



9TH IET SMART CITIES SYMPOSIUM 2025

1-3 DECEMBER 2025

HYBRID EVENT -WITH VIRTUAL ACCESS SYMPOSIUM

UNIVERSITY OF BAHRAIN

TECHNICAL SUPPORT:

THE INSTITUTION OF ENGINEERING AND TECHNOLOGY

FULL-PAPER REVIEWED MANUSCRIPTS SUBMISSIONS.

Symposium Proceedings will be submitted to the IET Inspec, IEEE Xplore, and Scopus Elsevier's for indexing, once meeting the IET publication standards.

DISTINGUISHED CONTENTS WILL ALSO BE EXAMINED BY IET FOR POSSIBLE SUBMISSION TO IET JOURNALS, AFTER SELECTION AND EXTENSION.



TECHNICAL SPONSOR AND SUPPORT



Welcome to the IET 9-SCS-25. An annually run IET symposium related to development of smart innovations for smart cities. The symposium objectives are to create awareness through research and publications about the prospects of smart cities. The symposium also serves as a platform to exchange ideas and thoughts in international prospect and stand. In addition, the symposium is emphasizing the role of academia, universities, industries, experts, and innovations for promoting smart cities solutions, projects, smarter ideas, consultancies and continuity in the form of indexed publications. The 9th IET International Smart Cities Symposium (8-scs-2025) will be held at the University of Bahrain, Bahrain, on December 1-3, 2025. The symposium will feature world-class plenary speakers, major technical symposiums, industry and academic panels, and invited tracks. For more information, please visit symposium website: <https://www.iet-smartcities-symposium.com/>. You are cordially invited to submit your latest research work to the symposium. Best paper awards will be selected from accepted papers. The symposium and tracks papers will be published and indexed in IET Inspec - IEEE Xplore and will appear on other indexing databases.

THE 9TH IET SCS-2025 SYMPOSIUM

SETUP AND PURPOSE

IET TECHNICAL SUPPORT: THE INSTITUTION OF ENGINEERING AND TECHNOLOGY





18 YEARS ... WAY FORWARD AND A SENSE OF A PURPOSE:

The first IET forum at the University of Bahrain has started since 2008. The first IET Smart Systems International Conference was also during 2008. Since the year 2008, we have been organizing the local IET forums and then indexed Symposiums in an annual basis at University of Bahrain.

As annually planned, also this year of 2025, the University of Bahrain; 9th Smart Cities Symposium (1-3 December 2025) is also organized with collaboration of the IET, (The Institution of Engineering and Technology), UK.

Smart Cities is a new and emerging concept that have received a substantial attention for a while. This is because of the fast development of Engineering Concepts, IT and ICT sectors. Smart cities are a used term used to define employment of smart technologies and data as the means to solve cities' sustainability challenges and prosper. In this sense, many cities are in the process of transforming themselves to be smart. This can be achieved while relying on and using data and technology to improve several sectors. Sectors that are applicable for such transformations are:

{Transport, Energy use, Health issues, Health care, and Air quality, or to Drive economic growth}. Others are being built to be smart from the start. This is a term that relates to the present and to the future. Nevertheless, in general notion, cities world-wide consume substantial resources and global energy supply, which make them much under demand to be transformed to smart. Reports are also showing that, there are growing numbers of the world's natural resources, global energy supply, healthcare issues, the need of fast and easy transports, and easy health care. In addition, over the coming twenty years, it is expected that cities worldwide will generate not less than 60 per cent of global GDP. In this sense there are potentials that, Engineering and High Technologies will help and participate to resolve several issues and demands of current cities. The regional infrastructure, and the ICT backbone, are developing very fast, that makes the concept of smart cities are very applicable concepts locally. Therefore, the event will be an excellent platform and a site for energetic and dynamic discussions between locally demanding parties, possible international experts, and the community of academics, decision makers, researchers, practitioners, real estate developers in Bahrain, investors, and policy makers from the urban spheres. This is all with the aim to explore such emerging trends and innovative solutions to green and smart cities within the region.

The main purpose of the event is to create awareness about the prospects of Smart Cities. The event will serve as a platform to exchange ideas and throughout in an international prospect. The event objectives are also in emphasizing the role of academic institutions in promoting a smarter kingdom via its consultancy, building smarter ideas or continuity in the form of publications, and creating innovative solutions. In addition, such organization of the event, will also focus on networking opportunities, and that the event is a good starting point and could help in making networking opportunities for smart cities. The event venue (the symposium) will be at University of Bahrain, and will run for three days, 1-3 December 2025. The symposium will involve both invited speakers (talking about local needs for smart cities), in addition to academic submitted papers (with review), as they will be published afterward within the IET (once satisfying the needed technical standards of the IET).

The event is also to create awareness about the prospects of Smart Cities. The symposium is a platform to exchange ideas and thoughts in international prospects. The symposium is a platform for emphasizing the role of academia in promoting Smart Cities, Digital Twins of Cities, Projects, Smarter Ideas, and Consultancies. The symposium is a platform for research community in forms of publications and creating innovative solutions.

DETAILED TECHNICAL PROGRAM
AND PARALLEL SESSIONS

DAY -I

MONDAY, DECEMBER 01, 2025

DAY -I: MONDAY, 1ST DECEMBER 2025

KEYNOTE SPEECH: 01:

Monday, 1st December 2025, 09:20+03 - 10:00+03 (Asia/Bahrain)

SMART MARITIME TRANSPORTATION: ICT SOLUTIONS AND DIGITIZATION FOR EFFICIENT AND SUSTAINABLE PORTS AND SHIPPING



Professor, Dr. Michele Fiorini

Ing., MBA, PhD, CEng, FIET, Principal Engineer,
Chartered Engineer at Leonardo SpA, Italy

Session Chair: Dr. Imran Shafique Ansari, MIET, James Watt School of Engineering, UK

MAIN-THEATRE HALL – FOR VIRTUAL ACCESS

TALK ABSTRACT

This presentation will draw upon insights and concepts from my recent IET Transportation Series books, ICT Solutions and Digitalization in Ports and Shipping (2021) and Clean Mobility and Intelligent Transport Systems (2015). The focus will be on how information and communication technologies can address key maritime transport challenges such as reducing waiting times, energy consumption, and emissions, while also improving trade facilitation and contributing to the sustainability objectives of smart cities.

SPEAKER DETAILS: PROFESSOR, DR. MICHELE FIORINI

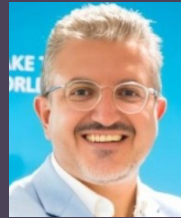
Ing. (Mr) Michele Fiorini, MBA, PhD, CEng, FIET is a principal engineer leading large-scale international projects and cross-cultural teams at Leonardo S.p.A. in Rome, Italy, specializing in maritime transport, smart transportation systems, and digital innovation for sustainable infrastructure. His expertise bridges engineering management, research, and innovation to strengthen cooperation between industry and academia in the domains of smart and connected maritime logistics and transport. Michele is co-editor and co-author of two authoritative IET books in the Transportation Series: Clean Mobility and Intelligent Transport Systems (2015) and ICT Solutions and Digitalisation in Ports and Shipping (2021). His work addresses ICT-enabled strategies to optimize port operations, reduce emissions, and advance sustainable maritime transport as a vital element in integrated smart city ecosystems. He is an Industrial Member of the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) in Paris, contributing to maritime technology standards. Michele has held leadership roles including Chair of the Council at the Institution of Engineering and Technology (IET) in London (2017–2018) and currently chairs the judging panel for the IET Excellence and Innovation Awards, International Award. He also serves on the advisory board of the MBA programme at Gdańsk University of Technology, Poland, blending academic insight with practical industry leadership.

DAY -I: MONDAY, 1ST DECEMBER 2025

KEYNOTE SPEECH: 02:

Monday, 1st December 2025, 10:00+03 - 10:30+03 (Asia/Bahrain)

DATA MINING AND CYBERSECURITY FOR SMART CITIES



Dr. Roy Hachache,

Ph.D. in Computer Sciences, Data mining, Databases, and Administration

Vice Chair – ASIS British Columbia Chapter | Co-Founder, the Lebanese IT Syndicate, Canada

Session Chair: Dr. Suresh Vishwakarma, P.Eng., CEng, MIET, MBA, PhD, PostDoc, Senior Engineer, Vancouver Canada, and IET - Communities Resources Committee Member

MAIN-THEATRE HALL – FOR VIRTUAL ACCESS

TALK ABSTRACT

In this keynote address, he will underscore the urgent need to mitigate (Data Mining/Cybersecurity) and in Computer Science & Telecommunication. The speaker has 25+ years of experience in the information technology, security leadership, and services industry. He has a deep understanding of the latest trends and technologies in data mining, databases, and administration.

SPEAKER DETAILS: DR. ROY HACHACHE

Dr. Roy Hachache is a seasoned global leader with over 25 years of experience in security technologies, smart infrastructure, and digital transformation. Throughout his career, he has managed complex projects and partner ecosystems across 12 countries, delivering strategic growth and innovative solutions across diverse sectors. In his current role as Channel Business Manager at Milestone Systems, Roy leads key initiatives in urban safety and intelligent video technologies, working hand-in-hand with government and enterprise partners to help build safer, smarter cities. His leadership has consistently strengthened partner networks, accelerated regional development, and fostered innovation in city surveillance, mobility, and infrastructure resilience. Roy is also Vice Chair of ASIS International's British Columbia Chapter, ISACA Ambassador, and Co-Founder of The Syndicate—a multidisciplinary forum that unites public and private sector leaders to address critical challenges in cybersecurity, policy, and smart city planning. He holds a Ph.D. in Computer Science, specializing in restructured data mining frameworks and applied cybersecurity, along with a master's in computer science and Telecommunications. Widely recognized for his collaborative and future-focused approach, Roy is a dynamic speaker who bridges technology, governance, and human-centered design to enable sustainable and secure urban innovation.

DAY -I: MONDAY, DECEMBER 1,
PARALLEL SESSIONS

Monday, December 1, 13:00 - 13:30 (Asia/Bahrain)

ZB1: Day-1 - Mid-Day Break

DAY -I: Monday, December 1, 13:30 - 15:30 (Asia/Bahrain):

PARALLEL SESSION 01: SB01: SMART ENVIRONMENTS -PART-B:

Hall A: SESSION JOINING: HALL-A

SESSION CHAIR: DR. RUCHI TYAGI (ADJUNCT ASIAN INSTITUTE OF TECHNOLOGY, EX-SENIOR FACULTY BIRMINGHAM CITY UNIVERSITY, PART TIME FACULTY UNIVERSITY TECHNOLOGY MAURITIUS).

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|-------|--|
| 13:30 | 1571171330: Enhancing Disaster Awareness through Transformer Models: Location and Event Extraction from Social Media.
Ilhan Aydin (Firat University, Turkey & Firat, Turkey); Zeynep Karaca (Firat University, Turkey). |
| 13:50 | 1571171577: ICT in Education: Effects of Remote Work on Teachers.
Manisha Sharma (KIET Group of Institutions Ghaziabad, India); Perna Srivastava and Hemant K. Upadhyay (Poornima University, India); Udit Mamodiya (Poornima University, Jaipur, India); Tapan Mohanty (National Law Institute University, India). |
| 14:10 | 1571171884: Behavioural Energy Governance in Smart Cities: Leveraging Digital Nudges for Sustainable Consumption in Small Island Developing States.
Suresh Vishwakarma (Institution of Engineering and Technology, Canada); Ruchi Tyagi (Adjunct Asian Institute of Technology, Ex-Senior Faculty Birmingham City University, Part Time Faculty University Technology Mauritius). |
| 14:30 | 1571171505: Sociotechnical Layers in Smart Urban Futures: A Meta-Analysis of Cognitive City Models.
Perna Srivastava, Ritu Raj Choudhary and Hemant K. Upadhyay (Poornima University, India); Udit Mamodiya (Poornima Institute of Engineering & Technology, India); De Rosal Ignatius Moses Setiadi (Dian Nuswantoro University, Indonesia). |
| 14:50 | 1571176975: Frame-Level Human Anomaly Detection in Smart Campus Surveillance via a Motion-Aware Transformer.
Melisa Gozet (Ankara University, Turkey & Ostim Technical University, Turkey); Mehmet Karakose (Firat University, Turkey); Asim Yilmaz (Ankara University, Turkey). |
| 15:10 | 1571177160: TransWasteX: Interpretable Multi-Label Learning from Real-World Urban Waste.
Melisa Gozet (Ankara University, Turkey & Ostim Technical University, Turkey); Hatice Rana Yamac (Ostim Technical University, Turkey). |
| 15:30 | 1571173146: A Comparative Analysis of Different Conventional Methods for Moving Object Detection.
Jyoti (Chandigarh University, India); Bobbinpreet Kaur (Chandigarh University, India); Raj Kumar (Chandigarh University, India). |

DAY -II

TUESDAY, DECEMBER 02, 2025

DAY -II: 2ND TUESDAY, DECEMBER 2025

KEYNOTE SPEECH: 03:

2nd Monday, December 2025, 9:00 – 9:30 Asia/Bahrain)

SMART AND SUSTAINABLE MANUFACTURING: A STRATEGIC NECESSITY FOR CURRENT AND FUTURE SMART CITIES



Dr. Manish Billore, MTech, PhD

Principal, Sagar Institute of Science and Technology, Gandhinagar, Bhopal 462036, INDIA

Session Chair: Dr. Simmi Narula, DNP, PMHNP-BC, Shelton, CT 06484, USA

MAIN-THEATRE HALL – FOR VIRTUAL ACCESS

TALK ABSTRACT

My talk explores the intersection of smart cities and sustainable manufacturing, emphasizing how technology and environmental awareness are transforming urban industries. Smart cities are defined as digitally integrated environments where ICT, IoT, and intelligent infrastructure enhance urban efficiency. Within these cities, smart manufacturing uses AI, machine learning, and robotics to streamline production and reduce environmental harm. Sustainability is framed through the triple bottom line: people, planet, and profit. I will talk about circular economy models, energy efficiency through renewables and smart grids, and waste minimization strategies like lean production and AI-driven inventory control. I will quote examples of pioneering cities such as Tokyo, Amsterdam, and Singapore, where innovative practices have yielded greener manufacturing landscapes. I will also acknowledge the challenges including high infrastructure costs, skills gaps, and data security concerns. Future-forward ideas like digital twins, programmable materials, and climate-intelligent manufacturing suggest a path toward zero-waste cities. My talk will additionally highlight the collaboration required between academia and industry to cultivate talent and scalable solutions. I will conclude with the message that achieving smart, sustainable cities are not only beneficial but also essential for future resilience.

SPEAKER DETAILS: DR. MANISH BILLORE

Dr. Manish Billore brings over 29 years of professional experience, including more than 11 years in the manufacturing industry with reputed multinational corporations such as Kinetic Honda, Machine Tools (India), and DMG Mori Seiki. As a practicing engineer, he has received international training in CNC manufacturing and metrology, enhancing his technical proficiency and global perspective. Dr. Billore holds a postgraduate degree and a Ph.D. in Mechanical Engineering from the National Institute of Technology, Bhopal, India. He is a Chartered Engineer, a Fellow of the Institution of Engineers (India), and a lifelong member of several esteemed professional organizations. His academic interests lie in Modern Manufacturing Technology and Industrial Engineering, reflecting a strong and enduring commitment to education and research. His professional engagements have taken him to the USA, UK, Japan, and Germany, where he has participated in advanced training and knowledge exchange programs. In recognition of his contributions to academia, he has been certified as a 'Mentor' by All India Council for Technical Education and honored with distinguished accolades such as the Air India-Hindustan Times BOLT Award. Dr. Billore is deeply invested in technology innovation, entrepreneurship, and startup development. He serves as a government-approved startup mentor for the state of Madhya Pradesh, co-founder of the incubation centre AIC-Aartech in Mandideep (India), and a founding member of B-Nest, the Bhopal-based incubation centre in India. Currently, he serves as a Professor, Principal, and Mentor at a leading group of institution in central India. He is actively engaged in academic quality enhancement, industry-institute collaboration, and startup incubation initiatives. Dr. Billore aspires to bridge the gap between academia and industry, serving as a "Technological Facilitator" for educational institutions and an "Academic Facilitator" for the industrial sector.

DAY -II: 2ND TUESDAY, DECEMBER 2025

KEYNOTE SPEECH: 04:

2nd Monday December 2025, 9:30 – 10:30 (Asia/Bahrain)

THE ROLE OF HYDROGEN ENERGY IN DEVELOPING SUSTAINABLE SMART CITIES



Dr. Suresh Vishwakarma

P.Eng., CEng, MIET, MBA, PhD, PostDoc, Vancouver, Canada

Session Chair: Dr. Ruchi Tyagi, Adjunct Asian Institute of Technology, Ex-Senior Faculty Birmingham City University, Part Time Faculty University Technology, Mauritius

MAIN-THEATRE HALL – FOR VIRTUAL ACCESS

TALK ABSTRACT

The concept of sustainable smart cities is no longer just a vision; it is a reality. It has become a necessity now since we stand at the crossroads of rapid urbanization and an urgent climate crisis. At the heart of this transformation, hydrogen energy is a clean, versatile, and forward-looking solution. Green hydrogen especially, when produced from renewable energy, offers a powerful pathway to decarbonize our cities and meet our net-zero targets. It also resonates well with one of the five societal-wide challenges - "Sustainability and Climate Change Helping the planet through sustainable living", the IET is focussing its efforts to have maximum impacts over the coming years. Hydrogen energy has an immediate and visible impact on clean urban transportation. Hydrogen-powered buses, trains, and even taxis are emerging as sustainable alternatives to fossil-fuel-based fleets in the smart cities. Hydrogen offers a longer range and faster refueling for heavy-duty transport and long-range travel, where batteries may fall short, thereby enhancing the efficiency of public and commercial transit. As always, such journeys are not without challenges. High Hydrogen production costs, limited infrastructure, and the need for robust safety regulations need to be carefully addressed. However, these barriers are being rapidly overcome through coordinated policy, investment, and innovation.

SPEAKER DETAILS: DR. SURESH VISHWAKARMA

Dr. Suresh Vishwakarma is a Professional Engineer in BC Province, Canada, and a Chartered Engineer of the Engineering Council of UK. I am working in the utility industry since 1988 holding engineering and managerial positions. I have MBA and a Ph.D. (power management). I have undertaken postdoctoral research in energy conservation at the University of West Indies. I have extensive experience in the generation, transmission, distribution, asset management, and human resources development in utility companies. My key areas of strength include the capability to take on challenges, exceptional human relations, innovation, responsibility, self-motivation, and flexibility. I am also a very results-oriented team player and team builder. I am an Honorary Professor at Amity International University. I was an Adjunct Professor (Utilities Engineering) at the University of Trinidad and Tobago for one year. I was a part-time faculty at the University of Technology, Mauritius. I am also an External Evaluator at the Accreditation Council of Trinidad and Tobago. I am an active member of Institution of Engineering & Technology, UK and Engineers and Geoscientists of BC, Canada. My areas of expertise include asset management, power distribution, energy access, renewable energy, energy efficiency, energy policy, and energy conservation.

DAY -II: TUESDAY, DECEMBER 2,
PARALLEL SESSIONS

DAY -III

WEDNESDAY, DECEMBER 03, 2025

DAY -III: 3RD WEDNESDAY, DECEMBER 2025

WEDNESDAY, 3RD DECEMBER 2025, 8:30 – 9:00 (ASIA/BAHRAIN) - D3: DAY3 – GETTING READY, AND PLATFORM TECHNICAL HELP

KEYNOTE SPEECH: 5

INTEGRATING SUSTAINABLE WASTE MANAGEMENT INTO THE DESIGN OF FUTURE SMART CITIES



Dr. Ria Narula, Veterinary Technology
Connecticut State, USA

Session Chair: Shefali Vishwakarma, MSc, IET - Communities Committee America, Vancouver, Canada, Vancouver, Canada

MAIN-THEATRE HALL – FOR VIRTUAL ACCESS

TALK ABSTRACT

In this keynote address, I will underscore the urgent need to mitigate pollution risks from both solid and gaseous waste as a critical step toward building healthy, sustainable smart cities. With global waste generation reaching alarming levels, much of it ends up in landfills, oceans, or the atmosphere that poses serious threats to public health and the environment. I will draw attention to how improper solid waste management contaminates essential resources like soil and water, while gaseous emissions exacerbate air pollution and accelerate climate change. I will advocate for a future where smart cities integrate advanced waste management systems that not only reduce pollution but also harness waste as a resource. Technologies such as waste-to-energy conversion, biogas production, and comprehensive recycling of organic and inorganic materials offer powerful tools for creating more sustainable urban environments. By transforming waste into fuel and energy, cities can shrink their environmental footprint, reduce dependence on non-renewable resources, and move toward a circular economy that supports long-term resilience and sustainability.

SPEAKER DETAILS: ABOUT LAKSHMANAN SETHU SANKARANARAYANAN

Dr. Ria Narula is in veterinary technology at a leading institution in the Connecticut State of USA, with a strong academic background in environmental conservation and sustainability. She began her academic journey focused on environmental stewardship, earning credits in environmental conservation before transitioning to veterinary medicine – a field that allows her to merge her passion for animal welfare with her commitment to ecological responsibility. Ria remains actively engaged in sustainability efforts through local initiatives in her hometown, promoting environmentally conscious living and community resilience. With a multidisciplinary foundation and a deep dedication to both animal care and environmental health, she aspires to drive meaningful change by integrating her skills to support a more sustainable and compassionate world.

DAY -III: 3RD WEDNESDAY, DECEMBER 2025

3rd Wednesday, December 2025, 9:45 – 10:45 (Asia/Bahrain)

KN6: KEYNOTE SPEAKER-6

ADVANCED CRYPTOGRAPHIC TECHNIQUES FOR PROTECTING BIOMETRIC INFORMATION AND ENSURING DATA PRIVACY IN SMART URBAN ENVIRONMENTS



Professor Dr. Garima Aggarwal,

Department of CSE, Head, International Collaboration for Engineering & Technology, ASET

General Co-Chair, Confluence 2025, Amity School of Engineering & Technology Amity University Uttar Pradesh, Noida-201313, India

Session Chair: Dr. Neha Tyagi, Associate Professor, Department of Computer Science & Engineering, Amity School of Engineering & Technology, Amity University, Noida, India

MAIN-THEATRE HALL – FOR VIRTUAL ACCESS

TALK ABSTRACT

As smart cities continue to integrate biometric technologies for enhanced security and seamless citizen services, protecting sensitive biometric data becomes paramount. This keynote address explores cutting-edge cryptographic techniques tailored to safeguard biometric information within smart urban environments. We will delve into advanced encryption methods—including selective and blockwise encryption, chaotic map-based cryptography algorithms—that provide robust, real-time protection while maintaining data integrity and accessibility. The talk highlights how these approaches address challenges such as data privacy, unauthorized access, and computational efficiency, ultimately contributing to the development of resilient, trustworthy smart city infrastructures. Attendees will gain insights into the latest trends and practical implementations of biometric data security, essential for driving innovation in smart city ecosystems.

SPEAKER DETAILS: PROFESSOR DR. GARIMA AGGARWAL

Dr. Garima Aggarwal is currently working as a Professor in the Department of Computer Science Engineering and the Head of International Collaboration at the Amity School of Engineering & Technology, Amity University, Noida. She has 16 years of experience in the field of Computer Science and Engineering. Her academic background includes B.Tech degree in Electronics Engineering from Kurukshetra University in 2005, followed by an M.Tech in Computer Science from Ch. Devi Lal University in 2007 and Ph.D. in Computer Science & Engineering from Amity University in 2018. Her research interests span Digital Data Security, Steganography, Cryptography, Artificial Intelligence, Machine Learning, and Image Processing. She has contributed extensively to academia with more than 45 peer-reviewed research papers published in reputed international journals indexed in SCI, Scopus and Web of Science, as well as in IEEE and Springer conferences. She was editor of 15th international conference 'Confluence' 25. She is also the reviewer of many international journals and conferences.

DAY -III: 3RD WEDNESDAY, DECEMBER 2025

3rd Wednesday, December 2025, 9:45 – 10:45 (Asia/Bahrain)

KN7: Keynote Speaker-7

TRANSFORMATION OF POWER SYSTEMS USING INTELLIGENT GRID TECHNOLOGY: ENABLING RESILIENCE, SUSTAINABILITY, AND INNOVATION IN SIDS



Dr. Tagore Ramlal,

PhD, REng, CEng, MIET, SMIEEE, F(ASI), Chair IET Trinidad and Tobago, Trinidad and Tobago

Session Chair: Dr. Abhishek Chaubey, Principal, Sagar Institute of Science and Technology, Bhopal, India

MAIN-THEATRE HALL – FOR VIRTUAL ACCESS

TALK ABSTRACT

Transformation of Power Systems Using Intelligent Grid Technology Subtitle: Enabling Resilience, Sustainability, and Innovation in SIDS. With over four decades of experience in energy systems and sustainable engineering, I look forward to contributing to the symposium's mission of advancing smart city innovation. I am particularly excited to share insights on intelligent grid technologies, hydrogen energy infrastructure, and regional strategies for resilient energy transitions, especially as they pertain to Small Island Developing States (SIDS).

SPEAKER DETAILS: Dr. Tagore Ramlal

Dr.Tagore Ramlal lectures in specialized courses presently at the BAsC level and previously at both the Diploma and MEng Levels within the Utilities and Sustainable Engineering Department. He has been involved in the field of training and development in Electrical Engineering with a diversified experience spanning thirty-nine (39) years at the tertiary level. This wealth of experience is compounded with twenty-nine (29) as a professional education consultant performing training needs analysis, developing specialized "competency" based training modules as well as conducting professional seminars/workshops for industry personnel in all major companies in Trinidad and within the Caribbean. Apart from the above,he has held leadership positions at both NSDP and NESC with five years (5) academic leadership experience. Tagore also has fifteen years experience as a Supervisor/Examiner of final year design projects at the BTech, BAsC/MEng as well as Diploma levels.

DAY -III: WEDNESDAY, DECEMBER 3,
PARALLEL SESSIONS

DAY -III: Wednesday, December 3 13:30 – 15:30 (Asia/Bahrain)

PARALLEL SESSION 02: SF01: INTERNET OF THINGS AND SMART APPLICATIONS-PART-B:

HALL HALL- B: SESSION JOINING: HALL-B

SESSION CHAIR: ANIKET KULKARANI, QUALCOMM

- | | |
|-------|---|
| 13:30 | 1571178626: CycloTCLNet: A Tensor Network-Enhanced CNN-LSTM Architecture for Cyclone Forecasting.
Shivansh Singh, Suryadevara Aneesh Gouri Kartheek, P Anandan and Sridevi S (Vellore Institute of Technology, Chennai, India); Malathi Ganesan (Vellore Institute of Technology, India). |
| 13:50 | 1571179613: Neural Network Prediction of Raft Foundation Bearing Capacity on Stone Column-Reinforced Soft Clay Using PLAXIS 3D Generated Data.
Muhammad Ajmal (University of Bahrain, Bahrain); Danish Ahmed (Prince Mohammad Bin Fahd University, Saudi Arabia); Siti Taib (Universiti Malaysia Sarawak, Malaysia); Tahar Ayadat (Prince Mohammad Bin Fahd University, Saudi Arabia); Alsidiq Hasan (Universiti Malaysia Sarawak, Malaysia); Sani I. Abba (Prince Mohammad Bin Fahd University, Saudi Arabia). |
| 14:10 | 1571179796: B-LATF: Blockchain assisted Federated Unlearning Framework for Trusted Forgetting in 6G Edge Networks.
Nishat Mahdiya Khan (Amity University Kolkata, India); Pronaya Bhattacharya (Amity University, Kolkata, India); Ebrahim Abdulla Mattar (University of Bahrain, Bahrain); Ashwani Kumar (Bennett University, Greater Noida, India); Sandip Roy (Old Dominion University, USA & Asansol Engineering College, India); Sachin Shetty (Old Dominion University, USA). |
| 14:30 | 1571180461: Unmanned Autonomous Aerial Vehicle for Emergency Blood Delivery.
Tinotenda Makanha and Munyaradzi Charles Rushambwa (Harare Institute of Technology, Zimbabwe); Rajkumar Palaniappan (University of Technology Bahrain, Bahrain); Vikneswaran Vijejan (Universiti Malaysia Perlis, Malaysia). |
| 14:50 | 1571180480: A Comprehensive Survey on Artificial Intelligence and Deep Learning Applications in Cardiovascular Disease: Advances, Challenges, and Future Directions.
Huma Tauseif (SR University Warangal, India); Shobha Rani Vallem (SR University, India); Nafis Uddin Khan (ICFAI Foundation for Higher Education Hyderabad, India). |
| 15:10 | 1571180489: Personalized Medicine in Medical Imaging Using Generative AI: A Novel Adaptive GAN Framework.
V P Raja Rajeswari Nukala (SR University, Warangal, India); Sri Raman Kothuri (SR University, India); Nafis Uddin Khan (ICFAI Foundation for Higher Education Hyderabad, India). |
| 15:30 | 1571181777: Metaverse driven urban interface system: research on immersive planning and public participation framework for smart cities.
LIU MengYu (Sookmyung Women's University, Korea (South)); Vugar Abdullayev (Azerbaijan State Oil and Industry University, Azerbaijan); Rashad Abaszade (Azerbaijan University of Architecture and Construction, Azerbaijan); Elmina Gadirova (Baku State University, Azerbaijan); Fuad Abaszadeh (National Aviation Academy, Azerbaijan); Pushan Kumar Dutta (Amity University Kolkata, India & Amity School of Engineering and Technology, India). |

DAY -III: Wednesday, December 3 13:30 – 15:40 (Asia/Bahrain)

PARALLEL SESSION 04: SF04: DESIGN SOLUTIONS & SMART CITIES DESIGN-PART-C:

HALL-D: SESSION JOINING: HALL-D

SESSION CHAIR: MS. SHOLEH MADANI, P.ENG., MIET, ABB INC. COQUITLAM, BC, CANADA

- | | |
|-------|---|
| 13:30 | 1571163699: The Role of Urban Soundscapes in Smart City Design: Solutions and Hazards for Bahrain's Acoustic Future.
Islam Hamdi El Ghonaimy (University of Bahrain & Consultant, Bahrain); Mashael AlDoy (University of Bahrain, Bahrain). |
| 13:50 | 1571163723: Enhancing Public Acceptance in Smart Cities; A Comparative Analysis of Global Models and Strategic Implications for Bahrain.
Islam Hamdi El Ghonaimy (University of Bahrain & Consultant, Bahrain); Mashael AlDoy (University of Bahrain, Bahrain). |
| 14:10 | 1571163805: Smart Cities to Smart Citizen: Integration of Digital Engagement Platforms for Co-Creating Nature-Based Solutions.
Saima Raza, Somi Sareen, Mazharul Haque and Manoj Kumar (National Institute of Technology Patna, India). |
| 14:30 | 1571188402: Optimization of Solar-Based Electric Vehicle Charging Station using Homer Grid: A Case Study of Oakland, California.
Harpreet Kaur Channi (CU, India); Aparna Unni (Chandigarh University, India); Chander Prabha (Chitkara University Institute of Engineering and Technology, India & Chitkara University, Punjab, India); Ramandeep Sandhu (Lovely Professional University, Jalandhar, Punjab, India); Durgesh Nandan (SR University, Warangal, Telangana, India & SR University, Warangal, India); Ravikiran Reddy Kandadi (CVR College of Engineering, Mangalpalli, Rangareddy Dist, Telangana, India). |
| 14:50 | 1571188678: Adaptive and Sustainable Integration of Solar and Wind Energy Systems through IoT Edge Computing Architecture in Low-Carbon Smart City Developments.
Gaurav Singh (India); M Laxmaiah (CMR Engineering College, India); Rishab Pastariya (IES College of Technology, India); Seema Raj (K R Mangalam University, India); Amit Lathigara (RK University, India). |
| 15:20 | 1571188755: Hybrid Interpretable Model with Counterfactual Explanations for Personalized Diabetes Diagnosis.
Kalyan Chatterjee, Sayanti Banerjee and Ishan Bhattacharya (Amity University Kolkata, India); Pushan Kumar Dutta (Amity University Kolkata, India & Amity School of Engineering and Technology, India). |
| 15:40 | 1571190366: An OWL-Based Decision Support Framework for PET Trade-Offs in MaaS Data Sharing.
Alyah Al Fageh, Theo Tryfonas and Nikolaos Stylos (University of Bristol, United Kingdom (Great Britain)). |
| 16:00 | 1571191413: Paddy Scan: An Attention Neural Network based Classification of Paddy crop diseases.
Rajmohan Rajendran (SRM Institute of Science and Technology, India); T Ananth kumar (IFETCE, India); Ramkumar M o and Jayakumar D (IFET College Engineering, India); Saran Raj S (Vel Tech Rangarajan Dr Sagunthala R&D Institute of Science and Technology, India). |

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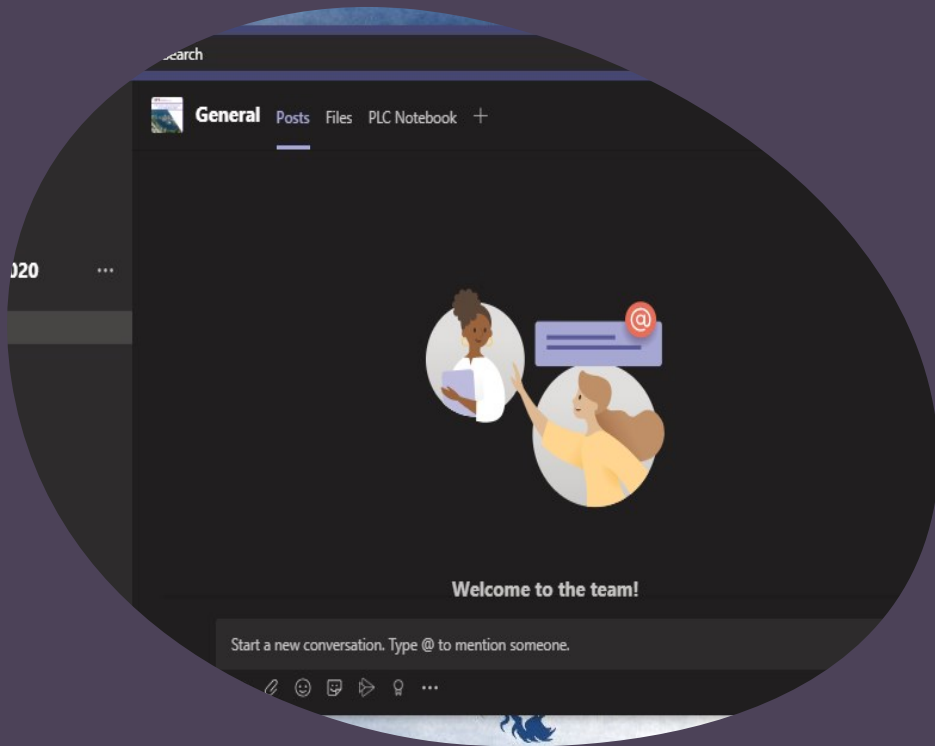
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DAY-I

MONDAY, 1ST DECEMBER 2025

Main-Hall_: Main Hall Opening by 8:30 am

9:00 am

MAIN-THEATRE HALL – FOR VIRTUAL ACCESS

OPENING SPEECH

MONDAY 1ST DECEMBER 2025, 09:05+03 - 09:10+03

WELCOME: WELCOME SPEECH

MONDAY THE 1ST OF DECEMBER 2025, 09:20+03 - 10:00+03

KN1: KEYNOTE SPEAKER -1

SMART MARITIME TRANSPORTATION:
ICT SOLUTIONS AND DIGITIZATION FOR EFFICIENT AND SUSTAINABLE PORTS AND SHIPPING

PROFESSOR, DR. MICHELE FIORINI
Ing. (Mr), MBA, PhD, CEng, FIET is a principal engineer,
Chartered Engineer at Leonardo SpA, Italy

Session Chair:
Dr. Imran Shafique Ansari, MIET, James Watt School of Engineering, UK

MONDAY THE 1ST OF DECEMBER 2025, 10:00+03 - 10:30+03

KN2: KEYNOTE SPEAKER -2

DATA MINING AND CYBERSECURITY FOR SMART CITIES

DR. ROY HACHACHE, PH.D.
Vice Chair – ASIS British Columbia Chapter | Co-Founder, The Lebanese IT Syndicate, Canada

Session Chair:
Dr. Suresh Vishwakarma, P.Eng., CEng, MIET, MBA, PhD, PostDoc, Honorary Professor, Amity University, India, IET-UK Representative for Western, Canada

Monday 1st December 2025: 11:00 +03 to 01:00 +03

Parallel Session: Hall-A
SA01: Internet of Things and Smart Applications-PART-A
SESSION JOINING: HALL-A

Parallel Session: Hall -B
SA02: Artificial intelligence Computational Algorithms
SESSION JOINING: HALL-B

Parallel Session: Hall-C
SA03: Smart Environments -PART-A
SESSION JOINING: HALL-C

13:00 +03 to 13:30 +03: ZB1: Day-1 - Mid-Day Break

Monday 1st December 2025: 13:30 +03 to 16:30 +03

Parallel Session: Hall-A
SB01: Smart Environments -PART-B
SESSION JOINING: HALL-A

Parallel Session: Hall-B
SB02: Cybersecurity Solutions
SESSION JOINING: HALL-B

Parallel Session: Hall-C
SB03: Smart Transportation System
SESSION JOINING: HALL-C

Parallel Session: Hall-D
SB04: Smart Cities Solutions
SESSION JOINING: HALL-D

CD-1: Closing of Day-1

TUESDAY, 2ND DECEMBER 2025

Main-Hall: Getting Ready: Main Hall Opening by 8:30 am

9:00 am

[MAIN-THEATRE HALL – FOR VIRTUAL ACCESS](#)

KN4: KEYNOTE SPEAKER -3

TUESDAY 2ND DECEMBER 2025, 09:00+03 - 09:30+03

SMART AND SUSTAINABLE MANUFACTURING:
A STRATEGIC NECESSITY FOR CURRENT AND FUTURE SMART CITIES

Dr. Manish Billore, MTech, PhD, Principal, Sagar Institute of Science and Technology, Gandhinagar, Bhopal 462036,

Session Chair:

Dr. Suresh Vishwakarma, P.Eng., CEng, MIET, MBA, PhD, PostDoc, Honorary Professor, Amity University, India, IET-UK Representative for Western, Canada

KN4: KEYNOTE SPEAKER-4

TUESDAY 2ND DECEMBER 2025, 09:30+03 - 10:45+03

THE ROLE OF HYDROGEN ENERGY IN DEVELOPING SUSTAINABLE SMART CITIES

Dr. Suresh Vishwakarma, P.Eng., CEng, MIET, MBA, PhD, PostDoc, Honorary Professor, Amity University, India, IET-UK Representative for Western, Canada

Session Chair:

Dr. Ruchi Tyagi, Adjunct Asian Institute of Technology, Ex-Senior Faculty Birmingham City University, Part Time Faculty University Technology, Mauritius

TUESDAY 2nd December 2025: 10:30 +03 to 13:00 +03

Parallel Session: Hall-A
SC02: Smart Algorithms Applications-A
Session Joining: Hall-A

Parallel Session: Hall-B
SC03: New Technologies for Smart Cities-PART-A
Session Joining: Hall-B

Parallel Session: Hall-C
SC04: New Technologies for Smart Cities-PART-D
Session Joining: Hall-C

13:00 +03 to 13:30 +03: ZB1: Day-1 - Mid-Day Break

TUESDAY 2nd December 2025: 13:00 +03 to 15:15 +03

Parallel Session: Hall-A
SD01: New Technologies for Smart Cities-PART-B
Session Joining: Hall-A

Parallel Session: Hall-B
SD03: Smart Energy Systems – Technology Solutions
Session Joining: Hall-B

Parallel Session: Hall-C
SD04: Smart Cities and AI Computational Algorithms
Session Joining: Hall-C

CD-2: Closing of Day-2

DAY-III

WEDNESDAY, 3rd December 2025

Main-Hall: Getting Ready: Main Hall Opening by 8:30 am

9:00 am

[MAIN-THEATRE HALL – FOR VIRTUAL ACCESS](#)

KN5: KEYNOTE SPEAKER -5

WEDNESDAY, 3RD DECEMBER 2025, 09:00+03 - 09:30+03

INTEGRATING SUSTAINABLE WASTE MANAGEMENT INTO THE DESIGN OF FUTURE SMART CITIES

Dr. Ria Narula,
Veterinary Technology, Connecticut State, USA

Session Chair:
Shefali Vishwakarma, the IET - Communities Committee America, Canada

KN6: KEYNOTE SPEAKER -6

WEDNESDAY, 3RD DECEMBER 2025, 09:30+03 - 10:00+03

ADVANCED CRYPTOGRAPHIC TECHNIQUES FOR PROTECTING BIOMETRIC INFORMATION AND ENSURING DATA PRIVACY IN SMART URBAN ENVIRONMENTS

Professor Dr. Garima Aggarwal
Department of CSE, Head, International Collaboration for Engineering & Technology, ASET
General Co-Chair, Confluence 2025, Amity School of Engineering & Technology Amity University Uttar Pradesh, Noida-201313, India

Session Chair:
Dr. Neha Tyagi, Associate Professor, Department of Computer Science & Engineering, Amity School of Engineering & Technology, Amity University, Noida, India

KN7: KEYNOTE SPEAKER -7

WEDNESDAY, 3RD DECEMBER 2025, 10:00+03 - 10:30+03

**TRANSFORMATION OF POWER SYSTEMS USING INTELLIGENT GRID TECHNOLOGY:
ENABLING RESILIENCE, SUSTAINABILITY, AND INNOVATION IN SIDS**

Dr. Tagore Ramlal,
PhD, REng, CEng, MIET, SMIEEE, F(ASI), Chair IET Trinidad and Tobago, Trinidad and Tobago

Session Chair:
Dr. Abhishek Chaubey, Principal, Sagar Institute of Science and Technology, Bhopal, India

Wednesday, 3th December 2025: 10:30 +03 to 01:00 +03

PARALLEL SESSION: HALL-A
SE02: SMART MONITORING AND SOLUTIONS
SESSION JOINING: HALL-A

PARALLEL SESSION: HALL-B
SE03: SMART HOMES, SMART HOSPITALS, AND SMART CAMPUSES
SESSION JOINING: HALL-B

PARALLEL SESSION: HALL-C
SE04: ROBOTICS AND SYSTEMS INTELLIGENCE
SESSION JOINING: HALL-C

ZB-3: Mid-Day Break: 13:00 +03 to 13:30 +03

Wednesday, 3rd December 2025: 01:30 +03 to 15:30 +03

PARALLEL SESSION: HALLA
SF00: SMART HEALTHCARE AND TECHNOLOGY SOLUTIONS
SESSION JOINING: HALL-A

PARALLEL SESSION: HALL-B
SF01: INTERNET OF THINGS AND SMART APPLICATIONS-PART-B
SESSION JOINING: HALL-B

PARALLEL SESSION: HALL-C
SF03: DESIGN SOLUTIONS & SMART CITIES DESIGN-PART-B
SESSION JOINING: HALL-C

PARALLEL SESSION: HALLD
SF03: DESIGN SOLUTIONS & SMART CITIES DESIGN-PART-C
SESSION JOINING: HALL-D

Main-Hall: CD-3: Closing Remarks; 15:40 +03 to 16:00 +03

MAIN-THEATRE HALL – VIRTUAL ACCESS

Closing Remarks of 9th IET SMART CITIES SYMPOSIUM, 2025

Session Chair:
Dr. Suresh Vishwakarma, P.Eng., CEng, MIET, MBA, PhD, PostDoc, Senior Engineer, Vancouver Canada, and IET - Communities Resources Committee Member

SB-3: Day-3 - Symposium Ending

