



CURRICULUM VITAE



Associate Professor Dr. Thinagaran Perumal

BEng Comp. & Communication System (UPM), MSc. (UPM), PhD (UPM)

PERSONAL DETAILS

Faculty	:	Computer Science and Information Technology
Work Address	:	Department of Computer Science, Faculty of Computer Science and Information Technology, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia
Email	:	thinagaran@upm.edu.my
Specialization	:	Artificial Intelligence of Things (AIoT), Embedded System, Internet of Things (IoTs) and Cyber- Physical system.
Contact numbers	:	(Office) +603-9769 1751 / Mobile: 012-6594933
Academic Qualifications	:	PhD (Smart Technology and Robotics), Universiti Putra Malaysia, 2012. MSc. Intelligent Systems, Universiti Putra Malaysia, 2006. Bachelor Engineering (Hons), Computer and Communication Systems, Universiti Putra Malaysia, 2003.
H-index	:	21 (Scopus) / 25 (Google Scholar) as of June 2024
Citations	:	1146 (Scopus) / 1992 (Google Scholar)
No. years of service at UPM	:	11 years 6 months
Scopus Author ID	:	24491918300
Orcid ID	:	https://orcid.org/0000-0003-0698-5413
Date/Year of commencement of : service at the university	:	15 th January 2014
Date confirmed in the post	:	16 th January 2015
Date of appointment to current : Position	:	1 January 2020
GoogleScholar:	:	https://scholar.google.com.my/citations?user=KJo5T0sAAAAJ&hl=en

ADMINISTRATIVE AND OTHER APPOINTMENTS

1. **Chairman**, ISO National Technical Committee on Internet of Things and Digital Twin, TC16, Department of Standards Malaysia, Ministry of Investment, Trade and Industry, Malaysia, 2025-2027.
2. **Chairman**, IEEE Technical Committee on Internet of Things, Digital Twin and Edge Computing, 2025-2027
3. **Secretary**, Sub-Committee, Asian University Network (AuN) Digital Transformation (Dx) Category Service Management, 2025-2028
4. **Head**, Department of Computer Science, Faculty of Computer Science and Information Technology, Universiti Putra Malaysia (1st March 2024 – Current)
5. **Postgraduate Program Coordinator**, Master of Computer Science (By Coursework), Universiti Putra Malaysia (January 2023 – March 2024)
6. **Head**, Intelligent Computing Research Group, FSKTM, UPM (January 2021 – December 2022)
7. **Head**, Cyber Physical System Unit, FSKTM, UPM (January 2015 – January 2017)
8. **Department Coordinator**, Mobility Unit, FSKTM, UPM (Jan 2015 - 2017)
7. Member, Faculty Emergency Response Team, FSKTM, UPM (October 2016 - 2019)
8. Member, Faculty Awards Committee, FSKTM, UPM (January 2017 – 2022)
9. Member, **IR4.0 Taskforce**, FSKTM, UPM (January 2019 – 2022)
10. Member, (JKKP –FSKTM), UPM (2017 -2020).
11. Coordinator, SSK3102 Embedded System Programming
12. Committee Member, FSKTM Putra Future Classroom, (2018 – 2020)
13. Member, Utility Saving Committee, FSKTM, UPM, 2015 – 2017.
14. **Post-Doctoral Fellow**, FSKTM, UPM (1st August 2012 – 14th January 2014)
15. **Researcher**, Centre of Excellence, National Centre of Excellence (NEST) for Wireless Sensor Network, Critical Structure and Infrastructure Monitoring Using Wireless Sensor Network, UPM Consultancy and Services Sdn Bhd, Jan 2012- July 2012.
16. **Research Assistant**, Intelligent Systems and Robotics Laboratory (ISRL), Institute of Advanced Technology (ITMA), Universiti Putra Malaysia, August 2004 – January 2009

RESEARCH GRANTS AND PROJECTS

i) Project Leader:

1. An Efficient Edge-Based Lightweight Deep Learning Model for Multi-Resident Activity Recognition in Smart Home Environment, Fundamental Research Grant Scheme (FRGS), RM164,348, Researchers: **Thinagaran Perumal**, Raihani Mohamed, Razali Yaakob, Erzam Marlisah and Norwati Mustapha, **On-Going**.
2. **Semantic Interoperability Framework for Heterogeneous Internet of Things (IoT Objects)**, (9653000), Geran Putra Inisiatif Siswazah, **RM 25,000**, June 2018 – June 2020, Researchers: **Thinagaran Perumal**, Suman Sukhavasi, Razali Yaakob and Norwati Mustapha, **Completed**.
3. **Enhanced spatio-temporal event model for Internet of Things (IoT) service provisioning**, Geran Putra Berimpak (9549700), **RM 122,000**, September 2017- August 2019, Researchers: **Thinagaran Perumal**, Iskandar Ishak, Razali Yaakob and Norwati Mustapha, **Completed**.
4. **User centered Internet of Things Devices for Elderly in Ambient Assisted Living**, Taylor Funding Scheme, **RM 35,800**, February 2018 – July 2019, Researchers: **Thinagaran Perumal**, Goh Wei Wei, Filzah Md Isa and Sumathi Balakrishnan, **Completed**.
5. **Embedded System Based Ambient Informatics for Smart Home Sustainability**, Geran Putra Inisiatif Muda (9437200), **RM50,000**, September 2014 – September 2016, Researchers: **Thinagaran Perumal**, Md Nasir Sulaiman, **Completed**.
6. **Development of an ambient intelligence based activity recognition model for ageing citizens**, Taylor Funding Scheme, **RM 22,090**, November 2017 – October 2018, Researchers: **Thinagaran Perumal**, Goh Wei Wei and Sumathi Balakrishnan, **Completed**.

ii) Co-Researcher / Member :

1. **Enhanced Fall Detection Framework For Smart Home Environment** (9644700), Geran Putra Inisiatif Siswazah, **RM 25,000**, April 2018 – April 2020, Researchers: Athi Mahendran, Razali Yaakob, **Thinagaran Perumal** and Erzam Marlisah, **Completed**.
2. **A New Optimization with new metric formulation for SVM classifier in dealing with imbalanced datasets**, FRGS Grant Scheme (5524660), **RM 88,000**, Researchers: Md Nasir Sulaiman, Norwati Mustapha and **Thinagaran Perumal** (Member), December 2014- August 2017, **Completed**.

3. **A new countermeasure method to minimize consistency anomalies in heterogeneous sensor databases based on relaxed – ACID and BASE properties**, FRGS Grant Scheme (5524834), **RM 66,000**, Researchers: Iskandar Ishak, Fatimah Sidi, Hamidah Ibrahim and **Thinagaran Perumal** (Member) November 2015— May 2018, **Completed**.
4. **Ambient Intelligence for Smart Buildings**, Exploratory Research Grant Scheme (ERGS) June 2013- May 2015, Ministry of Education, Malaysia, **RM 70,090**, Md Nasir Sulaiman, Norwati Mustapha, Khaironi Yatim Sharif dan **Thinagaran Perumal** (Member), **Completed**.
5. **Black Hole Attack Detection and Mitigation in Mobile Adhoc Network (MANET)**, (9543700), **RM 15,000**, Geran Putra IPS, Fazirul Hisyam, Samia Khan, Fadlee Rasid, **Thinagaran Perumal** (Member), August 2017 – August 2018, **Completed**.
6. **Spatial Smart City Delivery Engine**, Techno Fund, MOSTI (TF0813E269), **RM 233,000**, 2014 - 2016, Researchers: Shattri Mansor, Abd Rahman Ramli, **Thinagaran Perumal**, Zailani Khuzaimah and Siti Nooradzah Adam, **Completed**.

AWARDS AND RECOGNITION

i) International

1. **Early Career Award**, IEEE Consumer Electronics Society, Makuhari Messe, Chiba, Tokyo, Japan, 2014.
2. **International Fellowship Award**, IEEE Volunteer Leadership Program, New York, 2014.
3. **Excellent Best Paper Award**, “IoT Device Management Framework for Smart Home Scenarios”, IEEE Global Conference on Consumer Electronics, 26th –30th October 2015, Osaka, Japan. Researchers: **Thinagaran Perumal**, Soumya Kanti Datta and Christian Bonnet.
4. **Outstanding Faculty Award in Computer Science and Engineering**, Venus International Foundation. Chennai, India, 2017.
5. **Best Paper Award**, “Modeling Activity Recognition of Multi Resident using Label Combination of Multi Label Classification in Smart Home”, International Conference on Applied Science and Technology, 3-5th April 2017, Researchers: Raihani Mohamed, **Thinagaran Perumal**, Md Nasir Sulaiman, Norwati Mustapha and M.N.Shah Zainudin.

ii) National

1. **Digital Initiative Icon of the Year (ASTRO Global Industry Award 2018)** awarded by MEASAT Broadcast Network Systems Bhd (ASTRO), 2018.
2. **Outstanding Service Award**, IEEE Consumer Electronics Society Malaysia Chapter, 2015.
3. IHL-MSC Malaysia Startup Challenge, *WoCo Stylus (World Colour Stylus)*, **Winner 1st Prize** (RM 12,000), MDEC and Unit Keusahawanan Kementerian Pendidikan Malaysia, (Researcher: Puteri Suhaiza and **Thinagaran Perumal**)
4. **Bronze Medal Award**, *Distributed Network Based Matrix for Public Addressing*, Malaysian Technology Expo (MTE 2008), 21st February 2008, Putra World Trade Centre, MALAYSIA. (Researchers: Abd Rahman Ramli, **Thinagaran Perumal**, Rosiah Osman and Chui Yew Leong).
5. **Outstanding Volunteer Award**, IEEE Computer Society Malaysia Section Appreciation Award, 2006.
6. **Silver Medal Award**, *Embedded Multimedia Interface Module for Smart Home Environment*, Invention, Research and Innovation Exhibition, 22nd -24th August 2006, Universiti Putra Malaysia, (Researchers: Abd Rahman Ramli, **Thinagaran Perumal**, and Chui Yew Leong).

iii) University

1. Excellence Research Grant Award FSKTM, UPM, 2018.
2. Excellent Research Publication Award UPM, 2017.
3. Excellence Service Awards Universiti Putra Malaysia, 2014, 2015, 2016 and 2017.
4. Industrial Linkages Excellence Award, FSKTM, UPM, 2016.
5. Excellent Teaching Award FSKTM, UPM, 2015, 2016.
6. Excellent Student Mentorship Award, FSKTM, UPM, 2015.
7. **Gold Medal Award**, *Interoperability among Heterogeneous System in Intelligent Building*, Invention, Research and Innovation Exhibition, 30 – 1st October, 2014, Universiti Putra Malaysia,

- (Researchers: Md Nasir Sulaiman, **Thinagar Perumal**, and Norwati Mustapha).
8. **Gold Medal Award**, *Hidden Markov Model Based Decision Model For Smart Homes*, Invention, Research and Innovation Exhibition, 30 – 1st October, 2014, Universiti Putra Malaysia, (Researchers: Md Nasir Sulaiman, Abba Babakura, **Thinagar Perumal**, and Norwati Mustapha).
 9. **Gold Medal Award**, *A Proactive Architecture for Heterogeneous Subsystems Interoperability in Intelligent Building*, Invention, Research and Innovation Exhibition, 21st – 22nd July, 2010, Universiti Putra Malaysia, (Researchers: Abd Rahman Ramli, **Thinagar Perumal**, Chui Yew Leong, Rosiah Osman, Khairulmizam Samsudin and Shattri Mansor,).
 10. **Silver Medal Award**, *Distributed Network Based Matrix for Public Addressing*, Invention, Research and Innovation Exhibition, 27th -28th November 2007, Universiti Putra Malaysia. (Researchers: Abd Rahman Ramli, **Thinagar Perumal**, and Chui Yew Leong).

JOURNAL REVIEWER

i) International Journals (citation-indexed)

1. IEEE Communications Magazine
2. IEEE Internet of Things Journal
3. IEEE Vehicular Technology Magazine
4. IEEE Consumer Electronics Magazine
5. IEEE Transactions on Industrial Informatics
6. IEEE Transactions on Industrial Electronics
7. IEEE Transactions on Automation Science and Engineering
8. IEEE Sensors Journal
9. IEEE Access
10. International Journal of Digital Earth, Taylor and Francis Journals,
11. Automation in Construction, Elsevier
12. Buildings and Environment, Elsevier
13. Artificial Intelligence in Medicine, Elsevier
14. Information Security and Applications, Elsevier
15. Computers and Electrical Engineering, Elsevier
16. International Journal of Computing and Digital Systems
17. International Journal of Robotics and Automation, Actapress

i) List of Journal Papers Reviewed (citation-indexed)

1. A Unified Management Framework of EIoT Systems Based on Metadata and Event Mode, **IEEE Access**, April, 2019
2. A Hybrid Driven Elevator System with Energy Regeneration and Safety Enhancement, **IEEE Transactions on Industrial Electronics**, April 2019.
3. Resource Discovery and Selection on Internet-of-Things, **Elsevier Computers and Electrical Engineering**, April 2019.
4. Daily Activity Feature Selection in Smart Homes Based on Pearson Correlation Coefficient, **IEEE Access**, April 2019.
5. An Intrusion Detection System using Penalty Reward based Ant Colony Optimization Method in Cloud Environment, **Elsevier Journal of Information Security and Applications**, April 2019.
6. Sensing, Controlling, and IoT Infrastructure in Smart Building: A Review, **IEEE Sensors Journal**, February 2019.
7. Ontology-based Event Management in Academic Environments, **IEEE Access**, February 2019
8. Gait-based gender classification using smartphone accelerometer sensor, **IEEE Access**, February 2019
9. Efficient Body Area Network System for Remote Physiological Observing, **IEEE Consumer Electronics Magazine**, January 2019
10. Reference Architecture for the Initial Enrolment of IoT Devices and Target-Specific Firmware Coupling with Symbiotic Security, **IEEE Internet of Things Journal**, October 2018
11. Social Internet of Things for Smart Cities, **IEEE Consumer Electronics Magazine**, October 2018
12. Mobile data gathering and energy harvesting in rechargeable wireless sensor networks, **Elsevier Information Sciences**, August 2018
13. Internet of Things Development Boards for Robotics, **IEEE Consumer Electronics Magazine**,

- July 2018.
14. An Energy-Efficient Memory Switching Method for Multi-Bank Memory Systems, *IEEE Access*, April 2018
 15. Wearable Computing for Internet of Things: A Discriminant Approach for Human Activity Recognition, *IEEE Internet of Things Journal*, January 2018
 16. An Energy Efficient and Environmental Friendly Smart Home: The Impact of Automatically Adjusting Window Coverings, *IEEE Transactions on Industrial Informatics*, January 2018
 17. Economic Enhancement of Smart Homes Using Electric Spring-Based Power Flow Routers, *IEEE Transactions on Industrial Electronics*, November 2017
 18. RAT Association for Autonomic IoT Systems, *IEEE Communications Magazine*, October 2017
 19. A Meta-holistic representation of construction projects by means of probabilistic relational models, *Elsevier Automation in Construction*, March 2017.
 20. A Semantic-Enabled Social Network of Devices for Building Automation, *IEEE Transactions on Industrial Informatics*, March 2017.
 21. Consumer Healthcare: Current Trends, *IEEE Consumer Electronics Magazine*, February 2017.
 22. An analysis on Device Access Control in the IoT, *IEEE Communications Magazine*, January 2017
 23. A Stochastic Reward Net based Performance Evaluation of IoT Devices in Smart Environments, *Journal of Ambient Intelligence and Smart Environments*, January 2017.
 24. Monitoring of Decentralized Renewable Energy Plants: Development and Trends, *IEEE Communications Magazine*, December 2016
 25. Applications of Auctions in Internet of Things (IoT) Data Collection and Communication, *IEEE Communications Magazine*, September 2016
 26. PaaS for IoT End-User Applications Provisioning: A Survey, *IEEE Communications Magazine*, September 2016
 27. The Internet of Things (IoT) and Software-Defined Radio (SDR), *IEEE Communications Magazine*, September 2016
 28. Future Edge Cloud and Edge Computing for Internet of Things Applications, *IEEE Communications Magazine*, September 2016
 29. Bluetooth Low Energy in Dense IoT Environments, *IEEE Communications Magazine*, September 2016.
 30. A Framework to Evaluate Barriers Factors in IoT Projects, *IEEE Communications Magazine*, September 2016.
 31. Understanding the Application Layer Protocols for IoT, *Communications Magazine*, August 2016.
 32. IoT - 360 Degree: (Internet of Things), *IEEE Communications Magazine*, August 2016
 33. Trickle-Plus: Elastic and Enhanced Standardized Trickle Algorithm for Internet of Things, *IEEE Consumer Electronics Magazine*, July 2016
 34. An Exploratory Study on the Usability of a Prototyping-Process Model for Designing of Smart Building Envelopes, *Elsevier Automation in Construction*, April 2016.
 35. A Low-Cost Indoor Localization System for Energy Sustainability in Smart Buildings, *IEEE Sensors Journal*, January 2016.
 36. A Low Cost Prototyping Platform for IoT Device Development and Robotics, *International Journal of Robotics and Automation*, Acta Press, October 2015.
 37. A Data Access Framework Incorporating OPC DA and Semantic Tagging, *Elsevier Automation in Construction*, December 2015.
 38. Learning Based Personalized Energy Management Systems for Residential Buildings, *IEEE Transactions on Automation Science and Engineering*, July 2015.
 39. Collaborative Energy and Thermal Comfort Management through Distributed Consensus Algorithms, *IEEE Transactions on Automation Science and Engineering*, July 2015.
 40. Smart Eye Frame for Internet of Things, *IEEE Sensors Journal*, March 2014.
 41. Remote management of intelligent buildings through cloud computing, *Elsevier Automation in Construction*, August 2014.
 42. An Improved Universal, Open Standard Integrating Home Automation and Service Robots, The DHC Compliant 2.0, *International Journal of Robotics and Automation*, Acta Press, December 2014.
 43. Robust Environmental Sound Recognition with Fast Noise Suppression for Home Automation, *IEEE Transactions on Automation Science and Engineering*, March 2015.

i) International

1. **Keynote Speaker**, “Artificial Intelligence of Things: A Consumer-Centric Approach”, 5th International Conference on Public Management and Intelligent Society (PMIS 2025), School of Management, Shanghai University, 20th March 2025.
2. **Plenary Speaker**, “AloT and Embedded Systems: Emerging Low Powered Devices”, FDP Program on Emerging Nanoscale Semiconductor Technologies: Bridging Innovation to Application”, NIT Raipur, India, 18th April 2025.
3. **Invited Speaker**, “Artificial Intelligence of Things (AloT) Integrated Water Monitoring Systems for Aquaculture”, TechConnect Global Webinar: Samara National Research University, 21st March 2025.
4. **Keynote Speaker**, “Wearable Embedded Systems: Catalyst for Internet of Things Vertical”, 3rd International Conference on Innovations in Data Analytics (ICIDA 2024), 19th December 2024.
5. **Keynote Speaker**, “Cyber Physical Systems for Ambient Intelligence”, 2nd IEEE Global Conference on Information Technologies & Communications, Bangalore, India, 25th October 2024.
6. **Keynote Speaker**, “*Consumer-Centric Internet of Things: Future of Computing*” 13th Springer International Conference on Advances in Information Technology (IAIT2023), King Mongkut's University of Technology Thonburi (KMUTT), Bangkok, Thailand, 6-9th December 2023.
7. **Keynote Speaker**, “*Artificial Intelligence and Internet of Things: Sustaining the Digital Transformation*”, 2nd IEEE International Conference on Smart Technologies for Smart Nations (SmartTechCon 2023), Amity Global Institute, Singapore, 18-19th August 2023.
8. **Keynote Speaker**, “*Consumer-Centric Internet of Things: Innovation and Future of Computing*”, 2nd International Conference on Intelligent Design and Innovative Technology (ICIDIT 2023), Chengdu, China, 4th August 2023. (Virtual)
9. **Keynote Speaker**, “*Interoperability and Internet of Things: Challenges and Use-Cases*”, OPJU International Technology Conference on Emerging Technologies for Sustainable Development, Madhya Pradesh, 8-10 Feb 2023. (Virtual)
10. **Keynote Speaker**, “*Internet of Things : Solving Sustainable Agenda*”, 1st International Conference on Data Analytics and Computational Techniques(ICDACT-2021), VIT Bhopal, India, December 2021.(Virtual)
11. **Keynote Speaker**, “*Cyber-physical Systems and IoT: The Symbiotic Needs*”, International Conference on “Machine Intelligence and Data Science Applications (MIDAS-2021)” Comilla University, Cumilla, Bangladesh, 26-27th December 2021. (Virtual)
12. **Keynote Speaker**, “*Consumer-Centric IoT: Road to Digital Transformation*”, IEEE PuneCon 2021, India, 16-19th December 2021.(Virtual)
13. **Keynote Speaker**, “*Internet of Things Use Cases and Research Challenges*” IEEE ComSoc Summer School Program, 10-12th June 2021.(Virtual)
14. **Keynote Speaker**, “*Cyber-Physical System: Innovation and Future of Computing*”, IEEE ICePhaST – 2020, 16th November 2020.(Virtual)
15. **Keynote Speaker**, “*Cyber-Physical System and IoT: The Leap Towards Industry 4.0*”, International Conference on Computational Intelligence in Data Science (ICCIDS 2019), February 21-23 2019, SSN College of Engineering, Chennai, Tamil Nadu, India.
16. **Keynote Speaker**, “*Internet of Things and Serverless Computing*”, IET International Conference on Internet of Things, 11-15th March 2019, SRM University, Chennai, Tamil Nadu, India. (Virtual)
17. **Plenary Speaker**, “*Consumer Centric Internet of Things (CCIoT): The Need for Interoperability*”, 2015 IEEE International Conference on Consumer Electronics (ICCE'15), Jan 9th -12th 2015, Las Vegas, Nevada. USA.
18. **Panel Speaker**, Industrial Forum Session, “*Application of Cyber-Physical Systems and IoT in Manufacturing, Energy and Healthcare*”, IEEE World Forum on Internet of Things 2018 (IEEE WF-IoT 2018), Marina Bay Sands, Singapore, 5th -8th February 2018.
19. **Keynote Speaker**, “*IoT and Machine Intelligence*”, Venue: GCET, Greater Noida, IEEE International Conference on Green Computing and Internet of Things, Greater Noida, Delhi, 8th October 2015.
20. **Keynote Speaker**, “*Cyber-Physical Systems and Future of Computing*”, Venue: Global Academy Technology, Bangalore, 2nd IEEE International Conference on Green Computing and Internet of Things, Bengaluru, Karnataka, 16th- 18th August 2018.
21. **Keynote Speaker**, “*The New Paradigm of Consumer Centric IoT: The Way Forward*”, 2nd IEEE International Conference on Applied and Theoretical Computing and Communication

- Technology, SJBIT, Bengaluru, India, 21-23rd July 2016.
22. **Keynote Speaker**, “*Interoperability and IoT: Are We Really There?*” IEEE IoT Workshop on Smart Cities 2017, St.Thomas College of Engineering and Technology (STCET), Kolkata, 10-11th August 2016.
 23. **Keynote Speaker**, “*Internet of Things and Serveless Computing*”, IET International Conference on Internet of Things, 11-15th March 2019, SRM University, Chennai, Tamil Nadu, India.
 24. **Keynote Speaker**, “*Consumer-centric IoT- Catalyzing the Need for Interoperability*”, 3rd Academic Contemporary Meet (CAM 2017), 8th July 2017, Chennai, India.
 25. **Keynote Speaker**, “*Consumer Trends and IoT in Industry*”, International Conference on Electrical and Communication Engineering, ICECE 2016, JNTUK-UCEV, Vizianagaram, Vishakapatnam, India.
 26. **Keynote Speaker**, “*Consumer Centric Internet of Things (IoT) and Standardization: Catalyzing the Needs for Interoperability*”, 3rd IEEE International Conference on Applied and Theoretical Computing and Communication Technology, 21-23rd December 2017, SSIT, Tumkur, Karnataka, India.
 27. **Keynote Speaker**, “*Ambient Intelligence and IoT*”, 4th IEEE International Conference on Applied and Theoretical Computing and Communication Technology, 6-8th September 2018, AIET, Mangalore, Karnataka, India.
 28. **Keynote Speaker**, “*Cyber-Physical System and IoT: The Leap Towards Industry 4.0*”, International Conference on Computational Intelligence in Data Science (ICCIDS 2019), February 21-23 2019, SSN College of Engineering, Chennai, Tamil Nadu, India.
 29. **Invited Speaker**, “*Smart Home Ecosystem: Internet of Things and Consumers*”, IEEE International Workshop on Internet of Things and Smart Cities, 5th-6th January 2016, Trivandrum, India.
 30. **Invited Speaker**, “*Internet of Things: Sensing and Sensibility*”, IEEE IoT Workshop on Application Development, IEEE CESoc Bangalore Chapter, Amrita University, 5-7th August 2016.
 31. **Invited Speaker**, “*Internet of Things (IoT): Proactive Architecture, Trends and Applications of Human in the Loop*”, International Workshop on IoT and Applications for Engineering, 24th -25th March 2017, JNTUK-UCEV, Vizianagaram, Vishakapatman, India.
 32. **Invited Speaker**, “*Cyber-Physical Systems and IoT Services*”, Vellore Institute of Technology (VIT), Vellore, Tamil Nadu, India, 22nd August 2018.
 33. **Invited Speaker**, “*Cyber Physical System and IoT: The Emerging Trend*” IEEE IoT Symposium 2017, Sardar Patel Institute of Technology (SPIT), Mumbai, 3-4th August 2016.
 34. **Guest Speaker**, “*Microservices and Serverless Computing: New Research Paradigm in IoT Objects Management*”, 20th February 2019, SRM University, Tamil Nadu, India.
 35. **Guest Speaker**, “*Cyber-Physical System: The Next Computing Revolution*”, Department of Information Technology, 22nd February 2019, SSN College of Engineering, Chennai, Tamil Nadu, India.
 36. **Distinguished Speaker**, Tutorials, “*Standardization Landscape in IoT, WoT and Smart Homes*”, IEEE World Forum on Internet of Things 2018 (IEEE WF-IoT 2018), Marina Bay Sands, Singapore, 5th -8th February 2018.
 37. **Distinguished Speaker**, “*The Role of Standardization in Internet of Things*”, IEEE Workshop on IoT and Connected Vehicles 2017, Lal Bahadur Shastri Institute for Women, Thiruvananthapuram, India, 1-2 August 2016.

ii) National

1. **Panel Speaker and Moderator**, “*Smart City*”, Asia IoT Business Platform 2022, Royal Chulan, Kuala Lumpur, 18th October 2022
2. **Panel Speaker and Moderator**, “*Realizing Malaysia’s Industry 4.0 (Industry4WRD)*”, Asia IoT Business Platform 2019, Hotel Istana, Kuala Lumpur, 24th April 2019
3. **Panel Speaker and Moderator**, “*Can Traffic Woes Become a Thing of the Past*”, Asia IoT Business Platform 2019, Hotel Istana, Kuala Lumpur, 23rd April 2019.
4. **Invited Speaker**, “*Industry 4.0: Gearing up for Digital Transformation*”, Politeknik Banting Selangor, 11th August 2018.
5. **Distinguished Speaker**, “*Cyber-Physical System: The Next Computing Revolution*”, University of Reading Malaysia (UoRM), EduCity@Iskandar, 2th July 2018.
6. **Guest Speaker**, “*Invent the Future Today*” Faculty of Science, University of Nottingham Malaysia Campus, 11th July 2018.
7. **Panel Speaker and Moderator**, “*IoT in Transport and Logistics*”, Asia IoT Business Platform, Hotel Istana, Kuala Lumpur, 23-24th April 2018.

8. **Panel Speaker and Moderator**, “IoT in Banking, Finance and Retail Industry”, Asia IoT Business Platform, Hotel Istana, Kuala Lumpur, 23-24th April 2018.
9. **Invited Speaker**, Internet of Things and Convergence, Guest Lecture Session, University of Nottingham Malaysia Campus, 14th March 2018.
10. **Panel Speaker and Moderator**, “IoT in Public Services”, Asia IoT Business Platform, Hotel Istana, Kuala Lumpur, 28th July 2017.
11. **Invited Speaker**, “Consumer-Centric Internet of Things: Driving Digital Transformation”, Tech Talk Session, Malaysian Airlines Berhad (MAS), 24th May 2017, Sepang, Malaysia.
12. **Panel Speaker and Moderator**, “IoT in Banking, Finance and Retail Industry”, Asia IoT Business Platform, Hotel Istana, Kuala Lumpur, 28th July 2017.
13. **Guest Speaker**, “Internet of Things: The Next Wave and Industrial 4.0”, Manipal International University, 31st May 2017, Nilai, Malaysia.
14. **Keynote Speaker**: *Internet of Things: The Way Forward*, IEEE-IET Day, Stamford College, June 2013, Malaysia.

PROFESSIONAL SERVICES

i) Professional Affiliation and Societies

1. Senior Member, Institute of Electrical and Electronics Engineers (IEEE)
2. Chair, IEEE Consumer Electronics Society, Malaysia Chapter, 2014, 2016 and 2018.
3. Member, IEEE CE Future Directions Committee on Internet of Things, U.S, 2016- Current.
4. Country Ambassador (Malaysia), InterYIT, International Federation for Information Processing, IFIP, Feb 2019 – Current
5. Member, IEEE Consumer Electronics Society, 2003-Current.
6. Member, IEEE Computer Society, 2003-Current.
7. Member, IEEE Communication Society, 2005-Current.
8. Graduate Member, Institute of Engineers Malaysia (IEM), 2004-Current.
9. Member, Continental Automated Buildings Association (CABA) Information Council, Canada, 2008-Current.
10. Committee Member of IEEE Computer Society Malaysia Chapter, 2004 – 2006
11. Secretary of IEEE Consumer Electronics Society Malaysia Chapter 2009, 2010, 2011, 2012, 2013.

ii) Editorial Board

1. Associate Editor, IEEE Transactions on Technology and Society
2. Editor, *Managed Security Services in Heterogeneous Networks*, CRC Press, Taylor Francis Groups, 2019.
3. Editor, *International Journal of Management Computer Science and Electronics*, 2019.
4. Editor, *International Journal of Materials and Product Technology (IJMPT)*, Inderscience Publishers, 2019.
- Editor, *Internet of Things, Smart, Computing and Technology: A Roadmap Ahead*, Springer Press, 2018

iii) International Conferences/Workshops/Special-Sessions

1. Chair, 2024 IEEE Consumer Life Tech Conference, Sydney, Australia, December 11th – 13th 2024.
2. TPC member, 2024 IEEE International Conference on Internet of Things and Intelligence System, Bandung, Indonesia, November 28th - 30th 2024.
3. TPC member, 9th IEEE Asia Pacific Conference on Wireless and Mobile 2024, Bandung, Indonesia, November 28th - 30th 2024.
4. TPC reviewer, The 10th IEEE World Forum on the Internet of Things (IoT), Ottawa, Canada, November 10th – 13th 2024.
5. TPC member, 2024 IEEE 13th Global Conference on Consumer Electronics, Kokura, Japan, October 29th – November 1st 2024.
6. TPC reviewer, 2024 International Seminar on Application for Technology of Information and Communication (iSemantic), Semarang, Indonesia, September 21st – 23rd 2024.

7. International Conference on Applied Mechatronics, Manufacturing and Electrical Systems (AMMES 2024), 24th -26th August 2024.
8. TPC Reviewer, 2024 1st International Graduate Conference on Smart Agriculture and Green Renewable Energy (SAGE-Grace), Universitas Muhammadiyah Yogyakarta (UMY), Yogyakarta, Indonesia (Hybrid), 22 August 2024.
9. TPC member, 2024 1st International Graduate Conference on Engineering, Biotechnology, and Computer Science (ETCoS-Grace), Universitas Muhammadiyah Yogyakarta (UMY), Yogyakarta, Indonesia (Hybrid), 22 August 2024.
10. TPC member, 2024 1st International Graduate Conference on Digital Policy and Governance Sustainability (DiGeS-Grace) , Universitas Muhammadiyah Yogyakarta (UMY), Yogyakarta, Indonesia (Hybrid), 22 August 2024.
11. TPC reviewer, 5th International Conference on Information Technology, Advanced Mechanical and Electrical Engineering (The 5th ICITAMEE), -- 7th – 8th August 2024.
12. TPC member, 4th International Conference on Electronic and Electrical Engineering and Intelligent System (ICE3IS 2024), Yogyakarta , Indonesia 7th – 8th August 2024.
13. TPC member, 10th International Conference on Smart Computing and Communication (ICSCC 2024), Denpasar, Bali, Indonesia, 25th – 27th July 2024.
14. TPC member, The 2024 IEEE International Conference on Industry 4.0, Artificial Intelligence, and Communication Technology (IAICT 2024), Bali, Indonesia, 4th – 6th July 2024.
15. TPC member, The International Conference on Ubiquitous Networking (UNet24), Marrakesh, Morocco, 26th – 28th June 2024.
16. TPC reviewer, 30th IEEE International Conference on Telecommunication (ICT), Amman, Jordan, 24th - 27th June 2024.
17. TPC reviewer, International Conference on Smart Computing, IoT and Machine Learning (SIML 2024), Surakarta, Indonesia, 6th – 7th June 2024.
18. TPC member, 2024 International Conference on Computing, Networking and Communications (ICNC), Big Island, Hawaii, USA 19th -22nd February 2024.
19. TPC member, International Conference on Green Energy, Computing and Sustainable Technology 2024 (GECOST 2024), Curtin University Malaysia (Virtual Conference), 17th – 19th January 2024.
20. TPC member, IEEE 42nd International Conference on Consumer Electronics (ICCE 2024), Las Vegas, NV, USA, 5th – 8th January 2024.
21. TPC member, The 16th IEEE International Conference on Security, Privacy and Anonymity in Computation, Communication and Storage (IEEE SpaCCS 2023), Wuhan, China, 21st – 24th December 2023.
22. TPC member, 7th International Symposium on Intelligent Systems Technologies and Applications (ISTA'23), Bengaluru, India, 18th – 20th December 2023.
23. TPC member, 9th International Symposium on Computer Vision and the Internet (VisionNet'23), Bengaluru, India, 18th – 20th December 2023.
24. TPC member, 7th International Symposium on Signal Processing and Intelligent Recognition Systems (SIRS'23), Bengaluru, India, 18th -20th December 2023.
25. TPC member, 5th International Conference on Computing and Network Communications (CoCoNet'23), Bengaluru, India, 18th-20th December 2023.
26. Track chair, 2023 IEEE International Symposium on Smart Electronic Systems (IEEE - iSES), Ahmedabad, India, 18th – 20th December 2023.
27. TPC member, IEEE Global Communications Conference, Kuala Lumpur, Malaysia, 4th – 8th December 2023.
28. TPC member, 2023 International Workshop on Artificial Intelligence and Image Processing (IWAIIIP), Universitas Muhammadiyah Yogyakarta (UMY), Yogyakarta, Indonesia, 1st – 2nd December 2023.
29. TPC member, 2023 IEEE International Conference on Internet of Things and Intelligence Systems (IoTals 2023), Bali, Indonesia, 28th – 30th November 2023.
30. Track chair, 6th IFIP International Internet of Things (IoT) Conference, Texas, USA, 2nd – 3rd November 2023.
31. TPC reviewer, 2023 IEEE 11th Region 10 Humanitarian Technology Conference (R10-HTC), Rajkot, India, 16th – 18th October 2023.
32. TPC member, 2023 IEEE 12th Global Conference on Consumer Electronics (GCCE 2023), Nara, Japan, 10th – 13th October 2023.
33. TPC reviewer, The 3rd International Symposium on Engineering and Technology (ISETech) 2023, Putra Brasmana, Perlis, Malaysia, 2nd October 2023.
34. TPC reviewer, 10th International Conference on Electrical Engineering, Computer Science and Informatics (EECSI 2023), Palembang, Indonesia, 20th -21st September 2023.

35. TPC member, 4th International Conference On Information Technology, Advanced Mechanical And Electrical Engineering (ICITAMEE 2023), Universitas Muhammadiyah Yogyakarta, Indonesia, 9th - 10th August 2023.
36. TPC reviewer, 2023 International Conference on Consumer Electronics - Taiwan (ICCE-Taiwan), PingTung, Taiwan, 17th – 19th July 2023.
37. TPC member, 2023 Zooming Innovation in Consumer Technologies Conference (ZINC), Novi Sad, Serbia, 29th – 31st May 2023.
38. TPC member, IEEE 41st International Conference on Consumer Electronics (ICCE), Las Vegas, NV, USA, 6th – 8th January 2023.
39. TPC member, 2022 IEEE Ocean Engineering Technology and Innovation Conference: Management and Conservation for Sustainable and Resilient Marine and Coastal Resources (OETIC), Surabaya, Indonesia, 19th – 20th December 2022.
40. TPC reviewer, 2022 IEEE International RF and Microwave Conference (RFM 2022), Kuala Lumpur, Malaysia, 19th – 21st December 2022.
41. TPC member, 2022 IEEE International Symposium on Smart Electronic Systems (iSES), Warangal, India, 18th – 22nd December 2022.
42. TPC member, The 2022 IEEE Global Communications Conference (GLOBECOM 2022), Rio de Janeiro, Brazil, 4th – 8th December 2022.
43. TPC member, 2022 IEEE International Conference on Internet of Things and Intelligence Systems (IoTals), Bali, Indonesia, 24th – 26th November 2022.
44. TPC reviewer, 2022 International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies (3ICT 2022), University of Bahrain (Virtual Conference), Bahrain, 20th – 21st November 2022.
45. TPC member, 2022 2nd International Conference on Electronic and Electrical Engineering and Intelligent System (ICE3IS), Yogyakarta, Indonesia, 4th – 5th November 2022.
46. TPC member, International Conference on Green Energy, Computing and Sustainable Technology (GECOST 2022), Cutin University Malaysia (Virtual Conference), Malaysia, 26th – 28th October 2022.
47. TPC reviewer, 2022 International Conference on Data Analytics for Business and Industry (ICDABI), Sakhr, Bahrain 25th -26th October 2022.
48. TPC member, International Conference on Ubiquitous Networking (Unet 2022), Montreal, Canada, 25th – 27th October 2022.
49. TPC reviewer, 2022 9th International Conference on Electrical Engineering, Computer Science and Informatics (EECSI), Jakarta, Indonesia, 6th – 7th October 2022.
50. TPC member, IEEE IoT Vertical and Topical Summit for Tourism, Catania, Italy, 20th – 23rd September 2022.
51. TPC reviewer, 2022 IEEE 10th Region 10 Humanitarian Technology Conference (R10-HTC), Hyderabad, India, 16th – 18th September 2022.
52. TPC member, 2022 IEEE 12th International Conference on Consumer Electronics (ICCE-Berlin), Berlin, Germany, 2nd – 6th September 2022.
53. TPC member, Symposium on Computer Vision and the Internet (VisionNet'22), Trivandrum, Kerala, India, 31st August – 2nd September 2022.
54. TPC member, 2022 International Conference on Connected Systems & Intelligence (CSI), Trivandrum, Kerala, India, 31st August – 2nd September 2022.
55. TPC reviewer, 8th International Workshop on Mobile Applications (MobiApps 2022), Rome, Italy, 22nd – 24th August 2022.
56. TPC member, 2022 IEEE International Conference on Industry 4.0, Artificial Intelligence, and Communications Technology (IAICT 2022), Bali, Indonesia, 28th – 30th July 2022.
57. TPC member, 3rd International Conference in Information Technology, Advanced Mechanical and Electrical Engineering (ICITAMEE 2022), Universitas Muhammadiyah Yogyakarta, Indonesia, 20th -21st July 2022.
58. TPC member, Global IoT Summit (GloTS), Dublin, 20th – 23rd June 2022.
59. TPC member, 2023 IEEE Zooming Innovation in Consumer Technologies Conference (ZINC), Novi Sad, Serbia, 25th -26th May 2022.
60. TPC member, 40th IEEE International Conference on Consumer Electronics (ICCE 2022), Virtual Online Conference, 7th -9th January 2022.
61. TPC reviewer, 2021 IEEE Asia-Pacific Conference on Applied Electromagnetics, Penang, Malaysia, 20th - 22nd December 2021.
62. TPC member, 2021 IEEE International Symposium on Smart Electronic Systems (iSES), Jaipur, India, 18th – 22nd December 2021.

63. TPC reviewer, Asian Wireless Power Transfer Workshop 2021, Kuala Lumpur, Malaysia, 12th – 13th December 2021.
64. TPC member, 2021 IEEE Global Communications Conference (GLOBECOM): Selected Areas in Communications: Quantum Communications & Computing , Madrid, Spain, 7th – 11th December 2021.
65. TPC member, 2021 IEEE Global Communications Conference (GLOBECOM): IoT and Sensor Networks, Madrid, Spain, 7th – 11th December 2021.
66. TPC reviewer, 2021 International Conference on Decision Aid Sciences and Application (DASA), Virtual Conference, 7th – 8th December 2021.
67. TPC member, 2021 IEEE Symposium On Future Telecommunication Technologies (SOFTT), 6th – 7th December 2021.
68. TPC reviewer, 2023 International Conference on Sustainable Islamic Business and Finance (SIBF), Virtual Conference, 5th – 7th December 2021.
69. TPC reviewer, 2021 IEEE 5th International Conference on Information Technology, Information Systems and Electrical Engineering (ICITISEE), Purwokerto, Indonesia, 24th – 25th November 2021.
70. TPC member, 2021 IEEE International Conference on Internet of Things and Intelligence Systems (IoTals), Virtual Conference, 23rd – 24th November 2021.
71. TPC reviewer, 2021 IEEE Asia Pacific Conference on Circuits and Systems, Penang, Malaysia, 22nd – 26th November 2021.
72. TPC reviewer, 4th Smart Cities Symposium (SCS 2021), Online Conference, Bahrain, 21st – 23rd November 2021.
73. TPC reviewer, 2021 Third International Sustainability and Resilience Conference: Climate Change, Virtual Conference, 15th – 17th November 2021.
74. TPC member, 2021 IEEE Ocean Engineering Technology and Innovation Conference: Ocean Observation, Technology and Innovation in Support of Ocean Decade of Science (OETIC), Jakarta, Indonesia, 8th – 9th November 2021.
75. TPC reviewer, 2021 International Conference on Computer Science, Information Technology, and Electrical Engineering (ICOMITEE), Banyuwangi, Indonesia, 27th – 28th October 2021.
76. TPC member, 2021 2nd International Conference on ICT for Rural Development (IC-ICTRuDev), Virtual Conference, Indonesia, 27th – 28th October 2021.
77. TPC reviewer, 2021 International Conference on Data Analytics for Business and Industry (ICDABI), Virtual Conference, 25th – 26th October 2021.
78. TPC member, 2021 1st International Conference on Electronic and Electrical Engineering and Intelligent System (ICE3IS), Virtual Conference, 15th - 16th October 2021.
79. TPC member, 2021 IEEE Fourth 5G World Forum, Virtual Conference, 13th -15th October 2021.
80. TPC reviewer, 3rd International Conference on Applied Photonics and Electronics (InCAPE) , Virtual Conference, 6th - 7th October 2021.
81. TPC reviewer, 2nd International Symposium on Engineering and Technology, Pauh, Malaysia, 5th - 6th October 2021.
82. TPC reviewer, 2021 International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies (3ICT), Virtual Conference, 29th -30th September 2021.
83. TPC reviewer, 2021 2nd International Conference on Innovative and Creative Information Technology (ICITech), Salatiga, Indonesia, 23rd -25th September 2021.
84. TPC member, IoT Vertical and Topical Summit for Tourism, Virtual Summit, 20th -24th September 2021.
85. TPC reviewer, 2021 2nd International Conference on Information Technology, Advanced Mechanical and Electrical Engineering (ICITAMEE), Yogyakarta, Indonesia, 25th -27th August 2021.
86. TPC member, 2021 IEEE International Conference on Industry 4.0, Artificial Intelligence, and Communications Technology (IAICT), Bandung, Indonesia, 27th -28th July 2021.
87. TPC reviewer, 8th International Conference on Intelligent and Advanced Systems (ICIAS), Virtual Conference, Perak, Malaysia, 13th -15th July 2021.
88. TPC member, International Conference on Green Energy, Computing and Sustainable Technology 2021 (GECOST 2021), Virtual Conference, Curtin University Malaysia, 7th -9th July 2021.
89. TPC member, IEEE International Conference on Communications: IoT & Sensor Networks Symposium, Virtual Conference, 14th -18th June 2021.
90. TPC member, 2021 Zooming Innovation in Consumer Technologies Conference (ZINC), Novi Sad, Serbia, 26th -27th May 2021.
91. TPC reviewer, 3rd International Conference on Advanced Computational and Communication Paradigms (ICACCP 2021), Sikkim, India, 22nd -24th March 2021.
92. TPC member, 4th International Conference on Computer Applications and Information Security (ICCAIS'2021), Virtual Conference, 17th -20th March 2021.

93. TPC reviewer, Conference on Water in the MENA Region: Preparing for a Changing World , Bahrain, 2nd – 4th February 2021.
94. Track chair, IEEE International Conference on Consumer Electronics (ICCE 2021), Virtual Conference, 10th – 12th January 2021.
95. TPC reviewer, 2020 1st Conference on Internet of Things and Embedded Intelligence (CITEI 2020), Yogyakarta, Indonesia, 29th -30th December 2020.
96. TPC reviewer, 2020 International Conference on Innovation and Intelligence for Informatics, Computing and Technologies (3ICT), University of Bahrain, Bahrain, 20th – 21 December 2020.
97. TPC member, 2020 IEEE International Conference on Communication, Networks and Satellite (Comnetsat), Batam, Indonesia, 17th -18th December 2020.
98. TPC reviewer, 2020 IEEE International RF and Microwave Conference (RFM), Kuala Lumpur, Malaysia, 14th -16th December 2020.
99. TPC member, 2020 IEEE Asia-Pacific Conference on Geoscience, Electronics and Remote Sensing Technology (AGERS), Jakarta, Indonesia, 7th -9th December 2020.
100. TPC member, 2020 IEEE Global Communications Conference (IEEE GLOBECOM): Selected areas in communications: Internet of Things and Smart Connected Communities, Taipei, Taiwan, 7th -11th December 2020.
101. TPC reviewer, 2020 Sixth International Conference on e-Learning (econf), Sakheer, Bahrain ,5th -7th December 2020.
102. TPC reviewer, 2020 Second International Sustainability and Resilience Conference: Technology and Innovation in Building Designs, Sakheer, Bahrain, 25th -26th November 2020.
103. TPC member, 2020 International Conference on Artificial Intelligence & Modern Assistive Technology (ICAIMAT), Riyadh, Saudi Arabia, 24th -26th November 2020.
104. TPC reviewer, 2020 International Conference on Decision Aid Sciences and Application (DASA), Sakheer, Bahrain, 8-9 November 2020.
105. TPC member, 2020 IEEE 10th International Conference on Consumer Electronics (ICCE-Berlin), Berlin, Germany, 8th -14th November 2020.
106. TPC member, IEEE International Conference on Consumer Electronics- Asia (ICCE-Asia 2020), Seoul, South Korea, 1st – 3rd November 2020.
107. TPC reviewer, 2020 International Conference on Data Analytics for Business and Industry: Way Towards a Sustainable Economy (ICDABI), Sakheer, Bahrain, 26th -27th October 2020.
108. TPC member, 6th International Symposium on Advances in Signal Processing and Intelligent Recognition Systems (SIRS 2020), Chennai, India, 14th -17th October 2020.
109. TPC member, Sixth International Symposium on Intelligent Systems Technologies and Applications (ISTA'20), Chennai, India, 14th -17th October 2020.
110. TPC member, Seventh International Symposium on Computer Vision and the Internet (VisionNet'20), Chennai, India, 14th -17th October 2020.
111. TPC member, Fourth International Conference on Computing and Network Communications and International Conference on Applied Soft Computing and Communication Networks , Chennai, India, 14th -17th October 2020.
112. TPC reviewer, 2nd 2020 Ahmad Dahlan International Conference Series on Engineering, Science, and Information Technology (ADICS-ESIT 2020), Indonesia, 1st – 2nd October 2020.
113. TPC reviewer, 3rd Smart Cities Symposium (SCS 2020), Online Conference, 21st – 23rd September 2020.
114. TPC reviewer, 2020 IEEE-HYDCON, Hyderabad, India, 11th – 12th September 2020.
115. TPC member, 2020 IEEE 3rd 5G World Forum (5GWF), Bangalore, India, 10th -12th September 2020.
116. TPC reviewer, 2020 8th International Conference on Information Technology and Multimedia (ICIMU), Universiti Tenaga Nasional, Malaysia, 24th -26th August 2020
117. TPC reviewer, 5th International Conference on Electronic Design (ICED), Malaysia, 18-19 August 2020.
118. TPC member, 2020 IEEE International Conference on Communications (ICC), Dublin, Ireland, 7th -11th June 2020.
119. TPC member, 2020 Global Internet of Things Summit (GloTS), Virtual Conference, 1st -5th June 2020.
120. TPC member, 2020 Zooming Innovation in Consumer Technologies Conference (ZINC), Virtual Conference, 26th -27th May 2020.
121. TPC member, 2020 3rd International Conference on Computer Applications & Information Security (ICCAIS), Riyadh, Saudi Arabia, 19th -21st March 2020.
122. TPC member, 2020 IEEE International Conference on Consumer Electronics (ICCE), Las Vegas, NV, USA, 4th -6th January 2020.
123. TPC reviewer, 1st International Symposium on Engineering and Technology (ISETech 2019), Kangar, Malaysia, 22nd -23rd December 2019.
124. TPC member, Third International Conference on Computing and Network Communications (CoCoNet'19), Trivandrum, Kerala, India, 18th -21st December 2019.
125. TPC reviewer, Symposium on VLSI Design and Embedded Computing (VDEC'19), Trivandrum, Kerala, India, 18th -21st December 2019..

126. TPC member, Sixth International Symposium on Computer Vision and the Internet (VisionNet'19), Trivandrum, Kerala, India, 18th -21st December 2019.
127. TPC member, Fifth International Symposium on Signal Processing and Intelligent Recognition Systems (SIRS'19), Trivandrum, Kerala, India, 18th -21st December 2019.
128. TPC member, Fifth International Symposium on Intelligent Systems Technologies and Applications (ISTA'19), Trivandrum, Kerala, India, 18th -21st December 2019.
129. TPC member, 2019 IEEE Global Communications Conference (GLOBECOM): Selected areas in Communications: Internet of Things, Hawaii, USA, 9th -13th December 2019..
130. TPC reviewer, 2019 IEEE Asia-Pacific Conference on Applied Electromagnetics (APACE), Malacca, Malaysia, 25th -27th November 2019.
131. TPC reviewer, 2019 1st International Conference on Electrical, Control and Instrumentation Engineering (ICECIE), Kuala Lumpur, Malaysia, 25th November 2019.
132. TPC member, International Symposium on Ubiquitous Networking (UNet 2019), Limoges, France , 20th – 21st November 2019.
133. TPC reviewer, 2019 2nd IEEE Middle East and North Africa COMMunications Conference (MENACOMM), Bahrain, 19th – 21st November 2019.
134. TPC reviewer, 2019 IEEE International Conference on Connected Vehicles and Expo (ICCVE), Graz, Austria, 4th – 8th November 2019.
135. TPC reviewer, 2019 International Conference on Computer Science, Information Technology, and Electrical Engineering (ICOMITEE), Jember, Indonesia, 16th – 17th October 2019.
136. Track Chair, 2019 IEEE 8th Global Conference on Consumer Electronics (GCCE 2019), Osaka, Japan, 15th – 18th October 2019.
137. TPC member, IEEE International Smart Cities Conference (ISC2 2019): Africa Smart Sustainable Cities and Communities Workshop, Casablanca, Morocco, 14th – 17th October 2019.
138. TPC member, IEEE International Smart Cities Conference (ISC2 2019), Casablanca, Morocco, 14th – 17th October 2019.
139. TPC reviewer, 2019 International Symposium on Electrical and Electronics Engineering (ISEE), Galati Romania, 10th - 12th October 2019.
140. TPC member, 2019 IEEE 2nd 5G World Forum (5GWF), Dresden, Germany, 30th September – 2nd October 2019.
141. TPC reviewer, 2019 International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies (3ICT 2019), Sakhier, Bahrain, 22nd -23rd September 2019.
142. TPC reviewer, 2019 6th International Conference on Electrical Engineering, Computer Science and Informatics (EECSI), Bandung, Indonesia, 18th -20th September 2019.
143. TPC reviewer, 2019 4th IEEE International Circuit and System Symposium (ICSyS), Kuala Lumpur, Malaysia, 18th -20th September 2019.
144. TPC member, 2019 IEEE 9th International Conference on Consumer Electronics (ICCE-Berlin), Berlin, Germany, 8th -11th September 2019.
145. TPC reviewer, 6th International Workshop on Mobile Applications (MobiApps 2019), Istanbul, Turkey, 26th -28th August 2019.
146. TPC member, 2019 IEEE Asia-Pacific Conference on Geoscience, Electronics and Remote Sensing Technology (AGERS), Jakarta, Indonesia, 26th -27th August 2019..
147. TPC reviewer, 2019 International Conference on Smart Energy Systems (SES), 12th August 2019.
148. TPC member, 2019 IEEE International Conference on Communication, Networks and Satellite (Comnetsat), Makassar, Indonesia, 1st -3rd August 2019.
149. TPC Member, 2019 7th International Conference on Smart Computing & Communications (ICSCC), United States, 28th -30th June 2019.
150. TPC member, 2019 IEEE 23rd International Symposium on Consumer Technologies (ISCT), Ancona, Italy, 19th -21st June 2019.
151. TPC member, 3rd edition of the Global IoT Summit (GloTS), Aarhus, 17th -21st June 2019.
152. TPC member, 2019 IEEE International Conference on Consumer Electronics (ICCE), Thailand, 12th - 14th June 2019.
153. TPC member, 2019 Zooming Innovation in Consumer Technologies Conference (ZINC), Novi Sad, Serbia, 29th -30th May 2019.
154. TPC member, 53rd IEEE International Conference on Communications (ICC): SAC Internet of Things Track, Shanghai, China, 20th -24th May 2019.
155. TPC member, 2019 2nd International Conference on Computer Applications & Information Security (ICCAIS), Riyadh, Saudi Arabia, 1st -3rd May 2019.
156. TPC reviewer, Smart Cities Symposium, 30th April 2019.
157. TPC member, 2019 IEEE 10th GCC Conference & Exhibition (GCC), Kuwait, 19th -23rd April 2019.
158. TPC member, IEEE 5th World Forum on Internet of Things (WF-IoT), Limerick, Ireland, 15th -18th April 2019.

159. TPC reviewer, 2019 8th International Conference on Modeling Simulation and Applied Optimization (ICMSAO), Bahrain, 15th -17th April 2019.
160. TPC reviewer, First International Symposium on Computer Vision and Machine Intelligence in Medical Image Analysis (ISCMM 2019), Sikkim, India, 26th -27th February 2019.
161. TPC reviewer, 2019 Second International Conference on Advanced Computational and Communication Paradigms (ICACCP), Gangtok, India, 25th -28th February 2019.
162. TPC reviewer, 2019 International Conference on Fourth Industrial Revolution (ICFIR), Bahrain, 19th - 21st February 2019.
163. TPC member, 2019 International Conference on Composite Materials & Renewable Energy Applications (ICCMREA 2019), 31st December 2018 – 4th January 2019.
164. TPC reviewer, Smart Cities Symposium 2018, 30th -31st December 2018.
165. TPC reviewer, 3rd International Symposium of Information and Internet Technology (SYMINTTECH 2018), Bandung, Indonesia, 18th -20th December 2018.
166. TPC reviewer, 3rd Applied Mathematics in Science and Engineering International Conference, 18th - 20th December 2018.
167. TPC member, 2018 IEEE Global Communications Conference (GLOBECOM 2018), Abu Dhabi, UAE, 9th -13th December 2018.
168. TPC reviewer, 2018 International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies (3ICT), Bahrain, 18th -19th November 2018.
169. TPC member, 2018 IEEE International Conference on Communication, Networks and Satellite (Comnetsat), Medan, Indonesia, 15th -17th November 2018.
170. TPC reviewer, 2018 3rd International Conference on Information Technology, Information System and Electrical Engineering (ICITISEE), Yogyakarta, Indonesia, November 13th -14th, 2018.
171. TPC reviewer, 2018 5th International Conference on Electrical Engineering, Computer Science and Informatics (EECSI), Malang, Indonesia, 16th -18th October 2018.
172. TPC reviewer, Sustainability and Resilience Conference, Bahrain, October 14-15, 2018.
173. Track chair, 2018 IEEE 7th Global Conference on Consumer Electronics (GCCE 2018), Nara, Japan, 9th -12th October 2018.
174. TPC reviewer, Symposium on VLSI Design and Embedded Computing (VDEC'18), 19th -22nd September 2018.
175. TPC member, Fourth International Symposium on Intelligent Systems Technologies and Applications (ISTA'18), Bangalore, India, 19th -22nd September 2018.
176. TPC member, Fifth International Symposium on Computer Vision and the Internet (VisionNet'18), Bangalore, India, 19th -22nd September 2018.
177. TPC member, 2018 International Conference on Advances in Computing, Communications and Informatics (ICACCI 2018), , Bangalore, India, 19th -22nd September 2018.
178. TPC member, 2018 IEEE Asia-Pacific Conference on Geoscience, Electronics and Remote Sensing Technology (AGERS 2018), Jakarta, Indonesia, 18th -19th September 2018.
179. TPC reviewer, 1st International Conference and Workshop on Telecommunication, Computing, Electronics and Control 2018 (ICW-TELKOMNIKA 2018), Indonesia, 18th -21st September 2018.
180. TPC member, 2018 IEEE 8th International Conference on Consumer Electronics - Berlin (ICCE-Berlin), Berlin Germany, 2nd -5th September 2018.
181. TPC reviewer, 2nd Progress in Electronics Engineering, Computer Engineering and Information Technology (PIECT) 2018, Surabaya, Indonesia, 28th -30th August 2018.
182. TPC reviewer, International Symposium in Business, Management and Social Sciences (BIMSS), 28th -30th August 2018.
183. TPC reviewer, International Symposium on Cloud Computing and Cyber-Security (SCCCS 2018), London, UK, 15th -17th August 2018.
184. TPC reviewer, 2018 International Conference on Intelligent and Advanced System (ICIAS), Kuala Mulpur, Malaysia, 13th -15th August 2018.
185. TPC member, 4th International Conference for Electronic Design (ICED 2018) , Melaka, Malaysia, 9th - 10th August 2018.
186. TPC member, 5th International Workshop on Mobile Applications 2018 (MobiApps 2018), Barcelona, Spain, 6th -8th August 2018.
187. TPC reviewer, 3rd International Conference on Information in Business and Technology Management (I2BM 2018), Melaka, Malaysia, 17th -19th July 2018.
188. TPC member, 2018 IEEE 5G World Forum (5GWF), Santa Clara, CA, United States, 9th -11th July 2018.
189. Chair, 2018 IEEE Region Ten Symposium (Tensymp) , Sydney, Australia, 1st -6th July 2018.

190. TPC member, 2018 IEEE International Conference on Consumer Electronics (ICCE), Jeju, South Korea, 24th -26th June 2018.
191. TPC member, 2018 Global Internet of Things Summit (GloTS), Bilbao, Spain, 4th -7th June 2018.
192. TPC member, 018 Zooming Innovation in Consumer Technologies Conference (ZINC 2018), Novi Sad, Serbia, 30th -31st May 2018.
193. TPC member, IEEE International Conference on Communications: Internet of Things Track, Kansas City, MO, USA, 20th -24th May 2018.
194. TPC member, International Workshop on Edge and Fog Computing for IoT, 7th -11th May 2018.
195. TPC member, 4th International Symposium on Ubiquitous Networking, Hammamet, Morocco, 2nd -5th May 2018.
196. TPC member, 2018 21st Saudi Computer Society National Computer Conference (NCC), Riyadh, Saudi Arabia, 25th -26th April 2018.
197. TPC reviewer, 2018 World of Multidisciplinary Research and Application Conference (WOMRAC 2018) Conference, Sabah, Malaysia, 17th -19th April 2018.
198. TPC member, 2018 1st International Conference on Computer Applications & Information Security (ICCAIS), Saudi Arabia, 4th -6th April 2018.
199. TPC member, World Symposium on Computer Applications & Research (WSCAR' 2018), Istanbul, Turkey, 2nd -4th April 2018.
200. TPC reviewer, 2018 4th International Conference on Computer, Communication and Control Technology (I4CT 2018), Krabi, Thailand, 20th -22nd March 2018.
201. TPC reviewer, 2018 2nd International Symposium on Social Sciences, Arts and Humanities (SYSSARM 2018), Krabi, Thailand, 20th -22nd March 2018.
202. TPC member, IEEE 4th World Forum on Internet of Things, Singapore, 5-8 February 2018.
203. TPC reviewer, 2018 World Congress on Circuits and Systems Conference (WORCAS 2018), Kuala Lumpur, Malaysia, 22nd -24th January 2018.
204. TPC reviewer, 2018 Symposium on Islamic Sciences and Technology (SISTECH 2018) Conference, Kuala Lumpur, Malaysia, 22nd -24th January 2018.
205. TPC reviewer, 2018 2nd Advanced Research in Engineering and Information Technology International Conference (AVAREIT 2018), Kuala Lumpur, Malaysia, 22nd -24th January 2018.

OTHER RESPONSIBILITIES

i) Department / Faculty / University

1. **Committee Member**, AJK Kelab Kebajikan dan Sosial FSKTM, UPM, 2016-2018.
2. **Committee Member**, Jawatankuasa Penilaian Laporan Kemajuan Projek (Geran PUTRA), 2016-Current
3. **Committee Member**, Information Technology Colloquium (INTEC 2015), 7-8th April 2015.
4. **Judge / Arbitrator**, Malaysia National Conference on Database 2014 (MaNCOD 2014)
5. **Committee Member**, Jawatankuasa Pembentukan Program Baharu Master Sains Komputer (Sains Data), 2014.
6. **Assessor/ Evaluator**, Final Year Project Exhibition 2013-2014, Bachelor Kejuruteraan Sistem Komputer dan Komunikasi.
7. **Chair**, JK Hadiah Jabatan Sains Komputer, FSKTM
8. **Committee Member**, Student Mobility Committee, Department of Computer Science, FSKTM, UPM, 2015- 2016.
9. **Assessor**, Jawatankuasa Penilaian Kertas Kerja dan Penerbitan, The 9th Malaysian Software Engineering Conference (MYSec2015), 16-17th December 2015.
10. **Committee Member**, 9th Malaysian Software Engineering Conference (MySEC2015), 16-17th December 2015.
11. **Facilitator**, High School Program Facilitation for 3rd International Symposium on Applied Engineering and Sciences 2015 (SAES 2015), 23rd November 2015.
12. **Committee Member**, Jawatankuasa Penyemakan Soalan dan Skema Jawapan Peperiksaan Akhir 2015 – Current)
13. **Committee Member**, Jawatankuasa Program Semarak Inovasi, FSKTM, UPM, 8th December 2015.
14. **Petugas**, Lawatan Sambil Belajar Dan Program Motivasi 'Minda Power' Sekolah Agama Menengah Sungai Merab Luar Kajang Selangor, 30th August 2016.
15. **Mentor**, Pensyarah Pembimbing, Program Nobel Laureate's Outreach Camp (NLOC 2018) Scientists of Tomorrow, UPM, 27-30th August 2018.
16. **Visiting Lecturer** for Industrial Training Students (Pensyarah Pemantau Latihan Industri), 2014-

Current.

17. **Committee Member**, Ahli Jawatankuasa Program Computer Science Week 2018, Jabatan Sains Komputer, FSKTM, UPM, 2-4 May 2018.
18. **Petugas**, Pameran UPM Postgraduate Exhibition & Open Day, 2014, 24-25th May 2014.
19. **Committee Member**, Ahli Jawatankuasa Tugas-Tugas Khas Untuk Program Bengkel Perbincangan Permohonan Geran Pengurusan Bencana Alam, Jabatan Sains Komputer, 5th April 2018.
20. **Course Coordinator**, SSK3102 Embedded System Programming, Department of Computer Science, FSKTM, UPM, August 2018 - Current
21. **Committee Member**, Jawatankuasa Pelaksana Program Lawatan Penilai Luar Professor Dr James Bailey, University of Melbourne, Australia, 28th June 2018.
22. **Committee Member**, AI Day, FSKTM UPM, 14th June 2016.
23. **Chairman**, Jawatankuasa Hari Sistem Siber Fizikal 2016 (CPS 2016), Jabatan Sains Komputer, FSKTM, UPM, 1st March 2016.
24. **Committee Member**, Jawatankuasa Bengkel (IoT for Elderly 2019), 2nd January 2019.
25. **Committee Member**, Jawatankuasa Spesifikasi Sebut Harga FSKTM, UPM, 2018.
26. **Committee Member** Third Real-Time Technology and Applications Symposium (RENTAS 2006), Fakulti Kejuruteraan, UPM, 5 – 6 December 2006.
27. **Coordinator and Instructor**, Microsoft Visual Basic Crash Course for ITMA, UPM staff, 21 –22 October 2003.
28. **Coordinator and Instructor**, “One Day Workshop for Visualizer Applications for Science Officer of Institute of Advanced Technology”, 21st September 2003.
29. **Committee Member**, Technologies for Smart Home Seminar”, IEEE Computer Society Malaysia Chapter and UPM – Institute of Advanced Technology, ITMA Seminar Room, 26 February 2004.
30. **Organizer**, “Network Security Talk”, ISRL-ITMA, UPM, ITMA Seminar Room, 25 February 2004,
31. **Committee Member**, ‘Network Simulation NS-2 Workshop’, UPM, Kuala Lumpur, 26 September 2004.
32. **Secretariat and Committee Member**, IEEE Computer Society Malaysia Chapter – UPM, Real-Time Techniques and Application Symposium (RENTAS 2004), UPM, 24 – 25 November 2004,
33. **Committee Member**, Network Security Seminar, organized by IEEE Computer Society Malaysia Chapter and ITMA, UPM, 7 September 2004.
34. **Committee Member**, Intelligence Systems and Information Technology Symposium 2004 (ISITS 2004), UPM, ITMA Seminar Room, 17 February 2004.
35. **Committee Member** (Local Cooperation and Sponsorships) DELTA 2006, Third IEEE International Workshop on Electronic Design and Application, 17-19th January 2006.
36. **Committee Member and Secretariat**, QNX Real Time Operating System: Driving The Future in Embedded Technology Technical Seminar, IEEE Computer Society Malaysia Chapter, Institute of Advanced Technology (ITMA) and Tech Kinetics Engineering (M) Sdn. Bhd, February 21st 2006.
37. **Committee Member**, Secretariat and Coordinator, IEEE – UUM International Conference on Computing and Informatics (ICOCI 2006), 6-8th June 2006
38. **Committee Member**, IEEE Computer Society Third Real-Time Technology and Applications Symposium (RENTAS 2006), Jabatan Kejuruteraan Sistem Komputer dan Komunikasi, 5th – 6th December 2006, UPM Serdang, Malaysia
39. **Committee Member**, Seminar on QNX Real-Time Operating System: Driving the Future in Embedded Technology, Institut Teknologi Maju, 21 February 2006, organizer.
40. **Committee Member**, 3 days Training on Visual Basic for Beginners, Faculty of Science Mathematics students from University of Khartoum (Sudan), 23rd June 2008, ITMA, UPM.
41. **Committee Member**, 1 day Training on Smart Home Systems, Faculty of Science Mathematics students from University of Khartoum (Sudan), 25th June 2008
42. **Committee Member**, Second Technical Seminar on Underwater System and Technology 2008, UPM, 16 October 2008, IEEE Consumer Electronics Technical Talk, Basic Room Acoustics, Faculty of Engineering, Universiti Putra Malaysia, 7th May 2009. Organizer. Seminar on Computer Security, Faculty of Computer Science and Information Technology, UPM, 26 May 2005, participant.

ii) Course/Seminar/Workshop Attended

1. Microsoft Mobile Developer Conference 2004, Sunway Convention Centre, April 22nd 2004, participant
2. 2003 Maxis Solutions Unplugged Conference & Solutions Showcase Conference, participant. Workshop on Matrox Imaging System, Eazy Control Sdn.Bhd, Sunway Lagoon Resort, 15th September 2004, participant.
3. Seminar on Computer Security, Faculty of Computer Science and Information Technology, UPM and NISER, 26th May 2005, participant.
4. Seminar “Robotics in Agriculture: From Precision Farming to Phytotechnology” by Prof. Simon Blackmore (KVL, Denmark), ITMA Seminar Room, 7 April 2005, participant.
5. Seminar on Global Standards for Green Buildings, IEM Building Services Technical Division,

- Institute of Engineer, Malaysia, 6th August 2005, participant.
6. Workshop on LabView 8.2 Usage and Design, Caidmark Sdn.Bhd, ITMA Training Room, 6th March 2007, participant.
 7. Intellectual Discourse: Research Projects in Honeycomb Housing, 27th March 2007 Bilik Seminar 1, 2 and 3, Faculty of Human Ecology, Universiti Putra Malaysia, participant.
 8. Patent Application Workshop, Institute of Advanced Technology-Universiti Putra Malaysia, 18 – 20 May 2007, Tiara Beach Resort, Port Dickson, participant.
 9. Malaysian Communications and Multimedia Commission Lecture Series on Research Collaboration Program, “Wireless Broadband Access: An Overview on Standards and System Trial in Malaysia”, Auditorium MCMC, Cyberjaya, 12th July 2007, participant.
 10. Workshop on Real Time Spectrum Analyzer RSA 3303A Tektronix, 23rd July 2007, ITMA Training Room, participant
 11. Module Writing Workshop – Open University Malaysia, 7-9th September 2007, Hotel Equatorial Bangi, participant.
 12. Global Village Initiative, “Ambient assistive health and wellbeing services in the heart of the city” 2nd Workgroup Seminar: Asia, 7th April 2008, Kuala Lumpur, Malaysia, Ministry of Energy, Water and Communications, Malaysia, participant.
 13. Commercialization Seminar :Researchers’ involvement in spin-off companies, ICC-UPM, 27th March, Dewan Taklimat, Bangunan Pentadbiran, Universiti Putra Malaysia, participant.
 14. Commercialization and Technology Transfer Workshop, Hilton Hotel, Kuala Lumpur, 3 – 4 December 2007, participant.
 15. Arduino: Hands-on Workshop, Makmal Sistem Terbenam, FSKTM, UPM, 8-9th July 2013, participant.
 16. Sensors, Arduino & Labview Workshop, Department of Physics, Faculty of Science, UPM, 20-23rd January 2014, participant.
 17. Program Transformasi Minda, Kompleks Akademik A, UPM, 23-27 June 2014, participant.
 18. Seminar on Smart House Echonet, The Malaysia Research and Education Network (MYREN), Berjaya Times Square, 27th November 2014, participant.
 19. Preparing Students for Examination, Sekolah Pengajian Siswazah, Bilik Sarjana Putra 1, 4th December 2014, participant.
 20. Providing Quality Feedback, Sekolah Pengajian Siswazah, Bilik Sarjana Putra 1, 8th December 2014, participant.
 21. Preparing Your Students for Examination, Sekolah Pengajian Siswazah, Bilik Putra Sarjana 1, 6th January 2015, participant.
 22. Program Pemantapan Organisasi FSKTM 2015: Unity Through Diversity, Global Education Gateway, Sungkai, 14-15 August 2015, participant.
 23. Basic Occupational First Aid, CPR & AED Training, Certified Emergency Response Training Academy, 30th November - 1st December 2015, participant.
 24. Introduction to Supervision, Sekolah Pengajian Siswazah, Bilik Putra Sarjana 1, 22nd January 2015, participant.
 25. Asia IoT Innovation, MIMOS, 26th August 2015, participant.
 26. Bengkel JINM Jabatan Sains Komputer, FSKTM, UPM, 1st February 2016, participant.
 27. Bengkel Hasil Pembelajaran Program (PO), FSKTM, UPM, 9th September 2016, participant
 28. Bengkel Hala Tuju, FSKTM, UPM, 13th January 2017, participant.
 29. Bengkel Semakan Kurikulum, Jabatan Sains Komputer, FSKTM, UPM, 1st August 2017, participant.
 30. Assessment of OBE: Cognitive, Psychomotor & Affective Domains, Centre of Academic Development (CADE), UPM, 26th March 2018, participant.
 31. Supervising Graduate Research (Series 2/2018), Centre of Academic Development (CADE), UPM, 19th July 2018, participant.
 32. Bengkel Deep Learning, Jabatan Sains Komputer, FSKTM, UPM, 1st August 2018, participant.
 33. Popular Writing for Academics, Centre of Academic Development (CADE) Office of the Deputy Vice chancellor (Academic and international), 9th November 2018, participant.
 34. Bengkel Permohonan FRGS, Jabatan Sains Komputer, FSKTM, UPM, 8th February 2019, participant.
 35. Bengkel Pengajaran-Pembelajaran, Jabatan Sains Komputer, FSKTM, UPM, 8th February 2019, participant.
 36. Bengkel Semakan Kurikulum BSK, Jabatan Sains Komputer, FSKTM, UPM, 22nd January 2019, participant.
 37. Bengkel Pembetulan Kertas Cadangan Semakan Semula Program Master Sains Komputer, Jabatan Sains Komputer, FSKTM, UPM, 28th February 2019, participant.
 38. Bengkel Mengemaskini Kertas Kerja Cadangan Semakan Semula Program dan Penawaran Pengkhususan Baharu Master Sains Komputer, Jabatan Sains Komputer, FSKTM, UPM, 15^h August 2018, participant.
 39. Yamaguchi University – JST Sakura Exchange Program in Science, Advisor and Participant, 2-14th October 2018.

i) Final Year Project students (Completed)

1. Muhammad Sharofi bin Shefidi, Bac.Computer Science (Computer System), *Embedded System Based Diabetic Care*, Semester 1, 2018-2019.
2. Siah Kai Xin, Bac.Computer Science (Computer System), *Augmented Reality Based Internet of Things (IoT)*, Semester 1, 2018-2019.
3. Wan Muhd Amin bin Wan Zaifolludean, Bac.Computer Science (Computer System), *IoT Circuit Breaker*, Semester 1, 2018-2019.
4. Farah Fakhriah binti Mohd Rosli, , Bac.Computer Science (Computer System), *Remote Health Monitoring System Using IoT*, Semester 1 2017/2018
5. Noor Amirah Binti Ayub, Bac.Computer Science (Computer System), *Intelligent Home Automation System Based on IoT*, Semester 1 2017/2018
6. Wan Najiah Binti Wan Mohd, Bac.Computer Science (Computer System), *Wearable Based Activity Recognition System Using IoT*, Semester 1 2017/2018
7. Nurul Adha Abu Bakar, Bac.Computer Science (Computer System), *Development of Variable based Injury Detector Using IoT*, Semester 1 2017/2018
8. Muhammad Hafizan Bin Khalid, , Bac.Computer Science (Computer System), *Internet of Things Enabled Water Monitoring System*, Semester 1 2017/2018
9. Kogilavany Yathamaniam, Bac.Computer Science (Computer System), *Solar Based Energy Harvester for IoT Devices*, Semester 1 2016/2017.
10. Syamsul Hasri Tamrin, Bac.Computer Science (Computer System), *Smart Home Control System Using IoT*, Semester 1 2016/2017.
11. Muhammad Harith bin Hasnan, Bac.Computer Science (Computer System), *Water Quality Monitoring System*, Semester 1 2016/2017.
12. Tan Win Shern, Bac. Computer Science (Computer System), *Activity Recognition Using Embedded Systems*, Semester 2, 2014-2015
13. Nasuha Syahira, Bac. Computer Science (Computer System), *Fall Detection System*, Semester 2, 2014-2015
14. Sity Nur Elbana Thasha Rosli, Bac. Human Resource and Information Technology, *Tution Centre Management System*, Semester 2, 2015-2016
15. Wan Rossafira Wan A.Rahman, Bac. Human Resource and Information Technology, *Internship Application Management System*, Semester 2, 2015-2016
16. Seow Chian Hang, Bac. Computer Science (Computer System), *Data Mashups for Smart Home Environment*, Semester 2, 2014-2015
17. Luqman Ramli, Bac. Computer Science (Computer System), *GVI: Glove for Virtual Impairment*, Semester 2, 2014-2015
18. Samsidar Sakka, Bac. Human Resource and Information Technology, *College Registration Management System*, Semester 2, 2014-2015
19. Nabilah Faishah Baharin, Bac. Human Resource and Information Technology, *Internship Application System for Varsity Students*, Semester 2, 2014-2015
20. Nabilah Mohd Shoib, Bac. Human Resource and Information Technology, *Cab Management Booking System*, Semester 2, 2014-2015
21. Nadhilah Adliah Fadzilan, Bac. Human Resource and Information Technology, *Internship Application System for Varsity Students*, Semester 2, 2014-2015
22. Ivan Booi Chung Ren, Bac. Computer Science (Computer System), *Embedded System Based Urban Environment Monitoring System*, Semester 2, 2013-2014
23. Faezah Salfarina Binti Abd Rahman, Bac.Computer Science (Computer System), *Co-Curriculum Marking System*, Semester 1, 2013-2014.
24. Lim Jun Yong, Bac. Computer Science (Computer System), *Human Activity Recognition Using Smartphone*, Semester 2, 2013-2014
25. Ng Chwan Shing, Bac.Computer Science (Computer System), *Travel Advisor*, Semester 1, 2013-2014.

ii) Masters – as Chairman / Main Supervisor (On-going)

1. Bhisma Nambiar, Master Science in Intelligent Systems, *Indoor Air Quality Monitoring, in IoT Environment*. **On-going.**
2. Vishalini Vijayanath, Master Science in Intelligent Systems, *Multi activity recognition mechanism using Generative AI*. **On-going.**

iii) Masters – as Co-Supervisor (On-going)

1. Muhd Amirul Hakim Bin Zailan, Msc in Database System, *Improving Polynomial-Based Sensor Data*

Model for Efficient Sensor Data Storage in An IoT System. **On-going**

2. Athimahendran Pannerselvam, Master Science in Intelligent Systems, Enhanced Fall Detection Framework for Heterogeneous IoT Objects. **On-going**
3. Mohd Redzuan Bin Jusoh, Meneroka penerapan Internet pelbagai (IoT) untuk kelestarian Sekolah
4. Eswaran A/L Selvadurai, Master of Science, Keberkesanan Penggunaan Simulasi Micro:bit keatas pencapaian murid RBT tahun 4 sekolah rendah di Kuala Lumpur
5. Eddy Azhar Bin Jalani, Meneroka Pola Pembelajaran Aktif Pelajar Vokasional Dalam Aktiviti Amali Berasaskan Internet Pelbagai Benda (IoT)

iv) Masters –as Co-Supervisor (Graduated)

1. Samia Khan, (Master in Communication System Engineering, Faculty of Engineering) Localized Secure Routing for Black Hole Attack in Mobile Ad-Hoc Network. **Completed**

v) PhD – as Chairman / Main Supervisor (On-going)

1. Sivakumar Kalimuthu, Phd in Intelligent Systems, A New Enhanced Clustering Method for IoT Devices Profile Generation in Smart Home Environment, **On-going**
2. Suman Sukhvasi, PhD in Intelligent Systems, Semantic Internet of Things for Heterogeneous Smart Objects Management, Semester 1-2017-2018- **On-going**
3. Arunima Sharma, PhD in Intelligent Systems, CPS Resource Allocation Heterogeneous Objects in Internet of Things Environment, **On-going**.
4. Morteza Pour Shiri Farhad, Multi-resident activity recognition in smart environment using hybrid deep learning models

vi) PhD – as Chairman / Main Supervisor (Graduated)

1. Raihani Mohamed Low, PhD in Intelligent Systems, Improving Multi-Resident Activity Recognition in Smart Home Using Multi Label Classification with Adaptive Profiling, 2018.
2. Lawal Babangida, PhD in Intelligent Systems, IoT Perceptive Activity Recognition in Smart Home Environment, 2023.

v) PhD –as Co-Supervisor (Graduated)

1. Abdul Rafiez bin Abdul Raziff, PhD in Intelligent Systems, Improved Binary Classification with Data Oversampling in Gait Recognition, 2018.
2. Muhammad Noorazlan Shah bin Zainuddin, PhD in Intelligent Systems Class Binarization with Self-Adaptive Algorithm to Improve Human Activity Recognition, 2018.
3. Ahmad Shahi Soozaei, PhD in Intelligent Systems Integrated Learning Method for Real-time System in Intelligent Building, 2015.
4. Muhammad Syafiq bin Mohd Pozi, PhD in Intelligent Systems Improvement on Kernel Methods for Classification Task on Imbalanced Dataset Classification Task, 2015.

vi) PhD – as Co-Supervisor (On-Going)

1. Mohammed Ibrahim, PhD in Information Security, IoT Forensic for Enterprise Network
2. Mohammed Hisyamuddin bin Kasim, PhD in Computer Networks, An Energy Efficient Heterogeneous Wireless Sensor Network Environment with Integrated NOR Flash Memory.
3. Nurulain Binti Mat Ismail, Smart City Framework (PhD in Computer System Engineering), Faculty of Engineering, UPM.
4. Kogila Muthusamy, PhD in Multimedia, Multimodal Learning Analytics: Using Mobile Math-Game App towards Improving the Teaching and Learning of Mathematics.
5. Mazlan Bin Muhamad Yusof, PhD, Pembangunan Modul Pengaturcaraan Projek Robotik Berasaskan Komposisi Multimodaliti untuk mata Pelajaran reka Bentuk dan teknologi di Malaysia
6. Ge Shengguo, PhD, An Effective Source Number Estimation Approach based on Supplementary Empirical Mode Decomposition
7. Al Rahbi Badar Mohammed Khalfan, PhD, The Optimal Blockchain Interoperability Framework for Scalable, Efficient and Reliable IoT Data Management in Smart Cities
8. Jiang Chong, Deep Learning-based method for optical microscope image discrimination in mineral characterization
9. Ouyang Xiaojun, PhD, Establishing Service Design Methodology of Digital twin technology collaboration and co-creation
10. Al Jazaire Mohsin Basem Mohsin, PhD, Machine Learning models for defending drones from DoS

attacks

11. Aldhamari Elham Ali Naser, PhD, Anomaly detection in IoT devices using Deep Reinforcement Learning
12. Stephanie A/P Segaran, PhD, Improving the effectiveness of the human activity recognition system through a customized model approach for reliable prediction

v) Thesis Examiner

a. Internal Examiner (Final year projects)

1. Muhammad Aizat Azri bin Ibrahim, Robo-Eye, Semester 2 2015/2016
2. Muhammad Za'im Shahiran bin Mohamad, Playing keyboard using inteligeent NXT robot Semester 2 2015/2016
3. Muhammad Zamiruddin bin Sahar, Roboshop: Investigation of the shortest pash store layout using AI techniques, Semester 2 2015/2016
4. Noor Fatini Husna, A Web based dashboard for restaurant, Semester 2 2015/2016
5. Shafeka binti Tukiman, A Mobile Application to Personalize Kuala Lumpur, Semester 2 2015/2016
6. Siti Nadiyah binti Adznir, A Web based dashboard for tourism competition, Semester 2 2015/2016
7. Khairulazlee bin Mohd Ali, Sistem Pengurusan Temuduga (Pemohon), Semester 2 2014/2015
8. Mohd Zamri bin Zainal, Sistem Pengurusan Temuduga (Pentadbir), Semester 2 2014/2015
9. Nurul Amira Syafiqah binti Ahmad Nazri (182690), Semester 1 2018/2019
10. Wong Siew Chee (184251), Semester 1 2018/2019
11. Jane Goh(185633), Semester 1 2018/2019

b. External Examiner (PhD - International)

1. Muhammad Aliero Saidu, Multimodal Data Collection and Fusion Framework for Indoor Occupancy Prediction To Support HVAC Energy Saving, **PhD (Computer Science)**, School of Information Technology, Monash University, Australia, November 2023.
2. Krutika Ramesh Shahabadkar, Embodied Posture Analysis Using ML for Operator Safety Enhancements, PhD, School of Engineering, Swinburne University of Technology, Australia, October 2023.
3. Anand Babu J, *Power Optimization Techniques in Internet of Things (IoT) and WSN Networks*, **PhD (Computer Science and Engineering)**, Visvesvaraya Technological University, Karnataka, India, 17 November 2017.
4. Anbhazagan P, *Lifetime Enhancement for Internet of Things (IoT) through Cluster Head Selection, Base Station Positioning and Coverage Efficiency*, **PhD (Computer Science)**, Hindustan University, Tamil Nadu, India, 1st December 2017.
5. Ranjan Kumar Mahapatra, *Received Signal Strength based Localization in Internet of Things (IoT)*, **PhD (Computer Science)**, National Institute of Technology, Karnataka, India, 28 May 2018.
6. Sanapala Kishore, *Energy Efficient Ultra Low Voltage Architecture for Embedded Systems in IoT Environment*, **PhD (Computer and Communication Engineering)**, Vellore Institute of Technology (VIT), Chennai, India, 10th June 2018.
7. Shuba Rao V, *Design and Development of Efficient Strategies for Communication Services in Internet of Things (IoT)*, **PhD (Computer Science)** Visvesvaraya Technological University, Karnataka, India, 14 August 2018.
8. Jagannadha Naidu K, *On-Chip Power Supply Techniques for SoC-IoT*, **PhD (Engineering)** School of Electronics Engineering, Vellore Institute of Technoology (VIT) Tamil Nadu.

vi) Industrial Training Student Visit

1. Anas Bin Barkawi (183650), Setia Nusantara Engineering Sdn. Bhd., Bandar Baru Seri Petaling, Kuala Lumpur, 1st March 2019.
2. Rafhik Roshan Bin Irwan (183946), Pusat Pembangunan Maklumat dan Komunikasi (iDEC), UPM, Serdang, 5th March 2019.
3. Muhammad Yusfarhan bin Che Pa (180872), Soft Solvers Solution Sdn. Bhd, Cyberjaya, 15 June 2018.
4. Yusma Amira Binti Yacob (178450), Soft Solvers Solution Sdn. Bhd, Cyberjaya, 15 June 2018.
5. Nurul Fitriah binti Ahmad (172502), Mobiweb Sdn. Bhd, Pulau Pinang, 13 December 2018.
6. Azmayadi bin Aziz (175750), AppCable Sdn. Bhd, Cyberjaya, 13 June 2017.
7. Siti Noor Alida binti Masrom (173580), Makro Baru Sdn Bhd, Cyberjaya, 13 June 2017.

8. Naveena Raj Shanmugavellu (166796), Is Solution and Consultancy (M) Sdn Bhd, Pulau Pinang, 11 June 2016.
9. Banu Rawindran (170769), Telekom Malaysia Berhad, Butterworth, Penang, 11 June 2016.
10. Hooi Yin Hang (168809), Taiko Plantations Sdn. Bhd., Ipoh, Perak, 6 June 2016.
11. Ho Yong Seng (167674), Gloco Malaysia., Kelana Jaya, Selangor, 4 June 2016.

vii) Industrial Training Student Supervision (International – Mobility Inbound)

1. Manan Jethanandani, Bachelor of Computer Science, The LNM Institute of Information Technology, Jaipur, India, 18th May – 18 July 2018.
2. Divyanshu Jhawar, Bachelor of Computer Science, The LNM Institute of Information Technology, Jaipur, India, 18th May – 18 July 2018.
3. Jain Vinay Hemant, Bachelor of Computer Science, The LNM Institute of Information Technology, Jaipur, India, 18th May – 18 July 2018.
4. Yukti Julka, Bachelor of Computer Science (Multimedia), Birla Institute of Technology, Mesra, Jaipur Campus, India, 15th December – 3 January 2018.

viii) Academic Advisory

1. Nurul Adha binti Abu Bakar (172293), Bac.Computer Science (Computer Systems), Graduated.
2. Nurul Fitriah binti Ahmad (172502), Bac.Computer Science (Computer Systems), Graduated.
3. Farah Fakhriah binti Mohamed Rafie (176719), Bac.Computer Science (Computer Systems), Graduated.
4. Nurul Sofwa binti Mohamad Zaini (17734), Bac.Computer Science (Computer Systems), Graduated.
5. Azyan Izzati binti Mohd Azhari (177595), Bac.Computer Science (Computer Systems), Graduated.
6. Yusma Amirah binti Yacob (178450), Bac.Computer Science (Computer Systems), Graduated.
7. Nur Fazlin Fatimah binti Badrul Hisham (182415), Bac.Computer Science (Computer Systems), Active.
8. Tan Yong Lin (186933), Bac.Computer Science (Computer Systems), Active.
9. Muhammad Irfan bin Zulkepli (197278), Bac.Computer Science (Computer Systems), Active.
10. Dinesh Vijayan (197973), Bac.Computer Science (Computer Systems), Active.
11. Nur Maisarah Syamimi binti Mohamad (197977), Bac.Computer Science (Computer Systems), Active.
12. Muhammad Akmal Irfan bin Fauzi (198116), Bac.Computer Science (Computer Systems), Active.
13. Noor Amirah binti Ajmal Khan (198212), Bac.Computer Science (Computer Systems), Active.
14. Zarin Arni binti Hashim (199598), Bac.Computer Science (Computer Systems), Active.

CONSULTANCY WORK

1. Chairman / Expert, Jabatan Standard Malaysia **ISO/IEC TC/W/16, Internet of Things and Applications, Standard Committee**, November 2018- Current
2. **Visiting Researcher, Centre For Research In Industry 4.0 (CRI4.0)** University Of Malaya (January 2019 – 2021)
3. **External Assessor**, Certificate in Computer Science, Linton University College, Mantin, Negeri Sembilan, November 2017- 2018
4. **External Assessor**, Diploma in Computer Engineering, Maxwell College, Malaysia, 2013 – 2014
5. **External Assessor**, Diploma in Information Technology, Stamford College Malaysia, 2012- 2015
6. **Reviewer** for Taylor's Research Grant Scheme (TRGS) Proposal, **Taylor's University**, May 2014.
7. **Subject Matter Expert** for CBRT 4103 Software Engineering for Real-Time Systems, Faculty of Information Technology and Multimedia Communicatio.

8. **Subject Matter Expert** for CMRT 6103 Real-Time Software Engineering, Faculty of Information Technology and Multimedia Communication, Open University Malaysia.
9. **Subject Matter Expert** for Project Planning and Control (CPS605), Asia e-University (AeU),
10. **Subject Matter Expert** for Leadership and Communication in Project Management (CLC608), Asia e-University (AeU).
11. **Expert panel**, MSCAPICTA Competition for Sekolah Kebangsaan Taman Tun Dr Ismail (1), 11th September 2015.

PUBLICATIONS

i) Citation indexed journals

1. D. P. Deevi, S. Kodadi, H. Chetlapalli, N. S. Allur, K. Dondapati, and **T. Perumal**, "Enhancing Grey Wolf Optimization with Applications and Innovations," SN Computer Science, vol. 6, no. 359, 2025. <https://doi.org/10.1007/s42979-025-03889-3>
2. D. P. Deevi, N. S. Allur, K. Dondapati, H. Chetlapalli, S. Kodadi, and **T. Perumal**, "A Mechanized Method for Risk-Based Test Case Generation and Prioritization by an Improved Correlation System," SN Computer Science, vol. 6, no. 310, 2025. <https://doi.org/10.1007/s42979-025-03800-0>
3. N. S. Allur, D. P. Deevi, K. Dondapati, H. Chetlapalli, S. Kodadi, and **T. Perumal**, "Role of knowledge management in the development of effective strategic business planning for organizations," Computational and Mathematical Organization Theory, 2025. [Online]. Available: <https://doi.org/10.1007/s10588-025-09397-2>
4. K. Dondapati, H. Chetlapalli, S. Kodadi, D. P. Deevi, N. S. Allur, and **T. Perumal**, "An efficient automated test case generation system using GCSRU with pattern recognition in software testing," Aust. J. Electr. Electron. Eng., pp. 1–13, 2025. doi: 10.1080/1448837X.2025.2470575.
5. D. P. Devi, N. S. Allur, K. Dondapati, H. Chetlapalli, S. Kodadi, and **T. Perumal**, "Collaborative edge-fog system for real-time anomaly detection and communication efficiency in underwater IoT," Int. J. Inf. Tech. Comput. Eng., vol. 13, no. 1, pp. 91–106, Mar. 2025. Accessed: Mar. 12, 2025. [Online]. Available: <https://ijitce.org/index.php/ijitce/article/view/855>.
6. Y. Lu, V. Vijayananth, and **T. Perumal**, "Smart home energy prediction framework using temporal Kolmogorov-Arnold transformer," Energy Build., vol. 335, p. 115529, 2025. doi: 10.1016/j.enbuild.2025.115529.
7. N. S. Allur, D. P. Deevi, K. Dondapati, H. Chetlapalli, S. Kodadi, and **T. Perumal**, "Role of knowledge management in the development of effective strategic business planning for organizations," Comput. Math. Organ. Theory, 2025. doi: 10.1007/s10588-025-09397-2.
8. S. Kodadi, N. S. Allur, K. Dondapati, D. P. Deevi, H. Chetlapalli, and **T. Perumal**, "5G, edge computing, and AI for secure and scalable cyber-healthcare interoperability," Int. J. Eng. Res. Sci. Technol., vol. 20, no. 4, pp. 178–190, 2024. doi: 10.62643.
9. C. Jiang, A. Abdul Halin, B. Yang, L. N. Abdullah, N. Manshor, and **T. Perumal**, "Res-UNet ensemble learning for semantic segmentation of mineral optical microscopy images," Minerals, vol. 14, no. 12, p. 1281, 2024. doi: 10.3390/min14121281.
10. N. S. Allur, D. P. Deevi, K. Dondapati, H. Chetlapalli, S. Kodadi, and **T. Perumal**, "Operation Research the Influence of Venture Capital on the Growth of E-Commerce Listed Enterprises," **International Journal of Innovation and Technology Management**, Nov. 2024, doi: 10.1142/S0219877024500573.
11. D.P. Deevi, N. S. Allur, K. Dondapati, H. Chetlapalli, S. Kodadi and **T. Perumal** "The impact of the digital economy on industrial structure upgrading and sustainable entrepreneurial growth", **Electronic Commerce Research**, Sept. 2024, <https://doi.org/10.1007/s10660-024-09907-5>.
12. L. I. D. Faruk, D. Pal, S. Funilkul, T. Perumal and P. Mongkolnam, "Introducing CASUX: A Standardized Scale for Measuring the User Experience of Artificial Intelligence Based Conversational Agents," **International Journal of Human-Computer Interaction**, pp. 1–25, 2024, <https://doi.org/10.1080/10447318.2024.2359206>
13. R. E. **T. Perumal**, and S. K., "A review on fall detection systems in bathrooms: challenges and opportunities," **Multimedia Tools and Applications**, Jan. 2024, doi: 10.1007/s11042-023-18088-6.
14. S. Varikkottil, F.D.J. Lionel, M.K. Srinivasan, **T. Perumal**, A.A. Stonier, G. Peter, B. Pagidi, V. Ganji, "Inner Resonance and Outer Current Based Control Strategy for Inductive Power Transfer System Used in Wireless Charging for Electric Vehicles," **IET Electrical Systems in Transportation**, vol. 2024, pp. 1–12, Mar. 2024, doi: 10.1049/2024/6668174.
15. P. Khosravinia, **T. Perumal**, and J. Zarrin, "Enhancing Road Safety through Accurate Detection of Hazardous Driving Behaviors with Graph Convolutional Recurrent Networks," **IEEE Access**, pp. 1–1, 2023, doi: 10.1109/ACCESS.2023.3280473.
16. R. Elagovan, **T. Perumal**, and S. Krishnan, "Fall Detection Systems at Night," **Computer (Long Beach Calif)**, vol. 56, no. 6, pp. 44–51, Jun. 2023, doi: 10.1109/MC.2022.3200404.

17. R. Mohamed, N. H. Azizan, **T. Perumal**, S. Abd Manaf, E. Marlisah, and M. K. D. Hardhienata, "Discovering and recognizing of imbalance human activity in healthcare monitoring using data resampling technique and decision tree model," **Journal of Advanced Research in Applied Sciences and Engineering Technology**, vol. 33, no. 2, pp. 340–350, Nov. 2023, doi: 10.37934/araset.33.2.340350.
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vi) Course Modules

1. **Thinagaran Perumal (2009)**, *Course Module for CBRT4103 Software Engineering for Real-Time Systems*, Faculty of Information Technology and Multimedia Communication, Open University Malaysia (OUM). **(Published)**
2. **Thinagaran Perumal (2008)**, *Course Module for CMRM 6103 Research Methodology*, Centre for Graduate Studies (CGS), Open Universiti Malaysia (OUM). **(Published)**

vii) Other Publications

1. Razali Yaakob, **Thinagaran Perumal**, Pathiah Abdul Samat, Azrul Hazri Jantan and Amir Rizaan Abdul Rahman, "Student Mobility Programme: A Guideline for Bachelor of Computer Science (Outbound)", First Edition, 2016, FSKTM, UPM.
2. **Thinagaran Perumal**, Abd Rahman Ramli, Chui Yew Leong, Rosiah Osman, Khairulmizam Samsudin and Shattri Mansor, The Rise of Smart Building, Jurutera, June 2010, pp. 10 – 14.
3. **Thinagaran, V.P.**, Abd Rahman Ramli, Chui, Y.L. and Siti Mariam Shafie@Musa, Embedded Multimedia Module for Smart Home Environment, Frontier of Science and Advanced Technology – Research Bulletin 2006, Institute of Advanced Technology, UPM, Vol. 4, p. 36, December 2006.

PUBLICITY / MEDIA APPEARANCE

1. Lead educational transformational program for school childrens in Malaysia in the areas of science, technology, engineering and maths
 - a. Details available at <http://www.thestar.com.my/news/education/2015/11/29/picking-up-steam/>
2. Organized a workshop on humanitarian projects based on Internet of Things (IoT) for sustainability. - Details available at <http://www.ieeer10.org/newsletter/?p=50>
3. Recognition of public services from IEEE
 - a. Details available at <https://www.facebook.com/HOIEEE/posts/383592701828447:0>
4. Received Early Career Award from IEEE Consumer Electronics

- a. Details at <http://www.thestar.com.my/news/nation/2014/10/18/researcher-awarded-for-shaping-the-brain-behind-a-smart-home/>
 - b. <http://www.therakyatpost.com/news/2014/10/13/%EF%BB%BFmalaysian-bags-prestigious-engineering-award/>
5. Recognition by IEEE on public services
 - a. Details available at <http://theinstitute.ieee.org/people/achievements/achievements-february-2015/>

CONTRIBUTIONS TO SOCIETY

i) Student activities and development

1. **Advisor**, Sakura Science Exchange Program - JST 2018, Department of Computer Science Student Exchange, 2-14th October 2018, Yamaguchi University.
2. **Advisor**, IEEE Consumer Electronics Mini-Project Competition, 2016, 2017, Department of Computer Science (Computer System).
3. **Advisor**, World Color Style – WoCo, IHL-MDEC project competition, Faculty of Computer Science and Information Technology, UPM, 2014.
4. **Mentor**, Hilit IoT 2017 Project Competition, Department of Computer Science, FSKTM, UPM.
5. **Advisor**, Pembentangan Projek Pelajar SSK4604, Jabatan Sains Komputer, 2015.

ii) Other/Community Involvement

1. **Judge**, SouthEast Asia Makerthon 2016, MCMC, Cyberjaya, June 2016.
2. **Judge**, National Competition on Science Fair for Young Children, University Malaya, 2015
3. **Chief Judge**, Champions League Science Fair, Kementerian Air, Tanah dan Sumber Asli, and Association of Science, Technology and Innovation, Midlands Convention Centre, 30hb March 2019.
4. **Committee Member**, Persatuan Ibu Bapa dan Guru (PIBG) STS Serdang.

