

Kok Yew NG (Mark NG), PhD
Senior Lecturer and Head of Multi-Agent Robotics Centre,
School of Engineering, Ulster University, UK
Vice-Chair, IEEE UK and Ireland Control Systems Chapter
EPSRC ILN+ Researcher in Residence, Digital Catapult
Email: mark.ng@ulster.ac.uk Website: www.markusng.com

Education

2006 Monash University, BEng (Hons) Electrical and Computer Systems Engineering
2009 Monash University, PhD (Control Engineering and Fault Diagnosis)
Thesis: *Advancements in Robust Fault Reconstruction Using Sliding Mode Observers*

Experience

Ulster University

2021–present Senior Lecturer, Mechatronics Engineering and Control Systems
2017–2021 Lecturer, Mechatronics Engineering and Control Systems

Linköping University, Sweden

2016 Visiting Researcher (3 months)
2014–2015 Postdoctoral Fellow, Division of Vehicular Systems (with Volvo Cars)

Monash University, Malaysia

2017–present Adjunct Senior Research Fellow
2016–2017 Senior Lecturer, Electrical and Computer Systems Engineering
2009–2016 Lecturer, Electrical and Computer Systems Engineering
2006–2009 Graduate Researcher and Teaching Assistant

Honours and Awards

2024 Nomination for Learning and Teaching Award, Ulster University Students' Union
2020 Learning and Teaching Award, Ulster University Students' Union
2012 Monash University Malaysia PVC's Award for Excellence in Research, Round 1
2012 Letter of Commendation for Excellence Unit Evaluation Result from the Associate-Dean (Education), Faculty of Engineering, Monash University Australia
2011 Monash University Malaysia PVC's Award for Excellence in Teaching, Round 2
2011 Monash University Malaysia PVC's Award for Excellence in Teaching, Round 1
2010 Top 50 Best Units offered by Faculty of Engineering, Monash University Across All Campuses (ranked #22)
2010 Monash University Malaysia PVC's Award for Excellence in Teaching, Round 2
2010 Monash University Malaysia PVC's Award for Excellence in Teaching, Round 1
2009 Monash University Malaysia PVC's Award for Excellence in Teaching, Round 2
2007 Degree by Research Scholarship for Ph.D. in Engineering
2006 Postgraduate Research Scholarship for Master of Engineering Science by Research
2002 Monash University Malaysia Entrance Scholarship

Professional Memberships

IEEE

2024–present Vice-Chair, IEEE UK and Ireland Control Systems Chapter
2022–2024 Secretary, IEEE UK and Ireland Control Systems Chapter
2020–present Senior Member, IEEE
2010–2011 Auditor, IEEE Robotics and Automation Society (RAS) Malaysia Chapter
2009–2019 Member, IEEE
2018–present Fellow, Higher Education Academy UK
2005–present Graduate Member, Board of Engineers Malaysia (BEM)

Committees

2024–present Technology Strategy Groups Member (Digital Factory), Advanced Manufacturing Innovation Centre (AMIC), NI
2024–present Steering Member, Northern Ireland High Performance Computing (NI-HPC)
2023–present Athena Swan Champion, School of Engineering
2011 Faculty Representative, Campus Review Panel for Higher Degree by Research Course

Research Leadership and Activities

2024–present Multi-Agent Robotics Centre (MARC) for Control, Digital Twin, and Advanced Manufacturing
Lab Head and Ulster Lead at School of Engineering, Ulster University
2021–present Control Systems, Fault Diagnosis Schemes, Data Analytics Using ML and DL for IIoT and Industry 4.0 Applications
Ulster Lead, collab. with Technical University of Applied Sciences Augsburg and Technology Transfer Center for Flexible Automation in Nördlingen, Germany

2020–2022	Modelling and Predicting the Health Impact and Duration of SARS-CoV-2 Outbreaks on Board Cargo Vessels <i>Ulster Lead, collab. with Deputy Chief Health Officer of the Western Australia Department of Health</i>
2020–2022	COVID-19 Modelling and Forecast Task Force <i>Ulster Lead, collab. with NI Government Specialist Modelling Response Expert Group (SMREG)</i>
2019–present	Identification and Classification of Multiple Weed Rice Species Using Mobile Computing <i>Ulster Lead, collab. with Monash University, Malaysia</i>
2015–2018	Mobile Control of Intelligent Lighting Systems <i>Monash Lead, collab. with ItraMAS Corporation Malaysia</i>

Publications: Preprint Articles

- [1] S. Wucherer, R. McMurray, **K. Y. Ng**, and F. Kerber, *Learning to Predict Grip Quality from Simulation: Establishing a Digital Twin to Generate Simulated Data for a Grip Stability Metric*, 2023. arXiv: 2302.03504. [Online]. Available: <https://arxiv.org/abs/2302.03504>.

Publications: Peer-Reviewed Journal Articles

- [1] T. Fairouz, S. E. McNamee, D. Finlay, **K. Y. Ng**, and J. McLaughlin, “Enhancing Sensitivity of Point-of-Care Thyroid Diagnosis via Computational Analysis of Lateral Flow Assay Images Using Novel Textural Features and Hybrid-AI Models,” *Biosensors*, vol. 14, no. 12, 2024. DOI: 10.3390/bios14120611.
- [2] O. Escalona, N. Cullen, I. Weli, N. McCallan, **K. Y. Ng**, and D. Finlay, “Robust arm impedocardiography signal quality enhancement using recursive signal averaging and multi-stage wavelet denoising methods for long-term cardiac contractility monitoring armbands,” *Sensors*, vol. 23, no. 13, p. 5892, 2023. DOI: 10.3390/s23135892.
- [3] T. Fairouz, S. E. McNamee, D. Finlay, **K. Y. Ng**, and J. McLaughlin, “A novel patches-selection method for the classification of point-of-care biosensing lateral flow assays with cardiac biomarkers,” *Biosensors and Bioelectronics*, vol. 223, p. 115016, 2023. DOI: 10.1016/j.bios.2022.115016.
- [4] N. McCallan, S. Davidson, **K. Y. Ng**, P. Biglarbeigi, D. Finlay, B. L. Lan, and J. McLaughlin, “Epileptic multi-seizure type classification using electroencephalogram signals from the Temple University Hospital Seizure Corpus: A review,” *Expert Systems with Applications*, p. 121040, 2023. DOI: 10.1016/j.eswa.2023.121040.
- [5] **K.Y. Ng**, T. A. Codreanu, M. M. Gui, P. Biglarbeigi, D. Finlay, and J. McLaughlin, “Development of a mathematical model to predict the health impact and duration of SARS-CoV-2 outbreaks on board cargo vessels,” *WMU Journal of Maritime Affairs*, 2022. DOI: 10.1007/s13437-022-00291-1.
- [6] P. Biglarbeigi, **K. Y. Ng**, D. Finlay, R. Bond, M. Jing, and J. McLaughlin, “Sensitivity analysis of the infection transmissibility in the UK during the COVID-19 pandemic,” *PeerJ*, vol. 9, e10992, 2021. DOI: 10.7717/peerj.10992.
- [7] T. D. Do, M. M. Gui, and **K. Y. Ng**, “Assessing the effects of time-dependent restrictions and control actions to flatten the curve of COVID-19 in Kazakhstan,” *PeerJ*, vol. 9, e10806, 2021. DOI: 10.7717/peerj.10806.
- [8] M. Jing et al., “COVID-19 Modelling by Time-varying Transmission Rate Associated with Mobility Trend of Driving via Apple Maps,” *Journal of Biomedical Informatics*, p. 103905, 2021. DOI: 10.1016/j.jbi.2021.103905.
- [9] L. J. Robertson et al., “Evaluation of the IgG antibody response to SARS CoV-2 infection and performance of a lateral flow immunoassay: cross-sectional and longitudinal analysis over 11 months,” *BMJ Open*, vol. 11, no. 6, e048142, 2021. DOI: 10.1136/bmjopen-2020-048142.
- [10] **K. Y. Ng**, E. Frisk, M. Krysanter, and L. Eriksson, “A Realistic Simulation Testbed of a Turbocharged Spark-Ignited Engine System: A Platform for the Evaluation of Fault Diagnosis Algorithms and Strategies,” *IEEE Control Systems Magazine*, vol. 40, pp. 56–83, 2020. DOI: 10.1109/MCS.2019.2961793.
- [11] **K. Y. Ng** and M. M. Gui, “COVID-19: Development of a robust mathematical model and simulation package with consideration for ageing population and time delay for control action and resusceptibility,” *Physica D: Nonlinear Phenomena*, vol. 411, p. 132599, 2020. DOI: 10.1016/j.physd.2020.132599.
- [12] D. Jung, **K. Y. Ng**, E. Frisk, and M. Krysanter, “Combining model-based diagnosis and data-driven anomaly classifiers for fault isolation,” *Control Engineering Practice*, vol. 80, pp. 146–156, 2018. DOI: 10.1016/j.conengprac.2018.08.013.
- [13] L. H. Lee et al., “Sustainable approach to biotransform industrial sludge into organic fertilizer via vermicomposting: A mini-review,” *Journal of Chemical Technology & Biotechnology*, vol. 93, no. 4, pp. 925–935, 2018. DOI: 10.1002/jctb.5490.
- [14] S. J. W. Tang, V. Kalavally, **K. Y. Ng**, C. P. Tan, and J. Parkkinen, “Real-Time Closed-Loop Color Control of a Multi-Channel Luminaire Using Sensors Onboard a Mobile Device,” *IEEE Access*, vol. 6, pp. 54751–54759, 2018. DOI: 10.1109/ACCESS.2018.2872320.
- [15] J. H. T. Ooi, C. P. Tan, S. Nurzaman, and **K. Y. Ng**, “A Sliding Mode Observer for Infinitely Unobservable Descriptor Systems,” *IEEE Transactions on Automatic Control*, vol. 62, no. 7, pp. 3580–3587, 2017. DOI: 10.1109/TAC.2017.2665699.
- [16] S. Tang, V. Kalavally, **K. Y. Ng**, and J. Parkkinen, “Development of a prototype smart home intelligent lighting control architecture using sensors onboard a mobile computing system,” *Energy and Buildings*, vol. 138, pp. 368–376, 2017. DOI: 10.1016/j.enbuild.2016.12.069.

- [17] J. Y. Ng, C. P. Tan, H. Trinh, and **K. Y. Ng**, “A common functional observer scheme for three systems with unknown inputs,” *Journal of the Franklin Institute*, vol. 353, no. 10, pp. 2237–2257, 2016. DOI: 10.1016/j.jfranklin.2016.03.020.
- [18] J. Y. Ng, C. P. Tan, **K. Y. Ng**, and H. Trinh, “New results in common functional state estimation for two linear systems with unknown inputs,” *International Journal of Control, Automation and Systems*, vol. 13, no. 6, pp. 1538–1543, 2015. DOI: 10.1007/s12555-014-0315-x.
- [19] J. H. T. Ooi, C. P. Tan, and **K. Y. Ng**, “State and Fault Estimation For Infinitely Unobservable Descriptor Systems Using Sliding Mode Observers,” *Asian Journal of Control*, vol. 17, no. 4, pp. 1458–1461, 2015. DOI: 10.1002/asjc.1033.
- [20] C. Y. Kee, C. P. Tan, **K. Y. Ng**, and H. Trinh, “New results in robust functional state estimation using two sliding mode observers in cascade,” *International Journal of Robust and Nonlinear Control*, vol. 24, no. 15, pp. 2079–2097, 2014. DOI: 10.1002/rnc.2973.
- [21] **K. Y. Ng**, C. P. Tan, and D. Oetomo, “Disturbance decoupled fault reconstruction using cascaded sliding mode observers,” *Automatica*, vol. 48, no. 5, pp. 794–799, 2012. DOI: 10.1016/j.automatica.2012.02.005.
- [22] **K. Y. Ng**, C. P. Tan, R. Akmeliawati, and C. Edwards, “Disturbance decoupled fault reconstruction using sliding mode observers,” *Asian Journal of Control*, vol. 12, no. 5, pp. 656–660, 2010. DOI: 10.1002/asjc.231.
- [23] **K. Y. Ng**, C. P. Tan, Z. Man, and R. Akmeliawati, “New results in disturbance decoupled fault reconstruction in linear uncertain systems using two sliding mode observers in cascade,” *International Journal of Control, Automation and Systems*, vol. 8, no. 3, pp. 506–518, 2010. DOI: 10.1007/s12555-010-0303-8.
- [24] **K. Y. Ng**, C. P. Tan, C. Edwards, and Y. C. Kuang, “New results in robust actuator fault reconstruction for linear uncertain systems using sliding mode observers,” *International Journal of Robust and Nonlinear Control*, vol. 17, no. 14, pp. 1294–1319, 2007. DOI: 10.1002/rnc.1170.

Publications: Peer-Reviewed Conference Articles

- [1] S. Wucherer, R. McMurray, **K. Y. Ng**, and F. Kerber, “Predicting Maximum Permitted Process Forces for Object Grasping and Manipulation Using a Deep Learning Regression Model,” in *8th IEEE Conference on Control Technology and Applications (CCTA)*, 2024, pp. 669–674. DOI: 10.1109/CCTA60707.2024.10666569.
- [2] N. McCallan, S. Davidson, **K. Y. Ng**, P. Biglarbeigi, D. Finlay, B. L. Lan, and J. McLaughlin, “Rebalancing Techniques for Asynchronously Distributed EEG Data to Improve Automatic Seizure Type Classification,” in *2023 57th Annual Conference on Information Sciences and Systems (CISS)*, 2023, pp. 1–6. DOI: 10.1109/CISS56502.2023.10089669.
- [3] S. Davidson, N. McCallan, **K. Y. Ng**, P. Biglarbeigi, D. Finlay, B. L. Lan, and J. McLaughlin, “Epileptic Seizure Classification Using Combined Labels and a Genetic Algorithm,” in *2022 IEEE 21st Mediterranean Electrotechnical Conference (MELECON)*, 2022, pp. 430–435. DOI: 10.1109/MELECON53508.2022.9843099.
- [4] S. Davidson, N. McCallan, **K. Y. Ng**, P. Biglarbeigi, D. Finlay, B. L. Lan, and J. McLaughlin, “Seizure Classification Using BERT NLP and a Comparison of Source Isolation Techniques with Two Different Time-Frequency Analysis,” in *2022 IEEE Signal Processing in Medicine and Biology Symposium (SPMB)*, 2022, pp. 1–7. DOI: 10.1109/SPMB55497.2022.10014769.
- [5] N. McCallan, S. Davidson, **K. Y. Ng**, P. Biglarbeigi, D. Finlay, B. L. Lan, and J. McLaughlin, “Seizure Classification of EEG based on Wavelet Signal Denoising Using a Novel Channel Selection Algorithm,” in *2021 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC)*, 2021, pp. 1269–1276.
- [6] **K. Y. Ng**, E. Frisk, and M. Krysander, “Design and Selection of Additional Residuals to Enhance Fault Isolation of a Turbocharged Spark Ignited Engine System*,” in *2020 7th International Conference on Control, Decision and Information Technologies (CoDIT)*, vol. 1, 2020, pp. 76–81. DOI: 10.1109/CoDIT49905.2020.9263792.
- [7] N. McCallan, D. Finlay, P. Biglarbeigi, G. Perpiñan, M. Jennings, **K. Y. Ng**, J. McLaughlin, and O. Escalona, “Wearable Technology: Signal Recovery of Electrocardiogram From Short Spaced Leads in the Far-Field Using Discrete Wavelet Transform Based Techniques,” in *2019 Computing in Cardiology (CinC)*, 2019, pp. 1–4. DOI: 10.23919/CinC49843.2019.9005868.
- [8] P. Biglarbeigi, D. McLaughlin, K. Rjoob, Abdullah, N. McCallan, A. Jasinska-Piadlo, R. Bond, D. Finlay, **K. Y. Ng**, A. Kennedy, and J. McLaughlin, “Early Prediction of Sepsis Considering Early Warning Scoring Systems,” in *2019 Computing in Cardiology (CinC)*, 2019, pp. 1–4. DOI: 10.23919/CinC49843.2019.9005630.
- [9] D. Jung, **K. Y. Ng**, E. Frisk, and M. Krysander, “A combined diagnosis system design using model-based and data-driven methods,” in *2016 3rd Conference on Control and Fault-Tolerant Systems (SysTol)*, 2016, pp. 177–182. DOI: 10.1109/SYSTOL.2016.7739747.
- [10] W. J. Lee, **K. Y. Ng**, C. L. Tan, and C. P. Tan, “Real-time face detection and motorized tracking using ScicosLab and SMCube on SoC’s,” in *2016 14th International Conference on Control, Automation, Robotics and Vision (ICARCV)*, 2016, pp. 1–6. DOI: 10.1109/ICARCV.2016.7838614.
- [11] S. J. W. Tang, **K. Y. Ng**, V. Kalavally, and J. Parkkinen, “Closed-loop color control of an RGB luminaire using sensors onboard a mobile computing system,” in *2016 IEEE Student Conference on Research and Development (SCOREd)*, 2016, pp. 1–5. DOI: 10.1109/SCOREd.2016.7810062.

- [12] W. C. Chew, **K. Y. Ng**, and B. H. Khoo, "ReCon-AVe: Remote Controlled Automobile Vehicle for Data Mining and Analysis," in *2015 IEEE 39th Annual Computer Software and Applications Conference*, vol. 2, 2015, pp. 569–574. DOI: 10.1109/COMPSAC.2015.170.
- [13] S. J. W. Tang, **K. Y. Ng**, B. H. Khoo, and J. Parkkinen, "Real-Time Lane Detection and Rear-End Collision Warning System on a Mobile Computing Platform," in *2015 IEEE 39th Annual Computer Software and Applications Conference*, vol. 2, 2015, pp. 563–568. DOI: 10.1109/COMPSAC.2015.171.
- [14] **K. Y. Ng**, C. P. Tan, and D. Oetomo, "Enhanced fault reconstruction using cascaded sliding mode observers," in *2012 12th International Workshop on Variable Structure Systems*, 2012, pp. 208–213. DOI: 10.1109/VSS.2012.6163503.
- [15] C. Fernandes, **K. Y. Ng**, and B. H. Khoo, "Development of a convenient wireless control of an autonomous vehicle using apple iOS SDK," in *TENCON 2011 - 2011 IEEE Region 10 Conference*, 2011, pp. 1025–1029. DOI: 10.1109/TENCON.2011.6129266.
- [16] **K. Y. Ng** and C. P. Tan, "New results in disturbance decoupled fault reconstruction in linear uncertain systems using two sliding mode observers in cascade," in *7th IFAC Symposium on Fault Detection, Supervision and Safety of Technical Processes*, vol. 42, 2009, pp. 780–785. DOI: 10.3182/20090630-4-ES-2003.00128.
- [17] **K. Y. Ng**, C. P. Tan, R. Akmeliawati, and C. Edwards, "Disturbance Decoupled Fault Reconstruction using Sliding Mode Observers," in *17th IFAC World Congress*, vol. 41, 2008, pp. 7215–7220. DOI: 10.3182/20080706-5-KR-1001.01221.
- [18] **K. Y. Ng**, C. P. Tan, C. Edwards, and Y. C. Kuang, "New result in robust actuator fault reconstruction with application to an aircraft," in *2007 IEEE International Conference on Control Applications*, 2007, pp. 801–806. DOI: 10.1109/CCA.2007.4389331.
- [19] **K. Y. Ng**, C. P. Tan, and R. Akmeliawati, "Tolerance towards sensor failures: an application to a double inverted pendulum," in *Third IEEE International Workshop on Electronic Design, Test and Applications (DELTA'06)*, 2006, 6 pp.–434. DOI: 10.1109/DELTA.2006.92.

Publications: Book Chapters

- [1] M. M. M. Islam, J. I. Emon, **K. Y. Ng**, A. Asadpour, M. M. R. A. Aziz, M. L. Baptista, and J.-M. Kim, "Artificial intelligence in smart manufacturing: Emerging opportunities and prospects," in *Artificial Intelligence for Smart Manufacturing and Industry X.O*. Springer Nature Switzerland, 2025, pp. 9–36. DOI: 10.1007/978-3-031-80154-9_2.

Publications: Technical Report and Thesis

- [1] **K. Y. Ng**, "Design and Development of a Simulation Environment and a Fault Isolation Scheme on a Volvo VEP4 MP Engine," Research and Development Centre, Volvo Car Corporation, Gothenburg, Sweden, Tech. Rep., 2015.
- [2] **K. Y. Ng**, "Advancements in robust fault reconstruction using sliding mode observers," Ph.D. dissertation, Monash University, 2009. DOI: 10.4225/03/587c001b22509.

Grants and Funding (Total >GBP6.5mil)

- 2024 PI, GBP 233,379, DfE Higher Education Research Capital Fund (HERC), *Multi-Agent Robotics Centre (MARC)*
- 2024 PI, GBP 49,666, EPSRC Innovation Launchpad Network+ (ILN+) Researcher in Residence Scheme (RiR) *Empowering Green Futures: Developing Energy Mapping Digital Twin Technology for Sustainable Wind Turbine Energy in NI*
- 2024 Co-I, GBP 29,000, InterTrade Ireland Innovation Boost, Industrial Partner: ARQ Reliability
- 2024 PI, GBP 214,060, Innovate UK: Knowledge Transfer Partnerships (KTP), Industrial Partner: Elite Electronic Systems Ltd
- 2024 Co-I, GBP 21,450, Garfield Weston Trust (GWT), *Showcasing and Empowering Women in STEM*
- 2023 Co-I, GBP 782,502, EPSRC, *Multi-User Vector Network Analysis (VNA) Facility Core Equipment*
- 2020 Co-I, MYR 980,000, Monash University Malaysia-ASEAN Sustainable Development Research Grant Scheme *Genomic variations and association study of agronomic traits in Malaysia, Myanmar and Thailand weedy rice (Oryza sativa L.)*
- 2019 Co-I, GBP 18,750, InterTradeIreland FUSION, Industrial Partner: TERRA NutriTECH
- 2018 Co-I, GBP 4,889,812, EPSRC, *SAFEWATER*
- 2018 PI, GBP 934.45, Erasmus+ Staff Mobility Programme, Academic Partner: Tech. Uni. of Applied Sciences Augsburg, Germany
- 2018 PI, GBP 500, NVIDIA GPU Grant Programme
- 2015 Co-I, SEK 960,000, Volvo Cars, Gothenburg, Sweden *Design and Development of a Simulation Environment and a Fault Isolation Scheme on a VEP4 Engine*
- 2015 Co-I, MYR 127,000, Fundamental Research Grant Scheme, Ministry of Higher Education, Malaysia *Towards a Model Synthesis Framework for Conceptual Modeling of Cyber-Physical Systems*
- 2014 Co-I, MYR 93,200, Fundamental Research Grant Scheme, Ministry of Higher Education, Malaysia *A New Mathematical Framework for Smooth Curve Generation with Direct Incorporation of Uncertainties*
- 2014 Co-I, MYR 168,000, EScienceFund, Ministry of Higher Education Malaysia *Design And Development of a Novel Ankle Rehabilitation Robot using Shape Memory Alloy Actuator*
- 2013 PI, MYR 50,000, ItraMAS Corporation Malaysia, *Mobile Control of Intelligent Lighting Systems*
- 2012 PI, MYR 55,000, Monash University Malaysia Internal Grant *Application of Sliding Mode Observer for Fault Diagnosis on a Robotic System*

- 2012 Co-I, MYR 50,000, Exploratory Research Grant Scheme, Ministry of Higher Education Malaysia
Working Model of a Parallel Pneumatic Regenerative Braking/Launch Assist for Light Motor Vehicles
- 2010 Co-I, MYR 30,000, Fundamental Research Grant Scheme, Ministry of Higher Education, Malaysia
Development of Common Observer Schemes Using Sliding Mode Techniques for Robust State Estimation and FDI
- 2010 Co-I, MYR 10,000, Fundamental Research Grant Scheme, Ministry of Higher Education, Malaysia
Effects of Noise Generation, Vibration and Model Size Reduction on TRSC in Solving Vehicle Noise Problems
- 2010 PI, MYR 35,000, Monash University Malaysia Internal Grant
Embedded Mathematical, Simulation and Control Application on Mobile Computing Platform

*GBP1 \approx MYR5.46, SEK13.64 as of January 7, 2025

Editorial Boards and Organising Committee of Conferences

- 2018–present *IEEE Access*, Associate Editor
- 2020–present *IEEE TechRxiv*, Moderator
- 2020–present *PeerJ Computer Science*, Editor
- 2024 *IEEE Signal Processing in Medicine and Biology Symposium (SPMB 2024)*, Technical Program Chair
- 2024 *The 8th IEEE Conference on Control Technology and Applications (CCTA 2024)*, Workshop Chair and Session Chair
- 2024 *The 35th Irish Signals and Systems Conference (ISSC 2024)*, Programme Committee and Session Chair
- 2023 *IEEE Signal Processing in Medicine and Biology Symposium (SPMB 2023)*, Technical Program Chair
- 2022–2023 *AIMS Mathematics*, Lead Guest Editor — SI on “Fault Diagnosis: Mathematical Models, Algorithms, & Application”
- 2022 *IEEE Signal Processing in Medicine and Biology Symposium (SPMB 2022)*, Program Chair and Lecture Chair
- 2020 *7th International Conference on Control, Decision and Information Technologies (CoDIT’20)*, Prog. Comm. Member
- 2020 *International Conference on Recent Innovations in Engineering and Technology (ICRIET-20)*, Prog. Comm. Member
- 2012 *International Conference on Intelligent Robotics, Automation and Manufacturing (IRAM 2012)*, Co-Chair of Reg.

Invited Lectures, Seminars, and Workshops

- 2024 “Digital Twin of a Vehicular Engine for Fault Diagnosis”
Intelligent Systems Research Centre (ISRC), Ulster University, UK
- 2024 “Digital Twin of a Vehicular Engine as a Simulation Environment Platform for Fault Diagnosis”
Workshop, *The 8th IEEE Conference on Control Technology and Applications (CCTA)*, UK
- 2022 “Understanding Transmission Dynamics of Infectious Diseases Using Complex Networks”
School of Engineering, University of Warwick, UK
- 2020 “Engineering in Medical and Healthcare”
School of Mechanical, Aerospace and Automotive Engineering, Coventry University, UK
- 2019 “A Realistic Simulation Testbed of A Vehicular Engine System”
School of Engineering Research Seminar Series, Ulster University, UK
- 2019 Panel Discussion on “Robots and Automated Systems”
IET NI Robotics League, Ulster University, UK
- 2018 “A Turbocharged Petrol Engine System as a Simulation Benchmark Model for Fault Diagnosis”
Faculty of Electrical Engineering, Technical University of Applied Sciences Augsburg, Germany
- 2018 “Design and Development of A Fault Isolation Scheme on A Vehicular Engine System”
Faculty of Electrical Engineering, Technical University of Applied Sciences Augsburg, Germany
- 2017 “Beyond Calls and Games: Utilising The Full Potentials of Smartphones”
TEDx Sunway University: The Untold Ideas, Malaysia
- 2016 “Design and Development of a Simulation Environment for Fault Isolation on an Engine System”
Centre for Automotive Research, National University of Malaysia, Malaysia
- 2015 “Using a Smartphone Monoscopic Camera for Real-Time Lane Detection and Rear-End Collision Warning”
Machine Vision and Pattern Recognition Laboratory (MVPR), Lappeenranta University of Technology, Finland
- 2015 “Real-Time Lane Detection and Rear-End Collision Warning System on A Mobile Computing Platform”
Computer Science School of Computing, University of Eastern Finland, Finland
- 2014 “Robust Fault Diagnosis Using Sliding Mode Observers”
Division of Vehicular Systems, Linköping University, Sweden
- 2014 “Robust Fault Reconstruction Using SMOs and Real-Time Image Processing on A Mobile Device”
Department of Electrical, Electronic and Systems Engineering, National University of Malaysia, Malaysia
- 2012 “Disturbance Decoupled Fault Reconstruction Using Multiple Sliding Mode Observers”
Department of Telecommunications, Electrical, Robotics and Biomedical Engineering,
Swinburne University of Technology, Australia
- 2011 “Fault Reconstruction Using Sliding Mode Observer: Application to an Aircraft”
National Defence University of Malaysia, Malaysia
- 2010 “Robust Fault Reconstruction Scheme Using Sliding Mode Observers In Cascade”
School of Engineering, Deakin University, Australia

Reviewer for Funding

- 2019–present Newton Funds

Reviewer for International Peer-Reviewed Journals

Automatica (Elsevier)
IEEE Transactions on Industrial Electronics (TIE) (IEEE)
IEEE Transactions on Instrumentation and Measurement (TIM) (IEEE)
IEEE Journal of Biomedical and Health Informatics (JBHI) (IEEE)
IEEE Access (IEEE)
International Journal of Robust and Nonlinear Control (IJRNC) (Wiley)
Control Engineering Practice (CONENGPRAC) (Elsevier)
European Journal of Control (EJCON) (Elsevier)
Asian Journal of Control (AJC) (Wiley)
Computers and Electrical Engineering (COMPELECENG) (Elsevier)
Circuits, Systems and Signal Processing (CSSP) (Springer)
Building Simulation (Springer)
International Journal of Applied and Computational Mathematics (IACM) (Springer)
International Journal of Advanced Robotic Systems (IJARS) (SAGE)
International Journal of Control (IJC) (Taylor & Francis)
Australian Journal of Electrical and Electronics Engineering (AJEEE) (Taylor & Francis)

External PhD Examiner

Deakin University, Australia
Coventry University, UK

Supervision of Graduate Research and Associates

2024–present	Mr Phil Watson (InterTradeIreland Research Associate, Ulster University and ARQ Reliability)
2024–present	Ms Shruthi Kogileru (KTP Associate, Ulster University and Elite Electronic Systems Ltd)
2024–present	Mr Brian Kirch (PhD, Ulster University)
2021–present	Ms Stefanie Wucherer (PhD, Ulster University, Technical University of Applied Sciences Augsburg, and Technology Transfer Center for Flexible Automation in Nördlingen)
2021–present	Mr Will Aston (PhD, Ulster University)
2020–2024	Dr Towfeeq Fairouz (PhD, Ulster University)
2019–2024	Dr Scot Davidson (PhD, Ulster University)
2019–2024	Dr Niamh McCallan (PhD, Ulster University)
2019–2020	Mr Colin Maher (FUSION Project Manager, Ulster University and TERRA NutriTech)
2017–2020	Mr Da Yi Lee (Master's by Research, Monash University)
2015–2018	Mr Leong Hwee Lee (Master's by Research, Monash University)
2015–2018	Mr Samuel Jia Wei Tang (Master's by Research, Monash University)
2012–2016	Dr Jiunn Yea Ng (PhD, Monash University)
2011–2015	Dr Jeremy Hor Teong Ooi (PhD, Monash University)
2010–2014	Dr Chew Yee Kee (PhD, Monash University)
2009–2012	Dr Jen Nee Lim (PhD, Monash University)

Updated: March 6, 2025