



RASSE 2025: PROGRAMME OVERVIEW

DAY 0 (Nov. 4, Tuesday) - Workshop and Tutorials Venue: National Library Building, 100 Victoria Street, #13-01, Singapore 188064		
09:00-17:00	Registration	
10.00-12.00	Workshop 1 – Digital Wellness Framework for Cybersecurity Venue: Classroom 1	Workshop 2 – Designing for Resiliency: A Physical Asset Management Perspective Venue: Classroom 2
12:00- 1330	Lunch and Networking	
13:30-15:00	Tutorial 1 – AI Applications for Worker Health & Safety and the Environment Venue: Boardroom	
15:00-15:30	Tea Break	
15:30-17:00	Panel of Editors Organized by EICs of Systems Journal Chaired by: Professor Amir G. Aghdam Venue: Boardroom	

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Amir G. Aghdam (FIEEE, FEIC) received his Ph.D. degree in Electrical and Computer Engineering from the University of Toronto, Toronto, ON, Canada, in 2000. He is currently a Professor in the Department of Electrical and Computer Engineering at Concordia University, Montreal, QC, Canada, and serves as the Academic Code Administrator in the School of Graduate Studies. He was a Visiting Scholar at Harvard University, Cambridge, MA, in the fall of 2015, and an Associate at the Harvard John A. Paulson School of Engineering and Applied Sciences from September 2015 to December 2016. His research interests include optimization, sensor networks, and distributed control of interconnected systems.

Dr. Aghdam is the Chair of the Conference Editorial Board of the IEEE Control Systems Society and the Editor-in-Chief of the IEEE Systems Journal. He has previously served as an Associate Editor for several IEEE journals, including the IEEE Transactions on Control Systems Technology and IEEE Access. He was a member of the Review Committee for the Italian Research and University Evaluation Agency (2012–2013) and of the Natural Sciences and Engineering Research Council of Canada (NSERC) Electrical and Computer Engineering Evaluation Group (2014–2016). From 2014 to 2015, Dr. Aghdam served as President of IEEE Canada and Director (Region 7) of IEEE, Inc., and was also a member of the IEEE Awards Board during this period. He has served on several IEEE committees, including the IEEE Medal of Honor Committee and the IEEE Member and Geographic Activities (MGA) Awards and Recognition Committee. Dr. Aghdam is a Distinguished Lecturer of IEEE, a Fellow of both the IEEE and the Engineering Institute of Canada (EIC), and the recipient of the 2020 IEEE Canada J.M. Ham Outstanding Engineering Educator Award. He was the 2022–2023 Chair of the IEEE Medals Council.



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DAY 1 (Nov. 5, Wednesday) – Inauguration, Keynote and Research Tracks Venue: National Library Building, 100 Victoria Street, #13-01, Singapore 188064			
08:30-09:00	Registration		
09:00-09:15	Welcome Address by IEEE President-Elect, Mary Ellen Randell		
09:15-09:30	Opening Address by Honorary Chair, Professor Abhishek Bhati		
09:30-10:00	Tea Break		
10:00-11:30	Keynote Lecture 1 - Professor Xie Min Title of Talk - Systems Safety and Reliability in the era of AI		
	Keynote Lecture 2 - Professor Yeo Kiat Seng Title of Talk: AI x IC: The Next Interdisciplinary Frontier		
	Keynote Lecture 3 - Professor Bai Chunguang Title of Talk: The Multidimensional Impact of Artificial Intelligence on Sustainable Supply Chain Performance		
11:30-13:00	Lunch and Networking		
13:00-15:00	<u>Paper Session 1.1</u> Artificial Intelligence and Machine Learning I Classroom 1	<u>Paper Session 1.2</u> Artificial Intelligence and Machine Learning II Classroom 2	<u>Paper Session 1.3</u> Robotics, Automation and Control Systems Boardroom
15:00-15:30	Tea Break		
15:30-17:30	<u>Paper Session 1.4</u> Generative Artificial Intelligence Classroom 1	<u>Paper Session 1.5</u> Emerging Technologies Classroom 2	<u>Paper Session 1.6</u> Renewable Energy, Drone and Electric Vehicles Boardroom

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Keynote Lecture 1

Title - Systems Safety and Reliability in the era of AI

Speaker: Professor Xie Min

Venue: Classroom 1 and 2

Time: 10:00 to 10:30 (SG time)

Biography:



Prof Xie is the Chair Professor, Department of Systems Engineering from City University of Hongkong (CUHK). He has published over 300 journal papers and 100 conference papers. He is an academican of the European Academy of Sciences and Arts, and a Fellow of IEEE. Prof Xie serves as editor, associate editor, and on the editorial board of over 15 international journals. He has served as conference chair in several conferences and delivered keynote speeches at many others. Prof Xie served as Program Manager for MSC(ISE) program for many years at National Univ of Singapore, and also as Associate Head (ISE) 2009-2011 there. He was Acting Head (SEEM at CityU) during fall of 2011. He also served as Associate Dean (Internationalization) at CityU's College of Science and Engineering from 2016-2020. Prof Xie has supervised over 60 PhD students and they are holding various positions in academia, industry, and financial institutions.

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Keynote Lecture 2

Title - AI x IC: The Next Interdisciplinary Frontier

Speaker: Professor Yeo Kiat Seng

Venue: Classroom 1 and 2

Time: 10:30 to 11:00 (SG time)

Biography:



Prof. Kiat Seng YEO, the Founding Associate Provost for International Relations and Graduate Studies at the Singapore University of Technology and Design (SUTD), has 37 years of experience in industry, academia, and consultancy. A world-class expert in CMOS technology and low-power RF/mm-wave IC design, he has published 14 books (4 Amazon Best Sellers), 7 book chapters, 700+ papers, and holds 55 patents. Professor Yeo has secured over S\$70M of research funding as Principal Investigator from various funding agencies and the industry since 2000. He is Fellows of the Singapore National Academy of Science, Singapore Academy of Engineering, Canadian Academy of Engineering (Foreign), ASEAN Academy of Engineering and Technology, AAIA, AIIA, and IEEE. He was conferred both the Public Administration Medal and Long Service Medal on National Day by the President of the Republic of Singapore, Nanyang Alumni Achievement Award by NTU, and ranked among the World's Top 2% Scientists by Stanford University (2020-2025).

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Keynote Lecture 3

Title - The Multidimensional Impact of Artificial Intelligence on Sustainable Supply Chain Performance

Speaker: Professor Bai Chunguang

Venue: Classroom 1 and 2

Time: 11:00 to 11:30 (SG time)

Biography:



Chunguang Bai is currently a Professor in the School of Management and Economics, at the University of Electronic Science and Technology of China. She earned her Ph.D. in Management Science from the Dalian University of Technology. Her research interests include sustainable supply chain management, management of technology, and the natural environment. She has dozens of publications with over 80 papers in journals such as Decision Science, OMEGA, the European Journal of Operational Research. She has over 10000 citations based on Google Scholar. She has been recognized as one of the most cited researchers in China across disciplines by Elsevier and World's Top 2% Scientists 2020 by Mendeley Data. Four of her papers are some of highest cited in ten years (ESI index). She served as a visiting scholar at the Georgia Institute of Technology and Temple University in the U.S., and at Concordia University in Canada. Her research has been funded by several National Science Foundation of China grants. She served as technical committees Technology for Social Good for IEEE TEMS. Organize a special issue for the same topic. She collaborates with industry for Low Carbon project. The Low-Carbon Supply Chain initiative integrates digital carbon tracking, green logistics optimization, and renewable energy adoption to build a sustainable, end-to-end supply network, aligning with global ESG goals.



Paper Session 1.1 - Artificial Intelligence and Machine Learning I

Session Chair: Dr Kok Chiang Liang

Venue: Classroom 1

Time: 13:00 to 15:00 (SG time)

- 1571148041 Can Large Language Models Assist with SOTIF Scenario Generation?
- 1571192952 Eduvista: A Web Based System for AI Driven Text Generation and Lip-Synced Video Creation from PPT
- 1571178091 A Stochastic Model Predictive Control Strategy with Belief Reliability Constraints for Cloud Data Centers
- 1571176714 Mitigating Overfitting in Fine-Pattern Quality Classification: Enabling Automated Projection Image Quality Inspection
- 1571160258 Federated Learning Framework with Major Events for Inventory Risk Management
- 1571185256 Processing Time Reduction for Face Identification Systems Using Hyperspectral Data
- 1571153015 Design and Development of an Open-Source Toolkit for Quantum Machine Learning

Paper Session 1.2 - Artificial Intelligence and Machine Learning II

Session Chair: Dr Teo Tee Hui

Venue: Classroom 2

Time: 13:00 to 15:00 (SG time)

- 1571192083 Element and Everything Tokens: Two-Tier Architecture for Mobilizing Alternative Assets
- 1571189326 AI Agent Architecture for Decentralized Trading of Alternative Assets
- 1571157827 Generative AI Performance with DeepSeek: Key Service Quality Attributes from Users
- 1571195045 Generative AI Adoption and Organizational Performance Evaluation: Insights from Strategic Management Frameworks
- 1571175183 MSOD - a Small Obstacle Detection Network for Open-Pit Mining Areas
- 1571154734 Dynamic Matrix Headlight Illumination Strategy for Robust Object Detection in Automated Vehicles
- 1571160859 Data-Driven Incremental Approximate Dynamic Programming for Optical Flow Landing Control
- 1571195120 Comparative Analysis of Machine Learning and Neural Network Models for Predicting Perceptual Ratings of Amplitude Modulation in Wind Farm Noise



Paper Session 1.3 - Robotics, Automation and Control Systems

Session Chair: A/Prof Koh Yit Yan

Venue: Boardroom

Time: 13:00 to 15:00 (SG time)

- 1571193726 From Raw Data to Informed Insight: Conflict Risk Using Macroeconomic and Governance Indicators
- 1571159833 Integrating Synthetic Vision Systems with Mixed Reality: Enhancing Pilot Situational Awareness Through HoloLens 2 in Critical Flight Scenarios
- 1571176525 Immersive Eco-Learning with Virtual Simulations for Organic Agriculture Education Learning
- 1571182783 Corporate Social Responsibility Activity and Reporting in Singapore Hospitality Sector
- 1571187163 A New Systematic Literature Review Approach Using Rayyan and Copilot on Apps Used by Persons with Special Needs
- 1571134986 Quantum Machine Learning System for Telesurgery Practice with Extended Reality
- 1571192079 Optimizing the Ground Settlement Monitoring Through a Conceptual Framework

Paper Session 1.4 – Generative Artificial Intelligence

Session Chair: Dr Kok Chiang Liang

Venue: Classroom 1

Time: 15:30 to 17:30 (SG time)

- 1571163527 The Future of Work: AI and Automation
- 1571170610 A Comprehensive Analysis of Parallel Transportation Systems: Concepts, Architectures, Technical Models and Applications
- 1571161421 Speech Recognition and Enhancement Using Artificial Intelligence
- 1571161428 Optimizing Energy Efficiency in Multi Core System Through AI Predictive Maintenance and Resource Management
- 1571162030 AI-Driven Sustainable Product Design: Balancing Innovation and Environmental Impact
- 1571163525 Harnessing Grid-Scale Energy Storage for Renewable Energy Integration: Case Studies of Flow Batteries and Compressed Air Energy Storage
- 1571162028 Harnessing AI for Smart Healthcare: Innovations and Challenges in Modern Healthcare
- 1571161714 Technological Innovations and Market Dynamics: Evaluating the Future of Electric Vehicles
- 1571168533 Autonomous Systems in Industry 5.0 Revolutionizing Efficiency, Collaboration and Sustainability
- 1571172336 Performance Evaluation of Photovoltaic Configurations in Malaysian Agrivoltaics Systems
- 1571163530 Transforming Aviation: Service Innovations and Technical Pathways for Sustainable Aviation Fuel Implementation
- 1571168507 Addressing the Impact of Different Solar Power Farms to the Environment and Its Challenges and Economic Benefits



Paper Session 1.5 – Emerging Technologies

Session Chair: A/Prof Charles CC Lee

Venue: Classroom 2

Time: 15:30 to 17:30 (SG time)

- 1571178365 Towards Automation of Apron Services: A Theoretical Framework for Determining Equipment Requirements in Manipulator Design
- 1571154631 Cyber-Aware Functional Allocation for Multi-Criticality Systems
- 1571189468 A Graph-Based Dependency Analysis Method for Identifying Critical Components in Distributed Publish-Subscribe Systems
- 1571171863 24 Reasons for the Failure of Integrative and Integrated Product and Production System Development Methods
- 1571160872 Design, Implementation, and Performance Analysis of a Dual-Receiver Coil for EV with Variable Output Voltages and Multi-Mode Operation
- 1571154969 Development of a Wheeled Quadruped Robot for Rough Terrains
- 1571146566 A Comprehensive Data Model for Resilience Assessment in Industrial Production Systems
- 1571146582 A Software Architecture for the Application of Chaos Engineering in Reinforcement Learning-Based Production Scheduling
- 1571185988 From Requirements to Certification: A Framework for Compliant Software Update Management System Implementation in the Automotive Industry

Paper Session 1.6 – Renewable Energy, Drone and Electric Vehicles

Session Chair: A/Prof Koh Yit Yan

Venue: Boardroom

Time: 15:30 to 17:30 (SG time)

- 1571194976 FedTransAQP: Federated Transformers for Air Quality (PM2.5, PM10, O3) Prediction Across Multiple Cities
- 1571160860 Integrated Electric Drive and Wireless Charging Architecture for Electric Vehicles
- 1571160883 Evaluation of Network RTK and Post-Processed Loosely and Tightly Coupled GNSS/IMU Solutions in Vehicle Dynamics
- 1571164613 Smart Testing for Smart Vehicles: Conditional Regression Strategies for Software Updates
- 1571191489 Towards Reliable Solar Energy: Deep Learning-Based Hot Spot Identification and Mitigation of PV Module
- 1571173791 A Study on Microgrid System Planning for Convenience Stores Considering Energy Storage Dispatch Potential
- 1571164441 Exploring Small Hydropower Potential Sites Based on GIS
- 1571188424 Power Estimation Framework for Power Consumption Analysis of SoC with Multiple Operating Modes and Supply Domains
- 1571177412 Performance Comparison of a Permanent Magnet Synchronous Motor Drive by Hydrogen Fuel Cell Stack and Battery



RASSE 2025: INDUSTRY FORUM (Draft)

DAY 2 (Nov. 6, Thursday) – Industry Forum 20th Anniversary Celebrations Venue: Bugis Junction Tower, 230 Victoria St, #04-09/10, Singapore 188024	
	Theme: Powered by IEEE Entrepreneurship 1. Accelerating Innovation for a Sustainable Future 2. Pioneering the Digital Frontier: Metaverse, Web3.0, and Beyond 3. The Next Computing Revolution: New Compute and Biomedical Breakthroughs 4. Navigating the Ethical and Social Landscape of EDT Adoption
08:30-09:00 (30 mins)	Welcoming Remark (10 mins) – Honorary Chair, Professor Abhishek Bhati Pro Vice-Chancellor and Chief Executive Officer, Newcastle Australia Institute of Higher Education
	Industry Forum Opening (10 mins) – Andy Chen IEEE System Council President
	MOU Signing Between IEEE System Council (Andy Chen) and IEEE Photonics Society (Perry Shum) (10 mins)
09.00-10.00 (60 mins)	Keynote Talk 1 (30 mins)- Stephen Ibaraki REDDS Capital, Canada
	Keynote Talk 2 (30 mins)- Mary Ellen Randall President-Elect, IEEE
10:00-10:15	Coffee break (15 mins)
10:15-11:45 (90 mins)	Expert Panel 1 – IEEE AND ENTREPRENEURSHIP Keynote (30 mins): Mohamed El Dallal, IEEE Entrepreneurship Chair Moderator – Ravikiran Panelist 1 – Mary Ellen Randall, 2025 IEEE President-Elect Panelist 2 – Mohamed El Dallal, 2025 Chair, IEEE Entrepreneurship Panelist 3 – Stephen Ibaraki, REDDS Capital, Canada Panelist 4 – Andy Chen, IEEE System Council President



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11:45-13:30	Lunch	
13.30-14.00	Keynote Talk 3- Dalma Novak Vice President, IEEE Technical Activities	
14:00-15:30 (90 mins)	Expert Panel 2 – ENTREPRENEURSHIP ECOSYSTEM Keynote (30 mins): 2025 IEEE Humanitarian Technologies Board (HTB) Chair, Grayson Randall, “Humanitarian Technologies and GenAI for Good.” Moderator – Bruno lafelice Panelist 1 – IEEE Photonics Society President, Perry Shum Panelist 2 – IEEE Computer Society President, Hironori Washizaki Panelist 3 – IEEE TEMS President-Elect, Sudeendra Koushik Panelist 4 – IEEE Entrepreneurship, Immediate Past Chair, Joanne Wong	
15:30-15:45	Coffee break (15 mins)	
15:45-17:30 (105 mins)	Expert Panel 3 – ENTREPRENEURSHIP BEST PRACTISES Keynote (30 mins): Sudeendra Koushik, President Elect, IEEE TEMS Moderator – Bernard Lim Panelist 1 – SG Innovate Panelist 2 – Black Sesame Technologies (Singapore) Pte Ltd, Dr Xu Jin, General Manager Panelist 3 – Founder of Motion G, and Co-founder of GoVeda, Panelist 4 – Airgorithm, Co-founder & CEO, Lee Ting Ying Panelist 5 – InvoSystems Solutions Pte Ltd, Managing Director, Mr. Bhaskaran S.,	
18.00-19.00	Welcome reception	Venue: Mercure Hotel
19.00-21.00	20th Anniversary Celebrations + Conference Banquet	Venue: Mercure Hotel



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DAY 3 (Nov. 7, Friday) – Research Focus and Special Tracks IEEE Systems Council AdCom Meetings Venue: National Library Building, 100 Victoria Street, #13-01, Singapore 188064			
9.30-17.00 OPS Manager	Special Session IEEE Systems Council Meetings (Invitations Only)		
9:30-10:30	<u>Paper Session 3.1</u> Antenna and Communication Classroom 1	<u>Paper Session 3.2</u> Medical, Healthcare and Clean Energy Classroom 2	IEEE Entrepreneurship Session Boardroom
10:30-11:30			YP Forum - YP Chair Boardroom
11:30-13:00	Lunch		System Women in Engineering Boardroom
13:00-15:00	<u>Paper Session 3.3</u> IoT, Security and Privacy Classroom 1		IEEE Systems Council Adcom Meeting Boardroom
15:00-15:30	Tea Break		
15:30-17:30			IEEE Systems Council Adcom Meeting Boardroom



Paper Session 3.1 – Antenna and Communication

Session Chair: Dr Kok Chiang Liang

Venue: Classroom 1

Time: 9:30 to 11:30 (SG time)

- 1571153711 Evaluation of an Integrated 5G Communications Architecture for UAV Control in a Multi-Link Network
- 1571155454 Trust Region Framework Based Optimization of Double T-Shaped Monopole Antennas
- 1571158008 Feasibility, Applicability, and Training of Generative Artificial Intelligence (Gen-AI) for Fixed RAIN (UHF) RFID Antenna Systems Integration
- 1571172543 Machine Learning-Based Prediction of Antenna Gain and S11 Using Regression Models: A Case Study on Y-Shaped Microstrip Patch Antenna Design
- 1571160946 Compress, Encode, Diagnose: PCA-Enhanced QNNs for Breast Cancer Classification
- 1571191182 Smart RFID Reader Antennas: A Review of Disconnects Between the Commercials and State-of-the-Art

Paper Session 3.2 – Medical, Healthcare and Clean Energy

Session Chair: A/Prof Charles CC Lee

Venue: Classroom 2

Time: 9:30 to 11:30 (SG time)

- 1571147511 A Modular Predictive System for Modeling Financial Toxicity in Patients Receiving Complex Gastrointestinal Surgery
- 1571184031 Integrating Human Feedback and Unsupervised Fine-Tuning in Open-Domain Short Answer Grading: A Scalable HITL Architecture
- 1571159480 Using EAST to Develop Design Recommendations for a Context-Dependent Energy Support System
- 1571153260 A Deep Reinforcement Learning Framework for Real-Time Vehicle Routing with Dynamic Traffic Conditions
- 1571153719 Resilience of Data Distribution Service (DDS) Under Simulated Cyber Threats in an Unmanned Systems Network
- 1571177858 Optimizing Receiver Eye Margin Through PVT-Invariant VREF Training Range for Die-to-Die and Other Parallel Interconnects



Paper Session 3.3 – System Engineering Design

Session Chair: A/Prof Koh Yit Yan

Venue: Classroom 1

Time: 13:00 to 15:00 (SG time)

- 1571148247 Implementation of a Web-Based Support Platform for Validation Using System Architecture in the B2B Sector
- 1571149562 Evolving Modularity: Rethinking Architecture in Product and Organizational Systems
- 1571182671 ARTEMIS - Adaptive Response and Tracking of External Model Inputs in Safety-Critical Systems
- 1571169142 A Proposed Fault-Tolerant Approach to BPMN Workflow Migration Amidst Updates Failures
- 1571160973 Scalable Quantum Network Simulation with Non-Markovian Noise and Batch Optimized Parallel Scheduling
- 1571217619 Advanced SOC and SOH Estimation in Lithium-Ion Batteries Using AI-Integrated Embedded Platforms



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DAY 4 (Nov. 8 Saturday) – Global Chapter Chairs Summit IEEE Systems Council AdCom Meetings Venue: National Library Building, 100 Victoria Street, #13-01, Singapore 188064		
9.30-12:00 OPS Manager	Special Session IEEE Systems Council Meetings (Invitations Only) Boardroom	
12:00-13:00	Lunch	
13:30-17:30 Loretta	Special Session Global Chapter Chairs Summit (Invitations Only) Boardroom	