scope of activities.
- Joint activities with any other Section
  - 16 September 2020: IEEE Communications Society (ComSoc) Distinguished Lecturer (DL) Virtual Lecture organised by the IEEE Joint NZ North, South, and Central ComSoc Chapter with Professor Mohammed Atiquzzaman (University of Oklahoma), USA as the speaker on the topic of Connecting Space Assets to the Internet: Challenges and Solutions, held via Zoom with free registration.
  - 28 October 2020: IEEE Communications Society (ComSoc) Distinguished Lecturer (DL) Virtual Lecture organised by the IEEE Joint NZ North, South, and Central ComSoc Chapter with Professor Arumugam Nallanathan, (Queen Mary University of London), UK as the speaker on the topic of Artificial Intelligence in Massive IoT Networks, held as a Zoom Meeting with free registration.

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

- Support extended for organizing technical, educational and professional activities
  - There are no sub-sections within the New Zealand Central Section
  - The NZCS always works to support Society Chapters in a collaborative manner with funding as required.
  - All Chairs of Chapters and Joint Chapters are invited to participate in monthly Section Committee meetings.
- Joint activities for membership development
  - Society Chapter Chairs are involved in all membership development activities undertaken by the Section.
- Support extended for the formation of a Sub-section or transition of a Sub-section into a full Section
  - Not applicable

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

- Maintaining regular (monthly) committee meetings.
- We have defined a “Portfolio responsibilities” document, which outlines the roles and responsibilities for the various portfolios on the executive committee.
- Close coordination of activities with those of affiliated groups such as Engineering New Zealand and Institute of Engineering and Technology.

- The New Zealand Central Section has two annual activities which we believe represent best practice. These are:
  - An annual industry breakfast seminar event which is held jointly with the local IET network and the Wellington Branch of Engineering New Zealand. This event is especially targeted at industry members from all three Institutions. It also provides an excellent platform for collaboration with our sister professional institutions operation in our region.
  - The annual Postgraduate Presentation Symposium which involves participation across the two postgraduate universities within the Central Region and typically has around 20 participants from each University. Prizes are awarded for the best presentations, but the greatest value is derived from the sharing of research activities from across the region.

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

- New Zealand like many countries has a national engineering institution which in our case is called Engineering New Zealand.
- As Engineering becomes increasingly recognized as a critical discipline for the delivery of safe modern facilities, the requirements placed on engineers to ensure Continuous Professional Development and up to date competency in one's fields of practice increases to the extent that it becomes a matter of Regulatory Compliance,
- The Regulatory Compliance aspect is typically associated with membership and competency evaluation through the national engineering institution, which requires membership of Engineering New Zealand.
- The threat for IEEE is that increasingly engineers must join their national engineering institution to ensure Regulatory Compliance to practice engineering nationally which then puts pressure on funding to also join other institutions such as IEEE.
- This is becoming an increasing competitive threat to institutions such as IEEE and IET in New Zealand.
- It is highly likely that some form of joint membership will be essential in the future, which enables membership of ENZ and IEEE (say) at a reduced rate relative to joining each institution separately.
- Maintaining dynamism within the student branches, especially with a high turnover (students are only with us for a short time). We need to focus on the attraction and retention of members within our two student branches.
- Due to COVID-19, it is harder to organise in-person events, and virtual events cannot achieve as good experience as the physical ones. We will continue to explore better virtual event tools/apps to increase the experiment of virtual events.
- Due to COVID-19, the membership had a reduction across the Section due to some members losing their jobs and students having a disrupted year of studies. Our Membership Development Coordinator has prepared a development plan for 2021, and we will continue to work together with other national organisations (e.g. ENZ and IET) to support the members to overcome their difficulties.

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

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

- Ongoing plans for 2020
  - Continue to organize our very successful joint institutions breakfast meeting for industry.
  - Continue with the successful postgraduate presentation event.
  - Continue to encourage Distinguished Lecturers to present to our members.
  - Continue to send introductory letters to all new members within the Central Region.

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

- Goals
  - To increase membership in all disciplines.
  - To encourage members to enhance their membership level.
  - To actively engage with all members within the Central Region.
  - To further encourage YP and WIE activities.
- Future Plans
  - To determine what will encourage members to participate in events.
  - To structure a program of events to best match members' needs.

- To invite more committee members from industry.

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

- As indicated in Section C6 above, it is becoming increasingly essential to find improved ways to work collaboratively with our national engineering institution, Engineering New Zealand, so that members are not unduly burdened with membership fees for both organizations.
- If we don't find a way to do this, the Regulatory Compliance requirements will ensure that ENZ gets membership priority over IEEE.

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

- New Zealand has its summer holidays during December and January and so Business Planning for the New Year will commence in February 2021.
- Hence the Business Plan for 2021 is at an early stage of development for this report.
- It is expected that the Business Plan will continue the work from previous years as follows:
  - Continued support of Chapter seminars and related activities with particular emphasis on Distinguished Lectures,
  - The holding of the annual Combined Institutions Industry Breakfast event,
  - The holding of the Postgraduate Presentation Symposium by the Combined Student Branches,
  - A continued emphasis on membership development and retention, noting the challenges identified in C6 above,
  - Increased focus on Affinity Groups – finding ways to ensure continuity and growth of the Young Professionals Group and the Women in Engineering Group (we are fortunate in having an increased number of young women in the Section this year who are willing to take on more active roles).
  - We have tried our best in 2020 under the COVID-19 situation. We will continue the Business Plan in the new year.