

Tainan Section Report

PART A - SECTION SUMMARY

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

- Section Executive Committee Member List
 - Chair: Pei-Yin Chen, pychen@mail.ncku.edu.tw
 - Vice Chair (Deputy): Meng-Hsueh Chiang, mhchiang@mail.ncku.edu.tw
 - Vice Chair (Technical Activities): Chuen-Yau Chen, cychen@nuk.edu.tw
 - Vice Chair (Conferences): Chun-I Fan, cifan@cse.nsysu.edu.tw
 - Vice Chair (Industry): Lih-Yih Chiou, lihyih@mail.ncku.edu.tw
 - Secretary: Fan-Hsun Tseng, tsengfh@gs.ncku.edu.tw
 - Treasure: Ming-Long Wu, minglong.wu@csie.ncku.edu.tw
 - Professional Activities: Ing-Chao Lin, iclin@mail.ncku.edu.tw
 - Membership Development: Sun-Yuan Hsieh, hsiehsy@mail.ncku.edu.tw
 - Student Activities: Mong-Fong Horng, mfhong@nkust.edu.tw
 - Educational Activities: Jai-Ming Lin, jmlin@ee.ncku.edu.tw
 - Newsletter Editor: Kuo-Sheng Cheng, kscheng@mail.ncku.edu.tw
 - Awards & Recognition Committee Chair: Tsorng-Juu Liang, tjliang@mail.ncku.edu.tw
 - Chapter Coordinator: Teen-Hang Meen, thmeen@nfu.edu.tw
- Section Highlights

In the year of 2024, Tainan Section held 1 annual meeting, 19 administrative meetings, 1 Professional speech, and 1 Technical Forum. Further, Tainan Section provided supports to our affiliated chapters in organizing their related activities. In total, there were 104 technical activities and 1 Professional workshop held by our chapters in the year of 2024.
- Major Events (International, National)

In 2024, Tainan Section continued its strong commitment to institutionalizing administrative and financial operations, ensuring long-term sustainability. In collaboration with the Department of Computer Science & Information Engineering and the Department of Electrical Engineering at NCKU, we worked to streamline section operations, minimizing transitional gaps between consecutive section chairs. Additionally, Tainan Section provided banking and accounting support for conferences and projects organized by our chapters and members.

Several main technical activities are listed in the followings. 10 keynote speakers were invited to 10 technical activity distinguished lectures:

 1. **Kang-you Liao,**
2024/2/22, Make OTA G/T Measurements of Active Phased Array Antennas Accuracy
 2. **Dongsuk Jeon,**
2024/3/14, Designing a Hardware Solution for Deep Neural Network Training
 3. **Shiwen Mao,**
2024/4/2, RFID-based 3D Human Pose Tracking: Design, Generalization, and Data Augmentation
 4. **Osamu Tabata,**
2024/4/18, Micro and Nanotechnology to Bridge the Human Body and Machine
 5. **Jalil Boukhobza,**
2024/5/3, Storing in the Cloud: Data Placement Issues and Some Solutions
 6. **Tsung-Hui Chang,**
2024/8/13, Aligning Model Output with Human Preference: A Ranking Based Zeroth-Order Optimization Method
 7. **Lei Chen,**
2024/12/6, Data Science for Large Models
 8. **Kyuseok Shim,**
2024/12/6, Cardinality Estimation of Queries in Database Systems
 9. **Cyrus Shahabi,**
2024/12/7, Preserving Privacy in Location Data for Urban Mobility Research
 10. **Jenq-Neng Hwang,**
2024/12/19, When Perceptual AI Meets Generative AI

- **Major Chapter Activities**
In 2024, the Computational Intelligence Society Tainan Chapter was very active in organizing technical activities. “the 29th International Conference on Technologies and Applications of Artificial Intelligence (TAAI 2024)” was held on December 6-7, and resulted in a successful activity with around 380 attendances. In 2024, Circuits and Systems Society Tainan Chapter held 18 more technical activities. CASS Chapter Chair, Prof. Cheng-Ta Chiang, actively promoted the Chapter by visiting major universities and worked hard to apply for support from IEEE CAS Society.
- **Major Student and Affinity Group Activities**
In 2024, “Quest for Scaling Earthly AI Holistically – Advancing AI to Help Children with Speech and Language Service Needs” was held by YP on January 26, with 155 attendees participating in the event. The themes navigated AI-driven solutions for speech and language services, addressing the shortage of SLPs and enhancing accessibility through early screening and personalized interventions.
- **Awards**
2024 was the 10th IEEE Tainan Section Annual Awards which consists of 5 different awards. Following winners were selected from 28 nominees after thorough review by 1 Awards Chair and 11 reviewers.
Best Master Thesis Award – Chen Hu
Best Ph.D. Thesis Award – Pala Sonia and Chin-Hao Tseng
Best Young Professional Member Award – Hsun-Ping Hsieh, Philex Fan and Yi-Ting Wu
Outstanding Technical Achievement Award – Min-Fu Hsieh, Wei-Yen Hsu, Yi-Chun Du and Jun-Wei Hsieh
Delta Award – Sun-Yuan Hsieh

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

- **Summary (as per submitted on NetSuite)**
Tainan Section supported all programs and activities at both the section and chapter levels in 2024. To encourage and promote student activities, Tainan Section provided budget for supporting Conferences. In 2024, the income was TWD 488,089 and the expense was TWD 443,266. Thus the final balance is TWD 44,823,786 and USD 7,413.16 as of December 31, 2024.
- **Any other financial activities**
N/A

PART B - ORGANIZATIONAL ACTIVITIES

B.1 Membership Development Activities

- **Total number of active members in the past 3 years.**

Grade	2022	2023	% Change	2024	% Change
Life Fellow	9	10	11.11%	13	30.00%
Fellow	15	14	-6.67%	13	-7.14%
Life Senior	1	2	100.00%	3	50.00%
Life Member	3	4	33.33%	8	100.00%
Senior Member	136	133	-2.21%	137	3.01%
Member	420	444	5.71%	440	-0.90%
Associate Member	16	22	37.50%	28	27.27%
Affiliate	9	10	11.11%	6	-40.00%
Graduate/Student	182	225	23.63%	221	-1.78%
Individual	-	-	-	-	-
TOTAL	791	864	9%	869	1%

- **Summary and evidence of work done to improve the value of membership, which leads to retention and growth of members**

Recruiting new student members is one of the main focuses of Tainan Section. We provided subsidies for the student members in the first year with half membership fee and supported selected students in attending international conferences.

Besides, we opened all the activities held by the section or chapters to non-member participants under the consideration of letting more people know IEEE by providing information on new technologies in every specialized research area. In 2024, we had 1,161 members and 7,551 nonmembers who participated in Tainan Section's activities.

B.2 Chapter Activities

- Total number of Chapters in the Section
Currently there are 16 Chapters, 1 Council Chapter, 2 Affinity Groups, and 2 Student Branches in the Tainan Section. The detailed information is as follows:
 1. Antennas and Propagation Society Tainan Chapter / Hsin-Lung Su
 2. Broadcast Technology Society Tainan Chapter / Chih-Peng Li
 3. Computer Society Tainan Chapter / Fan-Hsun Tseng
 4. Circuits and Systems Society Tainan Chapter / Cheng-Ta Chiang
 5. Computational Intelligence Society Tainan Chapter / Chih-Chieh Hung
 6. Communications Society Tainan Chapter / Chao-Kai Wen
 7. Electron Devices Society Tainan Chapter / Yeong-Her Wang
 8. Engineering in Medicine and Biology Society Tainan Chapter / Kuo-Sheng Cheng
 9. IEEE Tainan Young Professionals Affinity Group / Chien-Chung Ho
 10. Industry Applications Society Tainan Chapter / Min-Fu Hsieh.
 11. Information Theory Society Tainan Chapter / Chong-Dao Lee
 12. Microwave Theory and Techniques Society Tainan Chapter / Kang-Chun Peng
 13. Nanotechnology Council Tainan Chapter / Yu-Cheng Lin
 14. Sensors Council Chapter Tainan Chapter / Teen-Hang Meen
 15. Systems, Man, Cybernetics Tainan Chapter / Chien-Chou Lin
 16. Signal Processing Society Tainan Chapter / Mong-Fong Horng
 17. Solid-State Circuit Society Tainan Chapter / Kuang-Wei Cheng
 18. Vehicular Technology Society Tainan Chapter / Jen-Jee Chen
 19. Women in Engineering Tainan Section Affinity Group / Shu-Mei Guo
 20. National Cheng Kung University Student Branch
 21. National Kaohsiung Marine University Student Branch
- Number of Chapters formed in the current year
One: Industry Applications Society Tainan Chapter (Dec 2024).
- Number of active Chapters (Chapters who have reported required number of meetings during the year)

#	Meeting Title	Meeting Date	Total	Member	Non-Member	Event Category
Tainan Section						
1	Regular meeting	2024/1/8	4	1	3	Administrative
2	Pre-meeting	2024/1/11	8	4	4	Administrative
3	Meeting of Director & Supervisor	2024/1/15	23	19	4	Administrative
4	Regular meeting	2024/1/19	3	1	2	Administrative
5	Lecture: Outlook of SiC and GaN Development and Technological Insights	2024/1/25	59	22	37	Professional
6	2024 Power Electronics Forum	2024/3/6	79	35	44	Technical
7	Regular meeting	2024/6/11	4	2	2	Administrative
8	Pre-meeting	2024/7/2	8	4	4	Administrative

9	Meeting of Director & Supervisor	2024/7/9	30	26	4	Administrative
10	Regular meeting	2024/8/23	6	1	5	Administrative
11	Regular meeting	2024/8/26	10	2	8	Administrative
12	extraordinary meeting	2024/8/27	3	1	2	Administrative
13	extraordinary meeting	2024/9/3	5	3	2	Administrative
14	Regular meeting	2024/9/5	3	1	2	Administrative
15	Pre-meeting	2024/9/23	8	4	4	Administrative
16	Meeting of Director & Supervisor	2024/9/26	23	19	4	Administrative
17	Regular meeting	2024/10/18	4	3	1	Administrative
18	Regular meeting	2024/11/11	8	1	7	Administrative
19	Pre-meeting	2024/11/13	9	4	5	Administrative
20	Work Meeting	2024/11/14	6	1	5	Administrative
21	2024 Annual Membership Meeting	2024/11/15	91	77	14	Administrative
AP03						
1	Low orbit satellite technology and its applications	2024/2/26	52	2	50	Technical
2	Introduction of 4G/5G Antenna Packaging Technique: AiP/AiM Technique and Challenge	2024/3/20	17	4	13	Technical
3	Women Pioneers in Electromagnetic Wave Research: Challenging Norms, Building Tomorrow	2024/4/12	158	8	150	Technical
4	Develop of the Mobile communication industry	2024/5/15	17	4	13	Technical
5	Active Electronically Scanned Array RADAR Workshop	2024/5/22	19	4	15	Technical
6	Introduction of the antenna design in laptop	2024/5/24	17	4	13	Technical
7	Satellite communication -Optical amplifiers and devices for Laser communication	2024/5/29	17	4	13	Technical
8	Implementation and Measurement of a Near-Field Anechoic Chamber	2024/9/18	16	4	12	Technical
9	Introduction to LEO Satellite Communication System- From mmWave to LEO and 6G	2024/11/20	32	2	30	Technical
BT02						
1	Advanced Signal Processing Techniques	2024/1/4	140	20	120	Technical
2	Waveform Design for Integrated Sensing and Communications (ISAC)	2024/1/9	140	20	120	Technical
3	A Look at Federated Learning from Different Perspectives	2024/1/18	140	20	120	Technical
4	Smart memory for high-performance intrusion applications in the future	2024/2/27	140	20	120	Technical

5	Green Machine Learning with Knowledge Graphs	2024/3/26	140	20	120	Technical
6	O-RAN Uplink Performance Improvement for 5G massive MIMO	2024/4/2	140	20	120	Technical
7	RFID-based 3D human pose tracking: Design, generalization, and data augmentation	2024/4/2	140	20	120	Technical
8	Green Learning for OFDM Signal Detection	2024/4/23	140	20	120	Technical
9	MIMO evolution toward 6G: End-user-centric collaborative MIMO	2024/5/7	140	20	120	Technical
10	Sparse ZCZ Matrices for Training Design in Spatial Modulation	2024/5/21	140	20	120	Technical
C16						
1	Invited Talk: My Experience in Studying Abroad	2024/4/26	110	10	100	110
2	Invited Talk: Applications of the Industrial IoT	2024/5/2	128	12	116	128
3	Invited Talk: From Quantum Bits to Quantum Algorithms	2024/10/25	205	5	200	205
CAS04						
1	Research discussion with Fu Jen Catholic High School	2024/2/16	82	2	80	Technical
2	Research discussion with Department of Computer Science and information Engineering, National Dong Hwa University?	2024/2/21	58	3	55	Technical
3	[CASS DL] Secure Crypto Chip Design and Evaluation against Side Channel Attacks	2024/3/4	14	2	12	Technical
4	Research discussion with Department of Computer Science and Engineering, National Sun Yat-sen University	2024/3/8	103	3	100	Technical
5	Research discussion with Concordia Middle & High School	2024/3/11	111	1	110	Technical
6	[SSCS/CASS DL] Designing a hardware solution for deep neural network training	2024/3/14	105	5	100	Technical
7	[CASS DL] AI and Video Compression in the Era of Internet of Video Things	2024/3/21	31	6	25	Technical
8	[CASS DL] In-Sensor AI Computing for Efficient Real-Time Machine Perception	2024/3/27	28	3	25	Technical
9	[CASS DL] Neuromorphic Dynamics of Chua Corsage Memristor	2024/4/3	10	2	8	Technical
10	Research discussion with Department of Electrical Engineering, National University of Kaohsiung?	2024/4/10	32	2	30	Technical
11	Research discussion with Department of Electrical and Electronic Engineering, National Defense University?	2024/4/12	18	2	16	Technical
12	Research discussion with Department of Computer Science and information Engineering, National Quemoy University?	2024/4/18	52	2	50	Technical
13	Research discussion with Department of Electronic Engineering, Kun-Shan University?	2024/4/29	54	4	50	Technical
14	Research discussion with Department of Electronic Engineering, Southern Taiwan University of Science and Technology?	2024/5/6	19	4	15	Technical

15	Research discussion with Department of Electrical Engineering, National Chia Yi University	2024/6/3	52	2	50	Technical
16	[CASS DL] Compact Control Loops for Switched-Inductor Power Supplies	2024/6/26	55	5	50	Technical
17	[CASS DL] Compact Control Loops for Switched-Inductor Power Supplies	2024/6/27	43	8	35	Technical
18	Research discussion with Department of Electronic Engineering, National Chin-Yi University of Technology	2024/9/5	30	5	25	Technical
CIS11						
1	Transformations between Probability Distributions	2024/11/11	54	4	50	Technical
2	the 29th International Conference on Technologies and Applications of Artificial Intelligence	2024/12/6	380	30	350	Technical
COM19						
1	Lecture by IEEE Distinguished Lecturer Dr. Hsiao-Chun Wu	2024/1/4	36	8	28	Technical
2	Lecture by Dr Zilong Liu	2024/1/9	58	10	48	Technical
3	Lecture by Dr. Tony Q.S. Quek	2024/1/18	49	15	34	Technical
4	Lecture by IEEE Distinguished Lecturer Dr. Shiwen Mao and Dr. Rob Maunder	2024/4/2	58	18	40	Technical
5	Lecture by IEEE Distinguished Lecturer Dr. Baek-Young Choi	2024/8/5	29	10	19	Technical
6	Lecture by Professor Trung Q. Duong	2024/11/12	18	13	5	Technical
ED15						
1	Micro/Nanotechnology Research at the University of Canterbury	2024/1/5	43	3	40	Technical
2	Smart Gate Drivers for GaN and SiC Power Devices	2024/8/19	85	5	80	Technical
3	Microelectronics: Current Status, Outlook, and Reliability Issues	2024/10/29	33	3	30	Technical
4	The Foundations and Innovations of Logic IC and Nonvolatile Memory Technologies	2024/12/25	51	6	45	Technical
EMB18						
1	Invited Speech	2024/1/2	57	1	56	Technical
2	Invited Speech	2024/5/11	90	1	89	Technical
3	Invited Speech	2024/8/27	27	1	26	Technical
4	Invited Speech	2024/10/17	60	2	58	Technical
5	BME administration committee meeting	2024/11/2	4	4	0	Administrative
6	Invited Speech	2024/12/19	104	6	98	Technical
IT12						

1	Invited Talk_Prof. Zilong Liu: How to support massive connectivity for 6G V2X in high mobility channels?	2024/1/8	22	5	17	Technical
2	2024 Taiwan Workshop on Information Theory and Communications	2024/8/13	211	52	159	Technical
3	Invited Talk: Prof. Yen-Ming Chen Topic: DNN-assisted Near-optimal Sparse Code Multiple Access Schemes: Code-domain NOMA for 6G and Beyond	2024/11/22	193	3	190	Technical
4	Invited Talk: Prof. Yen-Ming Chen Topic: DNN-assisted Near-optimal Sparse Code Multiple Access Schemes: Code-domain NOMA for 6G and Beyond	2024/12/13	193	3	190	Technical
MTT17						
1	MARITIME SATELLITE SEMINAR	2024/2/22	223	13	210	Technical
2	Electricity Like the Air - Technology and Applications of Wireless Power	2024/3/27	84	11	73	Technical
3	IEEE MTT-S Tainan Chapter Microwave Lecture: Micro and Nanotechnology-Driven Antennas, Circuits, and Sensors for Telehealth and Telemedicine	2024/8/1	58	9	49	Technical
4	IEEE Distinguished Microwave Lecture: mm-Wave System and Circuit Design for Highly-Integrated Radar Transceivers	2024/10/14	26	2	24	Technical
NANO42						
1	10th International Conference on Applied System Innovation (IEEE ICASI 2024)	2024/4/17	300	30	270	Technical
2	Nuclear Fusion: The Holy Grail of Clean Energy	2024/9/26	100	10	90	Technical
SEN39						
1	2024 IEEE 7th Eurasian Conference on Educational Innovation (IEEE ECEI 2024)	2024/1/26	141	15	126	Technical
2	2024 IEEE 4th International Conference on Electronic Communications, Internet of Things and Big Data (IEEE ICEIB 2024)	2024/4/19	130	20	110	Technical
3	2024 IEEE 6th Eurasia Conference on Biomedical Engineering, Healthcare and Sustainability (IEEE ECBIOS 2024)	2024/6/14	115	9	106	Technical
4	7th International Conference on Knowledge Innovation and Invention 2024 (ICKII 2024)	2024/8/16	217	34	183	Technical
5	6th Eurasia Conference on IoT, Communication and Engineering 2024 (ECICE 2024)	2024/11/15	139	19	120	Technical
6	6th International Conference on Architecture, Construction, Environment and Hydraulics 2024 (ICACEH 2024)	2024/12/6	31	3	28	Technical
7	2024 4th International Conference on Social Sciences and Intelligence Management (SSIM 2024)	2024/12/20	132	5	127	Technical
SMC28						
1	What is the future of AI in the software industry and market?	2024/10/9	98	3	95	Technical
2	Visiting Shalun Cybersecurity Service Base (ACW South)	2024/11/6	46	1	45	Technical

3	Yuntech Programming Contest	2024/11/12	47	2	45	Professional
4	Visiting Car Electronics Training Base of Shu-Te University	2024/11/27	52	2	50	Technical
SP01						
1	Utilizing Generative AI to Create a New Future for AI Applications	2024/3/15	21	3	18	Technical
2	The Future Trends and Opportunities in the Technology Industry	2024/4/19	29	4	25	Technical
3	Industrial Control Security, Software Security, and Information Security Management	2024/5/3	35	5	30	Technical
4	Augmented/Mixed Reality Audio for Hearables: Sensing, Control, and Rendering	2024/6/7	75	10	65	Technical
5	Introduction to Silicon Photonics Technology Development	2024/8/23	54	6	48	Technical
6	Generative AI Applications: Experience Sharing on the TAIDE Model and Kuwa Platform	2024/10/21	25	3	22	Technical
SSC37						
1	Advanced Node Design Challenge	2024/1/2	39	7	32	Technical
2	[SSCS DL] Designing a Hardware Solution for Deep Neural Network Training	2024/3/14	70	10	60	Technical
3	[DL] AI and Video Compression in the Era of Internet of Video Things	2024/3/21	50	15	35	Technical
4	[SSCS DL] Over A Century of Electronic Power Amplifiers from Doherty PAs to Digital PAs	2024/5/23	60	20	40	Technical
5	[DL] Energy-efficient sensor interface circuits	2024/6/20	50	5	45	Technical
6	SSCS/CAS Annual General Assembly in Taiwan	2024/7/31	50	50	0	Technical
7	Next-generation Solutions for Accelerating Digital Design Implementation in advanced node	2024/11/7	55	5	50	Technical
8	Revolutionizing Verification with AI Acceleration	2024/11/21	44	4	40	Technical
VT06						
1	Digital twins and its applications in telecommunications	2024/4/26	54	5	49	Technical
2	The CWT IoT Device for Detecting Rare Events of Orchid Disease	2024/6/7	47	5	42	Technical
3	Security and Privacy of Deep Discriminator Models	2024/12/17	42	3	39	Technical
4	Security and Privacy of Deep Language Models	2024/12/18	48	4	44	Technical
WOMEN IN ENGINEERING						
1	Biodesign	2024/11/6	26	1	25	Technical
2	SEMINAR	2024/12/13	80	5	75	Technical
YOUNG PROFESSIONALS						

1	Quest for Scaling Earthly AI Holistically - Advancing AI to help children with speech and language service needs	2024/1/26	155	5	150	Technical
2	Make every bit of bandwidth count: AI systems innovation for accelerating AI in the era of Cloud Computing	2024/1/29	60	10	50	Technical
3	Storing in the Cloud: data placement issues and some solutions	2024/5/3	155	5	150	Technical
4	Breaking the Data Movement Bottleneck: Exploring Processing-in-Memory (PIM) Solutions for Modern Workloads	2024/5/10	15	5	10	Technical
5	Breaking the Data Movement Bottleneck: Exploring Processing-in-Memory (PIM) Solutions for Modern Workloads	2024/6/14	50	10	40	Technical
6	Multi-Resonance Mesh-Based Wavelength-Routed Optical Networks-on-Chip	2024/9/26	25	5	20	Technical
7	Minimizing Worst-Case Data Transmission Cycles in Wavelength-Routed Optical NoC through Bandwidth Allocation	2024/9/26	25	5	20	Technical

- Summary of Chapter activities (Chapter wise with attachment table/information)

Chapter Name	Administrative	Nontechnical	Technical	Professional	Sub-Total
Tainan Section	19		1	1	21
AP03			9		9
BT02			10		10
C16			3		3
CAS04			18		18
CIS11			2		2
COM19			6		6
ED15			4		4
EMB18	1		5		6
IT12			4		4
MTT17			4		4
NANO42			2		2
SEN39			7		7
SMC28			3	1	4
SP01			6		6
SSC37			8		8
VT06			4		4
Women in Engineering			2		2
Young Professionals			7		7
Total	20	0	105	2	127

B.3 Professional and Continuing Education Activities

In the year of 2024, Tainan Section held 1 Annual Meeting, 19 Administrative Meetings, 1 Professional Speech, and 1 Technical Forum. Further, Tainan Section provided supports to our affiliated chapters in organizing their related activities. In total, there were 104 technical activities and 1 Professional workshop held by our chapters in the year of 2024.

Professional and Continuing Education Activities held in 2024 are listed in Summary of Chapter activities.

B.4 Students Activities

- Total number of Student Branches in the Section
There are one Student Branch in Tainan Section:
 - **National Cheng Kung University Student Branch (est. 2005)**
 - **National Kaohsiung Marine University Student Branch (est. 2016, dissolved in 2024)**
National Kaohsiung Marine University merged with other institutions in 2018; therefore, its Student Branch was officially dissolved by IEEE in 2024.
- Number of Student Branches formed in the current year
N/A
- Section level student activities (student congress, paper and other contests, awards etc)
Tainan Section grants annual awards to encourage and recognize our members for their achievements in research. Two awards are dedicated specifically to our student member:
 - **Best Master Thesis Award**
 - **Best Ph.D. Thesis Award**

In the year of 2024, graduated student members, Chen Hu, Pala Sonia and Chin-Hao Tseng were awarded in the 2024 IEEE Tainan Section Annual Meeting.
- Number of active Student Branches (Student Branches who have reported required number of meetings during the year)
N/A
- Summary of Student Branch activities (Student Branch wise with attachment table/information)
 1. National Cheng Kung University Student Branch
N/A
 2. National Kaohsiung Marine University Student Branch
N/A

B.5 Affinity Group Activities

- Young Professional (YP)

YOUNG PROFESSIONALS						
1	Quest for Scaling Earthly AI Holistically - Advancing AI to help children with speech and language service needs	2024/1/26	155	5	150	Technical
2	Make every bit of bandwidth count: AI systems innovation for accelerating AI in the era of Cloud Computing	2024/1/29	60	10	50	Technical
3	Storing in the Cloud: data placement issues and some solutions	2024/5/3	155	5	150	Technical
4	Breaking the Data Movement Bottleneck: Exploring Processing-in-Memory (PIM) Solutions for Modern Workloads	2024/5/10	15	5	10	Technical
5	Breaking the Data Movement Bottleneck: Exploring Processing-in-Memory (PIM) Solutions for Modern Workloads	2024/6/14	50	10	40	Technical
6	Multi-Resonance Mesh-Based Wavelength-Routed Optical Networks-on-Chip	2024/9/26	25	5	20	Technical
7	Minimizing Worst-Case Data Transmission Cycles in Wavelength-Routed Optical NoC through Bandwidth Allocation	2024/9/26	25	5	20	Technical

- Women In Engineering (WIE)

WOMEN IN ENGINEERING						
1	Biodesign	2024/11/6	26	1	25	Technical
2	SEMINAR	2024/12/13	80	5	75	Technical

- Life Member (LM)
N/A

B.6 Awards & Recognition Activities

- Award constituted by the Section
2024 was the 10th IEEE Tainan Section Annual Awards which consists of 5 different awards. Following winners were selected from 28 nominees after thorough review by 1 Awards Chair and 11 reviewers.
Best Master Thesis Award – Chen Hu
Best Ph.D. Thesis Award – Pala Sonia and Chin-Hao Tseng
Best Young Professional Member Award – Hsun-Ping Hsieh, Philex Fan and Yi-Ting Wu
Outstanding Technical Achievement Award – Min-Fu Hsieh, Wei-Yen Hsu, Yi-Chun Du and Jun-Wei Hsieh
Delta Award – Sun-Yuan Hsieh
- Please list all Awards and Recognitions received by the Section, and members in the Section, from R10 and IEEE HQ during the year
 - 2024 IEEE CAS Regional Chapter-of-the-Year Award: Region 10

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

- Newsletter (name and number of issues in the year)
N/A
- Home Page of the Section (give the URL and how often it is updated)
The new official website of the IEEE Tainan Section was launched on July 16, 2024. It is available at <https://r10.ieee.org/tainan/> and is updated at least once a month.
- Other means of contacts with Section members including social media
The mostly used means of contacts with our affiliated chapters or members are email and phone. Information about IEEE, conferences, or activities held by our chapters are announced via emails.

B.8 Industry Relations

- Membership growth and retention
In order to promote the membership growth, we opened all the activities held by the section or chapters to industrial members participants under the consideration of letting more people know IEEE by providing information on new technologies in every specialized research area.
- Activities for/with industrial members
In 2024, Tainan Section hosted 2 professional workshops, one of which was the Industry Relations Forum, co-organized with the LITEON-NCKU Research Center. LITEON Technology and National Cheng Kung University (NCKU) have maintained a deep and long-standing partnership for 14 years, accumulating substantial cooperation experience and achievements. To enhance the global competitiveness of both academia and industry, LITEON and NCKU officially launched the LITEON-NCKU Research Center in 2023. The center's key initiatives include promoting industry-academia collaboration, jointly developing research, cultivating high-level and corporate talent, and organizing technical forums and presentations.

Additionally, the Computational Intelligence Society Tainan Chapter (CIS11) contributed to industry-academia collaboration by organizing the 29th International Conference on Technologies and Applications of Artificial Intelligence (TAAI 2024). As a premier annual AI event, TAAI 2024 was sponsored by the Taiwanese Association for Artificial Intelligence (TAAI) and was held at National Tsing Hua University (NTHU). Under the theme “Cross-domain Collaboration, Industry Co-creation,” the conference facilitated collaboration between scholars and industry professionals. Special lectures by internationally renowned AI experts were featured, attracting participation from graduate students and industry leaders interested in artificial intelligence technology.

Activities held in 2024 are listed in Summary of Chapter activities.

B.9 Humanitarian Technology Activities

- Humanitarian Technology related activities supported by the Section including collaboration with other OUs.
Cooperating with the Academia-Industry for Southern Taiwan Science Park and the Department of Computer Science & Information Engineering and the Department of Electrical Engineering at NCKU, we held the activities to provide information on experience sharing in every specialized research area.
- SIGHT Activities
In 2024, “IEEE 6th Eurasia Conference on Biomedical Engineering, Healthcare and Sustainability (IEEE ECBIOS 2024)” was held on June 14-16, co-organized by the Sensors Council Tainan Chapter (SEN39). This conference emphasized the integration of biomedical engineering, healthcare, and sustainability to enhance healthcare systems with cutting-edge sensors and computing technologies. While technological advancements improve efficiency, quality, and cost-effectiveness, ECBIOS 2024 also highlighted the importance of humanitarian perspectives, advocating for ethically aligned and accessible healthcare solutions. The conference fostered interdisciplinary collaboration among scientists, engineers, and professionals from academia and industry, ensuring that innovations in healthcare reach underserved communities and contribute to global well-being. The event resulted in a successful activity with around 115 attendees.

B.10 Community Activities

- IEEE Social activities (Family day, IEEE day, Engineers Week)”
In 2024, Systems, Man, and Cybernetics Society Tainan Chapter (SMC28) hosted a visit to the Car Electronics Training Base of Shu-Te University on November 27. A total of 50 local students participated in the event. This visit, focused on advancing technical education and learning, provided students with the opportunity to explore state-of-the-art automotive electronics and Internet of Vehicles (IoV) systems through hands-on experience.

The training base, established by Shu-Te University of Science and Technology, is equipped with advanced German-made teaching hardware and software. During the visit, students interacted with equipment such as engine sensor platforms, airbag systems, and automatic parking systems, gaining practical insight into automotive technologies.

This activity exemplified the spirit of IEEE's Community Activities by fostering technical education and collaboration within the local community. It promoted knowledge sharing between educational institutions and students, and played a crucial role in encouraging the learning of emerging technologies in automotive engineering and IoV systems, ultimately empowering students with relevant skills for their future careers.

PART C - OTHERS

C.1 Special Events

- Please briefly describe the importance of special events and the outcomes achieved
 - 2024 Award Application & Annual Membership Meeting
 - Regular meeting
 - Meeting of Director & Supervisor
- Funding secured from the IEEE and external sources including sponsorships
 - Bonus from the IEEE
 - Sponsor from conference activities

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

- Nature of relationship and details of any formal agreement signed
In collaboration with the Department of Computer Science & Information Engineering and the Department of Electrical Engineering at NCKU, we worked to streamline Tainan Section operations,

minimizing transitional gaps between consecutive section chairs. Additionally, Tainan Section provided banking and accounting support for conferences and projects organized by our chapters and members. In 2024, with strong support from National Kaohsiung University (NUK), sponsorship of the venue and related arrangements facilitated the successful hosting of our Annual Membership Meeting in Kaohsiung.

- Details of joint activities
With the help of NCKU, we were able to promote activities to a broader audience, including students, technicians, and industry professionals, while also providing access to the latest advancements in specialized research areas. Holding the Annual Membership Meeting in Kaohsiung also encouraged greater participation from members of National Sun Yat-sen University (NSYSU), which has the second-largest IEEE membership among universities in our section.
- Benefit to IEEE members (for example discounts, access to technical information etc.)
Recruiting new student members is one of the main focuses of Tainan Section. We provided subsidies for the student members in the first year with half membership fee and supported selected students in attending international conferences.
- Benefit to Section (for example help in membership development, venue facilities, cost saving etc.)
NCKU continues to provide venue facilities and accounting support for conferences hosted by our chapters and members. This year, the support from NUK in providing a venue and related arrangements for the Annual Membership Meeting greatly contributed to its success. Additionally, hosting the event in Kaohsiung increased participation from NSYSU members, further strengthening engagement within the section.

C3. Collaboration with other IEEE Sections

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

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

- Support extended for organising technical, educational and professional activities
Tainan Section provided banking and accounting support for conferences held by our chapters and members. To encourage Tainan Section chapters and members to actively apply for IEEE funding and organize related activities, administration fees were not charged for non-profit, free-to-attend events. For other activities, such as international conferences or non-IEEE events, the administration fee was reduced to 7%.
- Joint activities for membership development
 - 2024 Award Application & Annual Membership Meeting
- Support extended for the formation of a Sub-section or transition of a Sub-section into a full Section
We provide administrative services to assist the new chapter to complete the application to extend our section into a full section.

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

The members of Tainan section are encouraged to provide their research results and outcomes to be revealed on the section website. The visibility increasing will value up the research effort of the members. Collect the related business information and set-up a contact window for the transferring of the research result to practical products

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

N/A

PART D - GOALS AND PLANS

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

In the year of 2025, Tainan Section will further promote globalization and will continue

- Basic assistance to members of Tainan Section in membership development.
- Dissemination of knowledge in the broader fields of electrical and electronics engineering through holding of technical talks, seminars, conferences, symposia, workshops, tutorials, etc.
- Assistance to IEEE members in developing chapters and organizing various activities.
- Support to Student Branches.

D.2 Goals and Future Plans

In 2025, Tainan Section aims to further strengthen its impact by:

- Encouraging the establishment of new society chapters to expand professional communities and enhance member engagement.
- Providing assistances to members in their IEEE career development, including networking opportunities and professional growth resources.
- Supporting and guiding members in participating in IEEE activities and award applications to recognize outstanding contributions.
- Offering continued support to Student Branches to foster young talent and cultivate future engineering leaders.
- Disseminating knowledge in the broader fields of Electrical and Electronics Engineering, as well as Computer Science and Artificial Intelligence, through technical talks, seminars, conferences, symposiums, workshops, and tutorials.
- Strengthening connections and collaboration with industry partners to bridge the gap between theory and practice, facilitating knowledge transfer and innovation.
- Leveraging the newly established IEEE Industry Applications Society Tainan Chapter (est. Dec 2024) to enhance engagement with professionals in applied engineering fields and promote industry-academic collaboration. Additionally, Tainan Section will assist in the financial management of sponsorship funds and event promotion for the 60th IEEE Industry Applications Society Annual Meeting to ensure its success.

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

With the rapid advancement of AI, computer science and engineering have become central fields of focus. However, alongside this technological surge, there is also a growing interest in human-centric qualities that AI cannot easily replicate, such as emotional value, social connections, and creativity.

A national survey (Feb 2023 – Jan 2024) identified social psychology, veterinary medicine with a focus on companion animals, and arts/multimedia/design as emerging non-tech fields gaining significant traction amid the AI revolution.

To attract a broader audience, IEEE could explore interdisciplinary initiatives that integrate technology with psychology, companion animal healthcare, and creative arts. Suggested strategies include:

- Cross-Disciplinary Forums/Workshops – Addressing topics such as affective computing, AI applications in mental health, and technology-driven artistic expression.
- Research Support – Funding projects that explore the intersection of engineering, emotional intelligence, and sensory design.
- Creative Challenges – Organizing competitions that leverage AI to enhance human well-being, empathy, and creativity.
- Collaborative Panels – Bringing together experts from diverse fields to discuss technology's evolving role in shaping human experiences.

By embracing these cross-disciplinary opportunities, IEEE can expand its membership base, attract professionals from various sectors, and foster a more inclusive and innovative community.

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

Industrial participation scheme is under construction. The industrial can reach the state-of-art technologies. Industrial sponsorship and professional service will enhance the financial stability and improve the incoming growth.