3rd

SMART CITIES

SYMPOSIUM
21-23 September 2020
University of Bahrain

Supported by

IET The Institution of Engineering and Technology

Symposium Proceeding Summary

Monday, 21st September 2020

D1: Day1 - Getting Ready, and Virtual Platform Technical Setting
OC1: Opening Ceremony: Welcoming to the 3rd SMART CITIES SYMPOSIUM
OC2: Towards Smart Cities: His Excellency Professor Dr. Riyad Y. Hamzah - University of Bahrain President
OC3: Virtual Honouring of Symposium Keynotes
KN1: Keynote Speaker -1: Symposium Keynote Talk Managing Healthcare Priorities Details - His Excellency Sheikh Khalid bin Hamad Al-Khalifa
KN2: Keynote Speaker-2: KACST Mission of Solar Innovations, Prof. Hussam Khonkar, King Abdulaziz City for Science & Technology, KACST, KSA
KN3: Keynote Speaker-3: Symposium Keynote Speaker-4: On the Intersection of Big Data and Privacy, Prof. Houssain Kettani, (Dakota State University, Madison, South Dakota, USA)

SA01: Internet of Things and Smart Applications-1 | SA02: Cyber Security-1 | SA03: Smart Homes, Smart Hospitals, and Smart Campuses-1 | SA04: Smart Homes, Smart Hospitals, and Smart Campuses-2

ZB1: Day-1 - Mid-Day Break

SB01: Cloud Computing Applications for Smart Cities & New Technologies for Smart Environment | SB02: Cyber Security-2 | SB03: Smart Transportation System-1 | SB04: Smart Transportation System-2

CD-1: Closing of Day-1

Tuesday, 22nd September 2020

D2: Day2 - Getting Ready, and Virtual Platform Technical Setting
KN4: Symposium Keynote Speaker-4: Bahrain Smart City Society, Dr. Bijan Pio Majidi - CEO Dinamica International Ventures Development W.L.L.
KN5: Keynote Speaker -5: Artificial Intelligence and Deep Learning Models in Cybersecurity, El-Sayed El-Alfy is Professor at King Fahd University of Petroleum and Minerals-KFUPM, KSA

SB-1: Short Break-1

KN6: Keynote Speaker-7: Symposium Keynote Speaker-6: Antenna Design for 5G Systems at Sub-6 GHz and Millimeter, Dr. Khan, an A. Professor at the Research Institute for Microwave and Millimeter Wave Studies (RIMMS), Pakistan
KN7: Keynote Speaker 7: Automated Building and Homes a Smart City consist of: From Smart Buildings to Smart Cities, Volkan Alçınkaya, Global marketing Director, Turkey.

SB-2: Short Break-2

SC01: Smart Urban Planning, & Design Solutions-1 | SC02 Internet of Things and Smart Applications-2 | SC03 New Technologies for Smart Cities-1

ZB2: Day-1 - Mid-Day Break

SD01: New Technologies for Smart Cities-2 | SD02: Energy & Smart Grids - Smart Manufacturing for the Oil and Gas industries | SD03: Healthcare and Medicine (IoMT) - Covid-19 Technology Solutions

CD-2: Closing of Day-2

Wednesday, 23rd September 2020

D3: Day3 - Getting Ready, and Virtual Platform Technical Setting
KN8: Keynote 8: White Box cryptography: Applications, Attacks, Dr Piyush Kumar Shukla University Institute of Technology, Rajiv Gandhi Proudyogiki Vishwavidyalaya (Technological University of Madhya Pradesh), India
KN9: Keynote Speaker 9: Design, Architecture, Urban Planning for Humans Waste Management and Recycling must be considered, Kai Miethig (Wastrepreneur & Founder of W-AI-STE), Bahrain

SB-1: Short Break-1

KN10: Symposium Keynote Speaker 10: Technoprenuership and Design Methodology, Dr. Pushan Kumar Dutta School of Engineering and Technology Amity University, India

SE01: Smart Building Automation | SE02 Smart City Architecture and its Applications Based on IoT-2 | SE03 Smart Homes, Smart Hospitals, and Smart Campuses | SE04 Robotics and AI Applications - AI enabled Digital Solutions | SE05 Smart City Architecture and its Applications Based on IoT-2

SB-2: Day-3 - Mid-Day Break

SF01 Internet of Things and Smart Applications-3- & Technology Enabled Homes and Interiors | SF02 Green Computing, Big Data, and Analysis | SF03 Smart Urban Planning, & Design Solutions-2, The Smart City Design | SF04 Internet of Things and Smart Applications-4

SB-3: Day-3 - Symposium Ending - Short Break

CD-3: Closing of the 3rd SMART CITIES SYMPOSIUM, 2020

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KN3: Keynote Speaker-3: Symposium Keynote Speaker-4: On the Intersection of Big Data and Privacy, Prof. Houssain Kettani, (Dakota State University, Madison, South Dakota, USA)

SB-1: Short Break-1

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| SB01: Cloud Computing Applications for Smart Cities & New Technologies for Smart Environment | SB02: Cyber Security-2 | SB03: Smart Transportation System-1 | SB04: Smart Transportation System-2 |

CD-1: Closing of Day-1

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KN5: Keynote Speaker -5: Artificial Intelligence and Deep Learning Models in Cybersecurity, El-Sayed El-Alfy is Professor at King Fahd University of Petroleum and Minerals-KFUPM, KSA

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KN7: Keynote Speaker 7: Automated Building and Homes a Smart City consist of: From Smart Buildings to Smart Cities, Volkan Alçınkaya, Global marketing Director, Turkey.

SB-2: Short Break-2

| SC01: Smart Urban Planning, & Design Solutions-1 | SC02 Internet of Things and Smart Applications-2 | SC03 New Technologies for Smart Cities-1 |

ZB2: Day-1 - Mid-Day Break

| SD01: New Technologies for Smart Cities-2 | SD02: Energy & Smart Grids - Smart Manufacturing for the Oil and Gas industries | SD03: Healthcare and Medicine (IoMT) - Covid-19 Technology Solutions |

CD-2: Closing of Day-2

Wednesday, 23rd September 2020

D3: Day3 - Getting Ready, and Virtual Platform Technical Setting

KN8: Keynote 8: White Box cryptography: Applications, Attacks, Dr Piyush Kumar Shukla University Institute of Technology, Rajiv Gandhi Proudyogiki Vishwavidyalaya (Technological University of Madhya Pradesh), India

KN9: Keynote Speaker 9: Design, Architecture, Urban Planning for Humans Waste Management and Recycling must be considered, Kai Miethig (Wastrepreneur & Founder of W-AI-STE), Bahrain

SB-1: Short Break-1

KN10: Symposium Keynote Speaker 10: Technoprenuership and Design Methodology, Dr. Pushan Kumar Dutta School of Engineering and Technology Amity University, India

| SE01: Smart Building Automation | SE02 Smart City Architecture and its Applications Based on IoT-2 | SE03 Smart Homes, Smart Hospitals, and Smart Campuses | SE04 Robotics and AI Applications - AI enabled Digital Solutions | SE05 Smart City Architecture and its Applications Based on IoT-2 |

SB-2: Day-3 - Mid-Day Break

| SF01 Internet of Things and Smart Applications-3- & Technology Enabled Homes and Interiors | SF02 Green Computing, Big Data, and Analysis | SF03 Smart Urban Planning, & Design Solutions-2, The Smart City Design | SF04 Internet of Things and Smart Applications-4 |

SB-3: Day-3 - Symposium Ending - Short Break

CD-3: Closing of the 3rd SMART CITIES SYMPOSIUM, 2020

Accessing
3rd SCS-2020 - Virtual Halls
21-23 September 2020
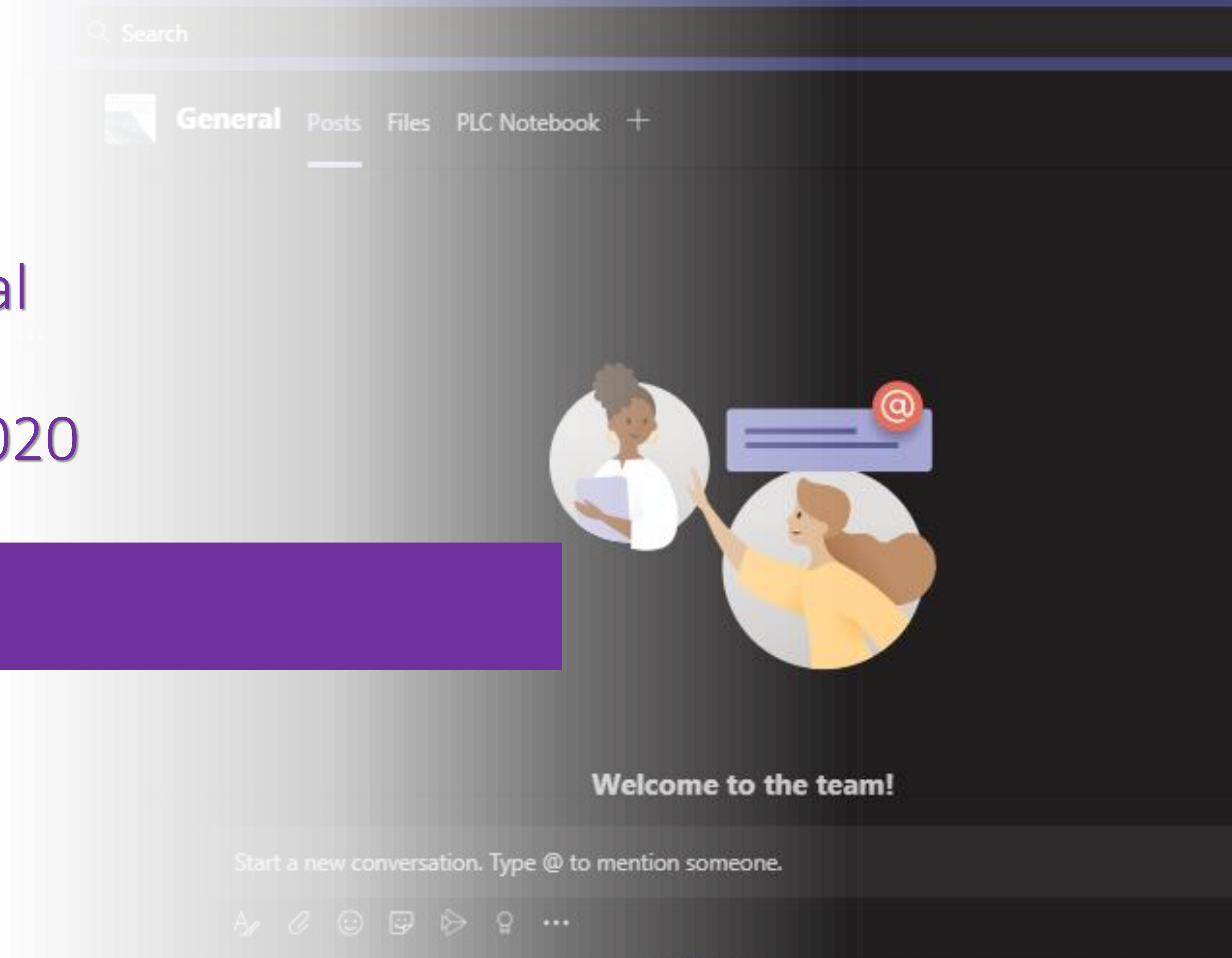
Virtual Networking Hall

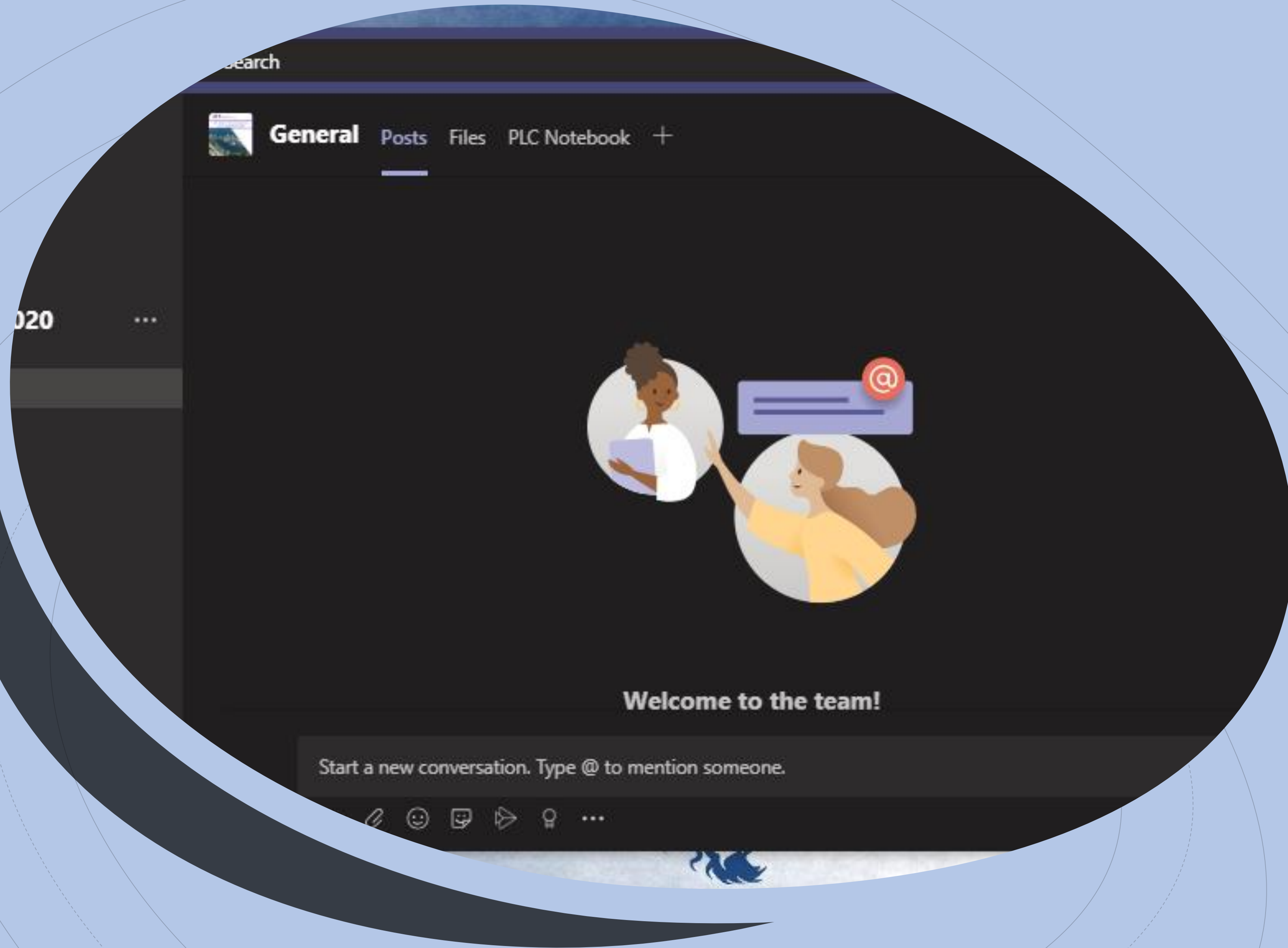Main-Virtual Hall: 3SCS-2020

Virtual-Room-01

Virtual-Room-02

Virtual-Room-03

Virtual-Room-04

Virtual-Room-05

Detailed
Technical
Program
and Sessions

3rd Smart Cities Symposium -2020

Technical Program

21-23 September 2020 – virtual symposium
University of Bahrain

Details are found at:
https://www.3rd-smartcities-2020.com/

Symposium Papers, and Proceeding Summary

Monday, September 21 9:15 - 9:50 (Asia/Bahrain)
KN1: Keynote Speaker -1: Symposium Keynote Talk Managing Healthcare Priorities
His Excellency Sheikh Khalid bin Hamad Al-Khalifa
Bahrain
Room: Main-Virtual Hall: 3SCS-2020
Chair: Aisha Bushager (University of Bahrain, Bahrain)

Monday, September 21 10:00 - 10:30 (Asia/Bahrain)
KN2: Keynote Speaker-2: KACST Mission of Solar Innovations
KACST Mission of Solar Innovations to Advance National Industrial Economy Towards CO2 Reductions. by Professor Hussam Khonkar, King Abdulaziz City for Science & Technology, KACST, Water and Energy Research Institute, WERI, National Center for Solar Energy Technology, Riyadh, KSA.
10:00 KACST Mission of Solar Innovations to Advance National Industrial Economy Towards CO2 Reductions
KSA
Room: Main-Virtual Hall: 3SCS-2020
Chair: Maamar Taleb (UOB, Bahrain)

Monday, September 21 10:30 - 11:00 (Asia/Bahrain)
KN3: Symposium Keynote Speaker-3: On the Intersection of Big Data and Privacy
Prof. Houssain Kettani, Dakota State University, Madison, South Dakota,
USA
Room: Main-Virtual Hall: 3SCS-2020
Chair: Reham Almesaeed (University of Bahrain, Bahrain & University of Bristol, United Kingdom (Great Britain))

Tuesday, September 22 9:00 - 9:30 (Asia/Bahrain)
KN4: Symposium Keynote Speaker-4: Bahrain Smart City Society
Dr. Bijan Pio Majidi - CEO Dinamica International Ventures Development W.L.L.
Room: Main-Virtual Hall: 3SCS-2020
Chair: Reham Almesaeed (University of Bahrain, Bahrain & University of Bristol, United Kingdom (Great Britain))

Tuesday, September 22 9:30 - 10:00 (Asia/Bahrain)
KN5: Keynote Speaker -5: Artificial Intelligence and Deep Learning Models in Cybersecurity,
El-Sayed El-Alfy is Professor at King Fahd University of Petroleum and Minerals-KFUPM
KSA
Room: Main-Virtual Hall: 3SCS-2020
Chair: Hessa Al-Junaid (University of Bahrain, Bahrain)

Tuesday, September 22 10:10 - 10:40 (Asia/Bahrain)
KN6: Symposium Keynote Speaker-6: Antenna Design for 5G Systems at Sub-6 GHz and Millimeter
Muhammad Umar Khan (National University of Sciences and Technology (NUST), Pakistan)
Dr. Khan, A. Professor at the Research Institute for Microwave and Millimeter Wave Studies (RIMMS),
Pakistan
Room: Keynote-Speaker-6, Main-Virtual Hall: 3SCS-2020
Chair: Mohab Mangoud (UoB, Bahrain)

Tuesday, September 22 10:40 - 11:10 (Asia/Bahrain)
KN7: Keynote Speaker 7: Automated Building and Homes a Smart City consist of: From Smart Buildings to Smart Cities
Volkan Alçınkaya, Global marketing Director
Turkey
Room: Main-Virtual Hall: 3SCS-2020
Chair: Mohamed Bin Shams (University of Bahrain, Bahrain)

Wednesday, September 23 9:00 - 9:30 (Asia/Bahrain)
KN8: Keynote 8: White Box cryptography: Applications, Attacks,
9:00 White Box cryptography: Applications, Attacks & Countermeasures for Smart City Paradigm
Piyush Kumar Shukla (UIT RGPV, India)
Dr Piyush Kumar Shukla University Institute of Technology, Rajiv Gandhi Proudyogiki Vishwavidyalaya
(Technological University of Madhya Pradesh)
India
Room: Main-Virtual Hall: 3SCS-2020
Chair: S Ali Al-Mawsawi (University of Bahrain, Bahrain)

Wednesday, September 23 9:30 - 9:50 (Asia/Bahrain)
KN9: Keynote Speaker 9: Design, Architecture, Urban Planning for Humans Waste Management and Recycling must be
considered
Kai Miethig (Wastrepreneur & Founder of W-AI-STE)
Room: Main-Virtual Hall: 3SCS-2020
Chair: Bader Almannai (University of Bahrain, Bahrain)

Wednesday, September 23 10:00 - 10:25 (Asia/Bahrain)
KN10: Symposium Keynote Speaker 10: Technoprenuership and Design Methodology
Dr. Pushan Kumar Dutta School of Engineering and Technology Amity University,
India
Room: Main-Virtual Hall: 3SCS-2020
Chair: Bassam Al Hamad (University of Bahrain, Bahrain)

Accessing Virtual Sessions

Main-Virtual Hall: 3SCS-2020

Virtual-Room-01

Virtual-Room-02

Virtual-Room-03

Virtual-Room-04

Virtual-Room-05

Virtual Networking Hall

D1: Day1 - Getting Ready, and Virtual Platform Technical Setting - Help (if Any)
Room: Virtual Networking-Hall

Monday, September 21 9:00 - 9:05 (Asia/Bahrain)
OC1: Opening Ceremony: Welcoming to the 3rd SMART CITIES SYMPOSIUM
3rd SMART CITIES SYMPOSIUM - the Committee
Room: Main-Virtual Hall: 3SCS-2020

Monday, September 21 9:05 - 9:10 (Asia/Bahrain)

OC2: Towards Smart Cities

His Excellency Professor Dr. Riyad Y. Hamzah - University of Bahrain President
Room: Main-Virtual Hall: 3SCS-2020
Chair: Fuad Al-Ansari (University of Bahrain, Bahrain)
09:05 am, 21st of September 2020, Kingdom of Bahrain

Monday, September 21 9:10 - 9:15 (Asia/Bahrain)

OC3: Words of Appreciation

University of Bahrain
Room: Main-Virtual Hall: 3SCS-2020
Chair: Fuad Al-Ansari (University of Bahrain, Bahrain)

Words of Thanks and Appreciation

Monday, September 21 9:15 - 9:50 (Asia/Bahrain)
KN1: Keynote Speaker -1: Symposium Keynote Talk Managing Healthcare Priorities

His Excellency Sheikh Khalid bin Hamad Al-Khalifa
Room: Main-Virtual Hall: 3SCS-2020
Chair: Aisha Bushager (University of Bahrain, Bahrain)

9:15 Managing Healthcare Priorities through Smart Healthcare Systems
Sheikh Khalid Al-Khalifa (Council of Health, Bahrain)

ABSTRACT: Embracing Smart Healthcare Systems has been the main challenger for increasing Healthcare costs and the gateway to achieving health system objectives. Countries all over the world seek to elevate Healthcare provision outcomes through digitization initiatives. Industry 4.0 has had a positive disruptive impact on the healthcare ecosystem. The talk will highlight aspects of the impact of smart initiatives in advancing and driving healthcare goals and priorities. The talk will also highlight the steps taken by the Supreme council of health to endorse a smart health care system through the SEHATI project.

Sheikh Khalid bin Hamad Al-Khalifa: Sh. Khalid bin Hamad Al-Khalifa has spanned a career of almost 20 years in Healthcare IT. Working at the Royal Medical Services and King Hamad University Hospital as a CIO. He oversaw both clinical and administrative systems as well as the underlying infrastructure. Sh. Khalid holds a masters' degree in Software Engineering from George Washington University as well as having technical certifications in DB administration and IT Security Architecture. Currently, Sh Khalid is the project director for the SEHATI-IT project at the Supreme Council of health undertaking the digital transformation of the healthcare sector in the kingdom of Bahrain.

Monday, September 21 9:50 - 10:00 (Asia/Bahrain)
SB-1: Day-1: Morning Short Break-1
Room: Virtual Networking-Hall

Monday, September 21 10:00 - 10:30 (Asia/Bahrain)

KN2: Keynote Speaker-2: KACST Mission of Solar Innovations

10:00 KACST Mission of Solar Innovations to Advance National Industrial Economy Towards CO2 Reductions
Prof. Hussam Khonkar, King Abdulaziz City for Science & Technology, KACST, KSA
Room: Main-Virtual Hall: 3SCS-2020
Chair: Maamar Taleb (UOB, Bahrain)

KACST Mission of Solar Innovations to Advance National Industrial Economy Towards CO2 Reductions. by Professor Hussam Khonkar, King Abdulaziz City for Science & Technology, KACST, Water and Energy Research Institute, WERI, National Center for Solar Energy Technology, Riyadh, KSA.

Professor Hussam Khonkar: Professor\ Hussam Khonkar been awarded the Mission Innovation Prize 2019, he received his PhD in Mechanical Engineering (Solar Thermal) from Reading University, U.K., 1996. He was the first Saudi to get B.Sc. in Engineering of Renewable Energy from Colorado Tech. University, USA 1987. He has been working with KACST since then, he is also Board Members of King Abdullah City for Atomic and Renewable Energy KA Care. , in 1989 Dr. Khonkar worked along in Saudi German HYSOLAR producing hydrogen by solar and Have the educational program as well as 2Kw project at King Abdulaziz University. Moreover, Dr. Khonkar served as the Deputy Director of the Measurement and Instrumentation Center for more than 8 years at KACST and participated on Technical Committee of Saudi Arabia Standard Organization SASO and GCC standard In addition, he has been Adjunct Faculty at the Florida Institute of Technology, USA, and King Saud University, Riyadh. He worked at IBM T.J. Watson research center in New York for four years as researcher international assignee to develop CPV for KACST. Dr. Khonkar submitted more than 20 patents in Saudi Arabia and internationally he has more the 188 publication and technical reports. He been award a Gold Medal for a patent in April 2007, from 35th International Exhibition of Inventions for New Energy Techniques and Products, in Geneva. He is a member of Scientific Committee in Research Grants Program for Saudi Universities, He is one of the planner largest 10 Megawatt Khafji Solar PV installation for desalination in the world 2019.

Monday, September 21 10:30 - 11:00 (Asia/Bahrain)

KN3: Symposium Keynote Speaker-3: On the Intersection of Big Data and Privacy

Prof. Houssain Kettani, Dakota State University, Madison, South Dakota, USA.
Room: Main-Virtual Hall: 3SCS-2020
Chair: Reham Almesaeed (University of Bahrain, Bahrain)

SYMPOSIUM KEYNOTE TALK On the Intersection of Big Data and Privacy by Prof. Houssain Kettani

Dakota State University, Madison, South Dakota, USA

TALK ABSTRACT: A struggle has emerged in relation to the sacredness of one's private information and the importance of moving forward in a digital world of social media, smart devices, and Big Data - an era known as the Age of Context. A real cause for concern has emerged regarding the seriousness of keeping data private while facilitating efforts to encourage and support emerging technologies. This includes data collection methods, a discovery of Big Data processes and purposes, and the identification of risks pertaining to the individual, the military, and the country. It was determined that significant concerns do exist pertaining to data collection, Big Data, and privacy. These concerns not only pertain to the individual, but with military effectiveness and national security. It is important to keep private information private and it is equally important, if done in an ethical manner, to allow certain entities access to this data for the benefit of the user of whom the data belongs, the benefit of the organization, and the benefit of the nation. Big Data is the key to housing this information and as such is growing at a phenomenal rate. The basis as to what data an organization can collect, store, have access to, and share is continuing to be litigated in the courts and legislated by state and national law makers. The use of data collection processes and devices and other technologies, and the storage of the information that they capture is being contested in a wide range of course setting, which makes the future use of these technologies likely to be as much a legal issue as it is a technology issue. As we move forward in this exciting Age of Context, social media, and Big Data, let us pursue an ever-greater means of integrating our environment without compromising or sacrificing one of our most precious assets, our personal and private information.

Prof. Houssain Kettani: Prof. Houssain Kettani received the Bachelor's degree in Electrical and Electronic Engineering from Eastern Mediterranean University, Cyprus in 1998, and Master's and Doctorate degrees both in Electrical Engineering from the University of Wisconsin at Madison in 2000 and 2002, respectively. Dr. Kettani served as faculty member at the University of South Alabama (2002-2003), Jackson State University (2003-2007), Polytechnic University of Puerto Rico (2007-2012), Fort Hays State University (2012-2016), Florida Polytechnic University (2016-2018) and Dakota State University since 2018. Dr. Kettani has served as Staff Research Assistant at Los Alamos National Laboratory in summer of 2000, Visiting Research Professor at Oak Ridge National Laboratory in summers of 2005 to 2011, Visiting Research Professor at the Arctic Region Supercomputing Center at the University of Alaska in summer of 2008 and Visiting Professor at the Joint Institute for Computational Sciences at the University of Tennessee at Knoxville in summer of 2010. Dr. Kettani's research interests include algorithms, cybersecurity, machine learning and population studies. He presented his research in over one hundred refereed conference and journal publications and his work received over six hundred citations by researchers all over the world. He chaired over hundred international conferences throughout the world and successfully secured external funding in millions of dollars for research and education from US federal agencies such as NSF, DOE, DOD, and NRC.

SA01: Internet of Things and Smart Applications-1

Monday, September 21 11:00 - 12:40 (Asia/Bahrain)
Rooms: Parallel-Session-1, Virtual-Room-01

Chair: Hessa Al-Junaid (University of Bahrain, Bahrain)
11:00 Steering information in quantum network
        Nasser Metwally (College of Science, University of Bahrain, Bahrain)
11:20 An Integrated Framework for Modeling Cognitive Internet of Everything Systems
        Khurrum Mustafa Abbasi (Bahria University, Islamabad Pakistan, Pakistan); Tamim Ahmed Khan (Bahria University, Islamabad, Pakistan); Irfan ul Haq (Pakistan Institute of Engineering & Applied Sciences (PIEAS), Islamabad Pakistan, Pakistan)
11:40 Intelligent Wastewater Treatment System With IOT Based Monitoring for Smart Cities
        Rajeev Mathur (Geetanjali Instt of Tech Studies, Udaipur & Rajsathan Technical University, Kota, Rajasthan, India); Mohammad Ateek Samma and Shubham Vagrecha (Geetanjali Institute of Technical Studies, India); Latif Khan (Rajasthan Technical University, India)
12:00 Renewalble energy sources for smart city Applitions: A review
        MVV Prasad Kantipudi (Sreyas Institute Of Engineering and Technology, India); Kotra Sravya (Jawaharlal Nehru Technological University Hyderabad, India); Himaja Maganti and Prapti Kuttabadka (Sreyas Institute of Engineering and Technology, India)
12:20 IoT Monitoring Bin For Smart Cities
        Saurabh Srivastava and Milind D Jain (Geetanjali Institute of Technical Studies, India); Harshita Jain (Geetanjali Institute of Technical Studies & Rajasthan Technical University, India); Kritik Jaroli, Vishal Jain, Mayank Patel and Latif Khan (Geetanjali Institute of Technical Studies, India)

SA02: Cyber Security-1

Monday, September 21 11:00 - 12:20 (Asia/Bahrain)
Rooms: Parallel-Session-2, Virtual-Room-02

Chair: Ahmed M. Zeki (University of Bahrain & College of IT, Bahrain)
11:00 The Effects of Human Factor Dynamics in Cyber Security in Kuwait
        Safaa Zaman (Kuwait University, Kuwait)
11:20 A Framework for Cyber Protection in K-12 Education Sector
        Mirza Kamaludeen (IG2 group, Canada); Salam Ismaeel (Ryerson University, Canada); Sarah Asiri (ig2 Group, Canada); Teresa Allen and Carm Scarfo (Ontario Government, Canada)
11:40 An Optimized Packet Gathering Scheme for Sink Transpose and Data Aggregation in Wireless Sensor Networks
        Stalin Subbiah (Bahrain Training Institute, Bahrain); Prema Rengasamy (Hindustan College of Arts & Science,India)
12:00 Future Challenges for Cyber-Security in a Smart City Environment in Indian Context
        MVV Prasad Kantipudi (Sreyas Institute Of Engineering and Technology, India); MA. JABBAR (Vardhaman College of Engineering & Vice chair IEEE Computer Society Chapter IEEE Hyderabad Section, India); Rajanikanth Aluvalu (Vardhaman College of Engineering, India)
12:20 Email Text Analysis for Fraud Detection through Machine Learning Techniques
        Rahaf Al-Haddad, Fatimah Sahwan and Amanh Aboalmakarem (Prince Mohmmad bin Fahd University, Saudi Arabia); Ghazanfar Latif (Prince Mohammad bin Fahd University, Saudi Arabia); Yasmeen Alufaisan (Prince Mohammad Bin Fahd University, Saudi Arabia)

SA03: Smart Homes, Smart Hospitals, and Smart Campuses-1

Monday, September 21 11:00 - 13:00 (Asia/Bahrain)
Rooms: Parallel-Session-3, Virtual-Room-03

Chair: Sarah Al-Shareeda (University of Bahrain, Bahrain)
11:00 Towards Embedding 3D Printing Technology in Bahrain
     Noor Aldoy (University of Bahrain, Bahrain)
11:20 An IoT enabled Medical Box
     Deepti Mehrotra (AMITY School of Engineering and Technology & Amity Univerisity, India); Vikas Deep (Amity University Uttar Pradesh, India)
11:40 Development of Heuristic Algorithm based tool to extract and evaluate tumor section from Brain MRI and CT image
     Suresh Manic, Satish Tanavade, Mohammed Al Balushi and Saleh Al-Araimi (National University of Science and Technology, Oman); Ayman Al-khazraji (University of Bahrain, Bahrain)
12:00 Feature Analysis and Prediction of Antibiotic Resistance Using PCA-MLP with Segments of N. Gonorrhoeae Bacteria's DNA
     El-Sayed M. El-Alfy (King Fahd University of Petroleum and Minerals, Saudi Arabia); Yomna E. El-Alfy (Mansoura University, Saudi Arabia)
12:20 Electroencephalography Based Human Emotional Status Patten Detection and Patterns Classification
     Mohammed N AlSallout (University of Bahrain, Bahrain); Ebrahim Abdulla Mattar (University of Bahrain & IET Bahrain Local Network, Bahrain)
12:40 Smart Autonomous Thermometer System to Assist COVID-19 Pandemic Monitoring in Smart Campuses
     Mostafa Rizk (Lebanese International University & Lab-STICC, Lebanon)

SA04: Smart Homes, Smart Hospitals, and Smart Campuses-2

Monday, September 21 11:00 - 12:45 (Asia/Bahrain)
Rooms: Parallel-Session-4, Virtual-Room-04
Chair: KrishnaKeerthi Chennam (Osmania University, India)

11:00 Cloud of Medical Things [CoMT] based Smart Healthcare Framework for Resource Allocation
     Surendran R and Tamilvizhi T (Chennai Institute of Technology, India)
11:17 Comparison of Efficient AI Algorithms for Assisting and conquering infirmity of blind people: Improved Approach for Visually Impaired
     Fatma Muhammad Salim Al- Muqbali and Faizal Hajamohideen (College of Applied Sciences, Sohar, Oman); Khuloud Rashid Salim Al-Kiyumi (College of Applied Sciences Sohar, Oman); Noura Abdullah Said Al-Tourshi (COllege of Applied Sciences Sohar, Oman)
11:35 Mobile-based Pressure Sore Prediction and Prevention System (PSPPS)
     Abdulla Ali and Bader Alshurooqi (AMA International University, Bahrain); Surendran R (Chennai Institute of Technology, India)
11:52 A Survey For AWS Cloud Development Tools And Services
     Ahmad Alalawi, Ali Mohsin and Ali Jassim (University of Bahrain, Bahrain)
12:10 Smart Homes: End Users' Perception - Case of Bahrain
     Reem Sultan (University of Bahrain, Bahrain); Ammar Yusuf (Applied Science University, Bahrain)
12:27 Security and Authentication of Outsourcing Cloud Data
     KrishnaKeerthi Chennam (Osmania University & Mjcet, India); Rajanikanth Aluvalu (Vardhaman College of Engineering, India); MA. JABBAR (Vardhaman College of Engineering & Vice chair IEEE Computer Society Chapter IEEE Hyderabad Section, India)

ZB1: Day-1 - Mid-Day Break
Monday, September 21 12:40 - 13:00 (Asia/Bahrain)
Room: Virtual Networking-Hall

SB01: Cloud Computing Applications for Smart Cities & New Technologies for Smart Environment

Monday, September 21 13:00 - 14:40 (Asia/Bahrain)
Rooms: Parallel-Session-1, Virtual-Room-01
Chair: Reem AlKaabi (University of Bahrain, Bahrain)

13:00 Time and Cost Effective Recovery Mechanism for Unhealthy Resources in Proactive Fault Tolerance Framework
    Tamilvizhi T and Surendran R (Chennai Institute of Technology, India)
13:20 Integrated Mechanism on Online Academic Advising Service for Students through Education Cloud
    Surendran R and Tamilvizhi T (Chennai Institute of Technology, India)
13:40 Secure Cloud Computing Framework Based on Homomorphic Encryption
    Ahmad Alalawi and Alauddin Yousif Al-Omary (University of Bahrain, Bahrain)
14:00 Voice Assisted Smart Home Automation System
    Deepti Mehrotra (AMITY School of Engineering and Technology & Amity Univerisity, India); Vikas Deep (Amity University Uttar Pradesh, India)
14:20 Predicting Cloud Spot Price Using Machine Learning
    Ali Jassim and Mustafa Hammad (University of Bahrain, Bahrain)

SB02: Cyber Security-2

Monday, September 21 13:00 - 15:30 (Asia/Bahrain)
Rooms: Parallel-Session-2, Virtual-Room-02
Chair: KrishnaKeerthi Chennam (Osmania University & Mjcet, India)

13:00 Designing Machine Learning Based Security System for Smart Cities
    Nandita Sengupta and Ramya Chinnasamy (University College of Bahrain, Bahrain)
13:20 Cyber Threats detection in the Smart City using BigData Analytics
    Faizal Hajamohideen (College of Applied Sciences, Sohar, Oman); Karthikeyan Subramanian (College of Applied Sciences, Oman)
13:40 On DNA Cryptography for Secure Data Storage and Transfer
    Ahmed Elmoselhy and El-Sayed M. El-Alfy (King Fahd University of Petroleum and Minerals, Saudi Arabia)
14:00 Securing IOT against DDOS Attacks Using Machine Learning
    Ahmed M. Zeki (University of Bahrian & College of IT, Bahrain); Marwa Mahmood (University of Bahrain, Bahrain)
14:20 Outlook of Commonly used Biometrics and Assessment of the Best Trait for High Level Security
    Mayada Faris Ghanim (University of Mosul, Iraq)

SB03: Smart Transportation System-1

Rooms: Parallel-Session-3, Virtual-Room-03
Chair: U Gazder (UoB, Bahrain)

13:00 Online Stock Lot Service System Development
    Shafiqul Islam, Md. Sadiqul Islam Khan and Md. Sajid-ul Islam (North South University, Bangladesh)
13:25 Smart Transportation System in the context of IoT based Smart City
    MVV Prasad Kantipudi (Sreyas Institute Of Engineering and Technology, India); Prudhvi Raj Belide and Sri Chaitanya Durga Prasad Mojjada (Sreyas Institute of Engineering & Technology, India)
13:50 Comparing Smart Traffic Management Solutions with Infrastructure Expansion Projects: A case study for Rawalpindi, Pakistan
    Attiq Ur Dogar (University of Central Punjab, Pakistan); Muhammad Khattak (Beijing University of Technology (BJUT), China); Uneb Gazder (University of Bahrain, Bahrain); Arshad Jamal (King Fahd University of Petroleum & Minerals (KFUPM), Saudi Arabia)
14:15 ARM Cortex Based Modeling and Implementation of a Self-Controlled Traffic Light System
    Qasem S Abu Al-Haija (Tennessee State University, USA); Nour Jebril (King Faisal University, Saudi Arabia)
14:40 Deep Learning Applications in Auto-Mobiles
    MVV Prasad Kantipudi (Sreyas Institute Of Engineering and Technology, India); Eswar Gudimetla (Sreyas Institute of Engineering and Technology, India); Mythreyi Lagisetty, Vedavathi Kannappa and Balraj Vankudoth (Sreyas Institute of Engineering & Technology, India)
15:05 Optimal energy management of the smart parking lot in the design of fuel cell charging system
    Pushan Kumar Dutta (Amity University Kolkata, India & Amity School of Engineering and Technology, Romania); Protyush De and Rounok Chakroborty (Amity University Kolkata, India)

Monday, September 21 13:00 - 15:00 (Asia/Bahrain)

SB04: Smart Transportation System-2

Rooms: Parallel-Session-4, Virtual-Room-04
Chair: Abrar Habib (University of Bahrain, Bahrain)

13:00 Implementing Smart Traffic Light Control System Using FPGAs: Retrofit Proposal
      Mohammed Majid M. Al-Khalidy (University of Bahrain & Engineering College, Bahrain); Ali Azzam and Ahmed
      Mohammed Al Khalidy (UoB, Bahrain)
13:20 Smart Shipment: An Efficient Algorithm for Packing Three-Dimensional Bins
      Youssef Harrath (University of Bahrain, Bahrain); Manar Aljasim (Bahrain); Lyeba Muhammad Anees (University of
      Bahrain, Bahrain)
13:40 Design and implementation of a smart ridesharing transportation system: BusNet platform
      Youssef Harrath and Sufyan Saleh AlAmoodi (University of Bahrain, Bahrain); Abdulrahman Adel Bucheeri (Bahrain)
14:00 A survey of IoT-based Smart Parking Systems in Smart Cities
      Marwa Assim and Alauddin Yousif Al-Omary (University of Bahrain, Bahrain)
14:20 Smart Cities - The New Bahrain Airport Project
14:40 Multi-hop Broadcast Protocol based on Smart Fuzzy Inference for Vehicular Ad-Hoc Network
      Omar Yousef Bani Fayyad (University Of Bahrain, Bahrain); Mohab Mangoud (UoB, Bahrain)

Monday, September 21 14:20 - 15:25 (Asia/Bahrain)
LB1: Ending-Day1
Room: Virtual Networking-Hall

Monday, September 21 15:25 - 15:30 (Asia/Bahrain)
CD-1: Closing of Day-1

Tuesday, September 22
Tuesday, September 22 8:30 - 9:00 (Asia/Bahrain)

D2: Day2 - Getting Ready, and Virtual Platform Technical Setting - Help (if Any)
Room: Virtual Networking-Hall

Tuesday, September 22 9:00 - 9:30 (Asia/Bahrain)

KN4: Symposium Keynote Speaker-4: Bahrain Smart City Society

Dr. Bijan Pio Majidi - CEO Dinamica International Ventures Development W.L.L.
Room: Main-Virtual Hall: 3SCS-2020
Chair: Reham Almesaeed (University of Bahrain, Bahrain & University of Bristol, United Kingdom (Great Britain))

Bahrain Smart City Society by Dr. Bijan Pio Majidi, CEO Dinamica International Ventures Development W.L.L., Bahrain

Mobility is just one of the smart cities domains, but nonetheless, a vitally important one, influencing our personal life in many ways. Personal mobility is evolving quickly and the paradigm is shifting from ICE vehicle mobility centric solutions to personal centric ,micro and multimodal, mobility, with impactful consequence on urban planning, infrastructures retrofitting and development, innovative technology deployment and bespoke regulations, policies and legislation. The automotive revolution creating the emergence and increasing deployment of E-CASE: E-business models, Connected, Autonomous, Shared and Electric vehicles, opens a new chapter in the role of regulators, infrastructure developers, urban planners, municipalities, utility electricity providers, telecommunication companies, IT, big data and analytics authorities and EV charging network developers and operators. Multiple nations have set ambitious policy goals for E-CASE adoption and are setting essential steps, as an example, to prioritize transportation electrification as a key strategy to reduce fossil fuel dependence, reduce energy costs, air pollution, and greenhouse gas emissions. EV adoption is projected to grow in the next 5 years across the world, in a heterogeneous way; there will be countries that will go all-court, obtaining real benefits for all its stakeholders and citizens, and those who will only go with declarations of intent and PR stunts. To succeed, there must be economical convenience for the vehicle end-user/owner and fleet

owners (public and private), and viable business models for those who invest, develop and manage the required EV charging infrastructure. The E-CASE adaptation, penetration speed and benefits (environmental, economical, safety, privacy and quality of life), will depend significantly on the regulators' vision, policies, budget, legislation, time-to-market planning and implementation capabilities. Bahrain, due to its intrinsic characteristics, dimensions and geographical location, its government vision, openness to innovation and its commitment to citizens' well-being, has the opportunity to become a real best-practice nation with significant benefits for all its stake-holders. This presentation aims to outline a feasible, scalable and sustainable planning and implementation roadmap based on the principle: Think big (long term vision), start small (selected significant pilots), produce quick wins (that are scalable) and scale-up in PPP fashion (with best fit partners).

Dr. Bijan Pio Majidi, born in Livorno, Italy, an Italian citizen, multilingual and multicultural, is the founder and CEO of Dinamica International, Board Member and Programs Director BSCS (Bahrain Smart City Society), and Strategic Advisor to Cities Forum (Sustainable Urban Development) UK. He is an accomplished international business innovator, entrepreneur and chief executive, with a 30+ year track record in multimillion dollar business start-ups, scale-ups, turnarounds, digital transformations, joint ventures, M&As, IPOs and international market penetrations in North America, Europe, the Far East and the Middle East. He has served as a senior executive across diverse industries (IT, telecommunications, financial and insurance services, automotive, transportation, mobility and management consulting), and most significantly held the positions: Vice President Olivetti North America, CEO Mondus-Telecom Italia, Senior Vice President Tiscali Telecommunications Europe, Country General Manager Fiat Auto Netherlands, General Manager Mobility Targa Service Europe, Managing Director Manuli Rubber Industries, Managing Director KCS Consulting and Senior General Manager E K Kanoo and Motor City Holding in Bahrain. Dr. Majidi currently collaborates as senior advisor, executive coach and interim director with boards, executive teams, entrepreneurs and government authorities, in the development of business and operations innovation, restructuring and digital transformation projects.

Tuesday, September 22 9:30 - 10:00 (Asia/Bahrain)

KN5: Keynote Speaker -5: Artificial Intelligence and Deep Learning Models in Cybersecurity,

El-Sayed El-Alfy is Professor at King Fahd University of Petroleum and Minerals-KFUPM, KSA
Room: Main-Virtual Hall: 3SCS-2020
Chair: Hessa Al-Junaid (University of Bahrain, Bahrain)

SYMPOSIUM KEYNOTE TALK: Artificial Intelligence and Deep Learning Models in Cybersecurity: Potentials, Tools, and Risks

by: Prof. El-Sayed El-Alfy is Professor at King Fahd University of Petroleum and Minerals, KFUPM, KSA

TALK ABSTRACT: With the increasing reliance on smart devices and computing-enabled infrastructure for automated systems, cybersecurity has become a growing field of interest and investment. Artificial intelligence (AI) is developing rapidly and its recent technological advances have gained global importance in many domains including the digital world of cybersecurity. AI-driven systems can be a blessing or curse for cybersecurity experts and criminals alike. For instance, while cybersecurity experts are harnessing the potential of AI to develop countering solutions for hacking activities, cybercriminals can employ it to build more smart malware agents to adapt and launch illusive attacks that are hard to fight. Governments, organizations, businesses and individuals need to be aware of the game and the potentials and limitations of AI techniques to be prepared to combat cybercrimes by investing in the research and development of innovative solutions in order to protect our vital information and critical systems from adversaries and potential catastrophic cyber threats. In this talk, we provide an overview of artificial intelligence techniques from machine learning to deep learning models and how they have been applied in cybersecurity.

Prof. El-Sayed El-Alfy, Professor King Fahd Univ. of Petroleum and Minerals (KFUPM). He has 25+ years of experience in industry and academia involving research, teaching, supervision, curriculum design, program assessment and quality assurance. He is ABET/CSAB Program Evaluator and IEEE Senior Member. He worked as a consultant and reviewer for NCAAA, and several universities and research agents in various countries. He is an active researcher in machine learning and nature-inspired computing and applications to data science and cyber analytics, pattern recognition, multimedia forensics, and security systems. He published numerously in peer-reviewed int'l journals and conferences, edited a number of books, contributed to organization of many int'l conferences, served as guest editor for a number of special issues, and been in editorial board of a number of premium journals including IEEE/CAA Journal of Automatica Sinica, IEEE Transactions on Neural Networks and Learning Systems, International Journal on Trust Management in Computing and Communications, and Journal of Emerging Technologies in Web Intelligence (JETWI). He co-founded and coordinated a research group on Intelligent Systems at KFUPM. He is a member of IEEE Computational Intelligence Society, and x-member of ACM and IEEE Computer Society. His work has been internationally recognized and received several awards.

Tuesday, September 22 10:00 - 10:10 (Asia/Bahrain)
SB-2: Short Break-2
Room: Virtual Networking-Hall

10:10 Antenna Design for 5G Systems at Sub-6 GHz and Millimeter-Wave Bands
Muhammad Umar Khan (National University of Sciences and Technology (NUST), Pakistan)

KN6: Symposium Keynote Speaker-6: Antenna Design for 5G Systems at Sub-6 GHz and Millimeter

Dr. Khan, an A. Professor at the Research Institute for Microwave and Millimeter Wave Studies (RIMMS), Pakistan
Rooms: Keynote-Speaker-6, Main-Virtual Hall: 3SCS-2020
Chair: Mohab Mangoud (UoB, Bahrain)

SYMPOSIUM KEYNOTE TALK: Antenna Design for 5G Systems at Sub-6 GHz and Millimeter-Wave Bands by Dr. Muhammad Umar Khan Research Institute for Microwave and Millimeter Wave Studies (RIMMS), Pakistan.

TALK ABSTRACT: 5G communication Standard is the future of wireless mobile services. It will help in the realization of the data hungry technologies and will be the enabling technology for IoT, autonomous cars, smart cities etc. The 5G technology will rely on several frequency bands including the millimeter-wave bands to achieve extremely high data rates. The performance of a 5G system greatly rely on the design of its wireless transceiver. Among this, antenna design is of paramount importance. In a limited space, multiple antennas covering widely spaced bands with stringent radiation characteristics are required. This talk will focus on the design of antennas for 5G. It will cover both the designs and antenna requirements in the sub-6 GHz bands and in the millimeter-wave bands. Different scenarios will be presented to explain how the antenna design can affect the performance of a MIMO system and based on which, antenna designs for 5G will be presented.

Dr. Muhammad Umar Khan: Dr. Khan is an assistant professor at the Research Institute for Microwave and Millimeter Wave Studies (RIMMS). He obtained his bachelor's in electrical engineering degree from Pakistan Navy Engineering College (PNEC), National University of Sciences and Technology (NUST), Karachi, Pakistan in 2006. He received his M.S. degree in Electrical Engineering from GIK Instittue of Engineering Sciences and Technology (GIKI), Topi, Pakistan in 2008. He received Ph.D. in Electrical Engineering from King Fahd University of Petroleum and Minerals (KFUPM), Dhahran, Saudi Arabia in 2015. His research focus during his doctorate studies was on Microwave and Antenna Systems Design. As part of the Antennas and Microwave Structure Design (AMSD) laboratory at KFUPM, he worked on Electrically Small Antennas and MIMO Antenna Systems. In Fall 2019, he spent a semester as a visiting researcher at University of Central Florida (UCF), FL, USA and worked under the supervision of Prof. Raj Mittra. Dr. Khan has more than a decade long association with academia. He has taught at GIK Institute and KFUPM. Since joining NUST, he has served in several committees related to research policy and graduate curriculum. His current research interests include Printed Antennas and Antenna Arrays, MIMO Antenna Systems, Millimeter-Wave antennas, Reconfigurable Antennas, Applied Electromagnetics, Microwave Electronics and Microwave System Design. He has published 50 refereed journal and conference papers and has one issued patent with the USPO. Dr. Khan is a Member of US Institute of Electrical and Electronics Engineers (IEEE) and Pakistan Engineering Council (PEC).

Tuesday, September 22 10:40 - 11:10 (Asia/Bahrain)

KN7: Keynote Speaker 7: Automated Building and Homes a Smart City consist of: From Smart Buildings to Smart Cities

Volkan Alçınkaya, Global marketing Director, Turkey.
Room: Main-Virtual Hall: 3SCS-2020
Chair: Mohamed Bin Shams (University of Bahrain, Bahrain)

SYMPOSIUM KEYNOTE TALK: Automated Building and Homes a Smart City consist of: From Smart Buildings to Smart Cities, by Smart Cities and Cyber- Security SectorInterra, Volkan Alçınkaya, Global marketing Director, Turkey. Presentation by Eng. Nihat Aslandogdu, Head of Interra Academy, Export Technical Manager Occupation.

ABSTRACT: Let's compare smart cities to a community of people, the smallest unit in a community is the individual and the family. If it is not a smart city, we can call it an individual or family. When we consider buildings here, smart systems have been implemented in our buildings for a long time. It treats me as a common system under the automation of many structures and systems that are now required in the networks. Illuminations, elevators, sensors and pumps are the nerve endings of the building and there is a constant flow of information. This information is sent to a common point inside or outside the building. It ensures that the management of this building is energy-efficient and that they are kept under control. It also offers much more comfort,

health and safety for people living in it. Other topics in the keynote; Digital Twin, How smart offices, rooms change the future of work and living places.

Dir, Eng. Volkan Alçınkaya Keynote Speaker, Eng. Volkan Alçınkaya, Global marketing Director and now his occupation: Electronic Engineer. Volkan Alçınkaya was born and grew up in Istanbul. Abant İ. B. Üniversity Industrial Electronik (2000), Freiburg University Berner Fachhochschule (Elektro-Kommunation Techniken) He has started his carrier at TürCOntrolSystemen AG German manufacturer for Building communication and established subsidary in turkey İstanbul. He's now leading the export department in Interra and board member. Brought different approach to the building by dedicated solution on commercial, residential and hotel application.

Tuesday, September 22 11:10 - 11:20 (Asia/Bahrain)
CB3: Short Break-3
Room: Virtual Networking-Hall

Tuesday, September 22 11:20 - 13:00 (Asia/Bahrain)

SC01: Smart Urban Planning, & Design Solutions-1

Rooms: Parallel-Session-1, Virtual-Room-01
Chair: Noor Aldoy (University of Bahrain, Bahrain)

11:20 Simple realization of New Techniques in generation of energy
        Khalaf Yasin Alzyoud (Albalqa Applied University, Jordan)
11:40 Interactive Museums: Empowering visitors' engagement
        Anamika Jiwane and Farial Khan (University of Bahrain, Bahrain)
12:00 Humanizing spaces through designing smart hotels
        Nadia Ahmed and Nehal Ali Almurbati (University of Bahrain, Bahrain)
12:20 Eco-Friendly AAC Blocks for Construction in Smart Cities
        Md Sahedul Islam (Insulated Building System Factory, Bahrain)
12:40 The use of attractive lights to encourage the public of using the outdoor areas to control the spreading of COVID 19
        Islam Hamdi El Ghonaimy (University of Bahrain & Associate prof, Bahrain); Dania Janahi and Zahra Marhoon
        (University of Bahrain, Bahrain)

Tuesday, September 22 11:20 - 13:20 (Asia/Bahrain)

SC02: Internet of Things and Smart Applications-2

Rooms: Parallel-Session-2, Virtual-Room-02
Chair: Zouhir Bahri (University of Bahrain, Bahrain)

11:20 SURVEY ON IOT based education system, Case study: MSA University
        Ghada Abdelhady (MSA University, Egypt); Mamdouh Abdel Mouez (Ain Shams University, Egypt)
11:40 Review on Securing the Physical Layer in Internet of Things (IOT) Devices
        Lina Abdulaziz Aldossary (University of Bahrain, Saudi Arabia)
12:00 Design of a Low-Cost System Prototype to Track Down Missing Pilgrims
        Fawzi Mohammed Munir Al-Naima (Al-Nahrain University & Al-Ma'moon University College, Iraq); Ammar Sayed
        Hassan (UET Taxila, Pakistan)
12:20 A Framework of Integrating VR and IoT Technology to Test Users' Preferences of Artificial Lighting Variations in Hotel Guest Room
        Sherif Elwageeh and Hana Karoui (Kingdom University, Bahrain)
12:40 Deep-Learning and IoT Emphasis in I-Cites
        Youssef H Elhabashy (Faculty of Engineering, MSA University, Egypt); Ahmed I Ahmed (Faculty of Engineering, MSA
        University, Egypt & School of Engineering, University of Greenwich, United Kingdom (Great Britain)); Ghada Abdelhady
        (MSA University, Egypt)

Tuesday, September 22 11:20 - 12:40 (Asia/Bahrain)

SC03: New Technologies for Smart Cities-1

Rooms: Parallel-Session-3, Virtual-Room-03
Chair: Mohamed Amine Fnaiech (University of Bahrain, Bahrain)

11:20 Using Bag-of-Features for Arabic font recognition
  Hamzah Luqman (King Fahd University of Science and Technology, Saudi Arabia); Mohammed O. Assayony (University of Hafr Al-Batin, Saudi Arabia)
11:33 SVM Classification Based Fuzzy Understanding of Eye Electroencephalography Movements for Robotics Application
  Ebrahim Abdulla Mattar (University of Bahrain & IET Bahrain Local Network, Bahrain)
11:46 Smart Controller Based Heuristic Evaluation Techniques (case study: BGPS - Iraq)
  Wasan Hashim (Alqalam University College, Iraq); Karim M Aljebory (AlQalam College University , Iraq); Ayman Al-khazraji (University of Bahrain, Bahrain)
11:59 Partial Distance Strategy Analysis on City Characteristics to Improve Reliable Smart Cities Services
  Winny Safitri (Survey and Policy Analysis Research Group (SPARG), Universitas Syiah Kuala, Indonesia); Muhammad Ikhwan (Universitas Syiah Kuala, Indonesia); Devi Firmansyah (MTsN 1 Aceh Timur, Ministry of Religious Affairs, Indonesia); Siti Rusdiana and Latifah Rahayu (Syiah Kuala University, Indonesia); Teuku Akhdansyah (Universitas Syiah Kuala, Indonesia)
12:13 Smart Cities' success - How well utility companies are prepared
  Suresh Vishwakarma (ZE Power Engineering, Canada); Ruchi Tyagi (University of Petroleum and Energy Studies, India)
12:26 K-Mean and HSV Model based Segmentation of Unhealthy Plant Leaves and Classification Using Machine Learning Approach
  Vijay Kumar Trivedi (Lakshmi Narain College of Technology, Bhopal, India); Piyush Kumar Shukla (UIT RGPV, India); Pushan Kumar Dutta (Amity University Kolkata, India & Amity School of Engineering and Technology, Romania)

Tuesday, September 22 12:40 - 13:00 (Asia/Bahrain)
ZB2: Day-2 - Mid-Day Break
Room: Virtual Networking-Hall

Tuesday, September 22 13:00 - 14:20 (Asia/Bahrain)

SD01: New Technologies for Smart Cities-2

Rooms: Parallel-Session-1, Virtual-Room-01
Chair: Ayman Al-khazraji (University of Bahrain, Bahrain)

13:00 Improving Software Cost Estimation Process Using Feature Selection Techniques
  Mahmood Mohammed Al Asheeri and Mustafa Hammad (University of Bahrain, Bahrain)
13:11 Innovative technology environment in Bahrain
  Mariam Ghuloom (University of Bahrain, Bahrain)
13:22 Subjectivity Analysis of Arabic-English Wikipedia
  Alia AlKameli (University of Bahrain, Bahrain); Maria Liakata (University of Warwick, United Kingdom (Great Britain))
13:34 Predicting Successful Software Reuse using Machine Learning
  Mariam Amin and Mustafa Hammad (University of Bahrain, Bahrain)
13:45 Traffic Congestion in the Kingdom of Bahrain: Social Mobile Application Solution
  Ahmed Jedidi (CES Laboratory, Saudi Arabia); Aqeela Mahdi Ali Jasim Ali (Ahlia University, Tunisia)
13:57 Security and Privacy Risks and Challenges in Smart Cities' Traffic Light System
  Belal Asad (Bournemouth University, United Kingdom (Great Britain)); Neetesh Saxena (Cardiff University, United Kingdom (Great Britain)); Vasilios Katos (Bournemouth University, United Kingdom (Great Britain))
14:08 An Enhanced Charge Controller for a Standalone PV System
  Maamar Taleb (UOB, Bahrain); Khaled Zehar (University of Bahrain, Bahrain)

Tuesday, September 22 13:00 - 15:20 (Asia/Bahrain)

SD02: Energy & Smart Grids - Smart Manufacturing for the Oil and Gas industries

Rooms: Parallel-Session-3, Virtual-Room-03
Chair: Mohamed Bin Shams (University of Bahrain, Bahrain)

13:00 Assessment of solar/wind/battery system for the western coast of Saudi Arabia
    Abdullahi Abubakar Mas'ud and Hassan Algarni (Jubail Industrial College, Saudi Arabia)
13:20 Tatweer Petroleum's Spatial Map Implementation and Drones Utilization for Day-to-day Operations in the Bahrain Field
    Yasser Nooraldeen (Tatweer Petroleum, Bahrain)
13:40 Solar tracking system based on light to frequency converter
    Mostefa M Ghassoul (University of Bahrain, Bahrain)
14:00 BAPCO 4.0 A Refinery on a Single Digital Platform
    Abdulrahim Mohammed (BAPCO, Bahrain)
14:20 Performance Evaluation of the Ducted Vertical Axis Wind Turbine for Domestic Applications
    Abdullateef A. Jadallah, Sahar Radi Al-sakini and Jenan D Hamdi (University of Technology, Iraq)
14:40 Value of Lost Load Calculation for Smart Cities
    Isa Salman Qamber (UOB, Bahrain); Mohamed Alhamad (Power Trade Senior Executive, Saudi Arabia)
15:00 The Mathematical Formulation of Fuel & LBO Portfolios Optimization in a Local Refinery
    Lujayn Mohamed Al Sayoof (University of Bahrain & Bapco, Bahrain); Mohamed Bin Shams (University of Bahrain, Bahrain)

SD03: Healthcare and Medicine (IoMT) - Covid-19 Technology Solutions

Tuesday, September 22 13:00 - 15:20 (Asia/Bahrain)
Rooms: Parallel-Session-4, Virtual-Room-04
Chair: Ali Al Mousawi (University of Bahrain, Bahrain)

13:00 Artificial Neural Network Based System for Distorted Image Recognition
    Mohammad Kamal Hossain (CoRERE, King Fahd University of Petroleuma & Minerals, KSA, Saudi Arabia); Md Sarwar M Haque (King Fahd University of Petroleum and Minerals, Saudi Arabia); Md. Arifuzzaman (King Faisal University, Saudi Arabia); SM Zakir Hossain (University of Bahrain, Bahrain)
13:20 Radiology Reports Automated Annotation Performance: Rule-Based Machine Learning Vs Deep Learning
    Ahmed Kamal aldin Sahl (King Khalid University & Universiti Teknologi Malaysia, Saudi Arabia); Shafaatunnur Hasan (Universiti Teknologi Malaysia, Malaysia)
13:40 Design and Implementation of a Cost-Effective Smart Heart Monitoring System
    Mohammad Abdul Rasheed Rahil, Moath Waleed, Safia Almajid, Noor Bucheeri and Zouhir Bahri (University of Bahrain, Bahrain)
14:00 Smart healthcare facilities via IOT in the Health Care Industry
    Fadheela Hussain (University Of Bahrain, Bahrain); Mustafa Hammad (University of Bahrain, Bahrain)
14:20 Teaching and Learning during COVID-19
    Asiya Abdus Salam (IAU, Saudi Arabia); Ahmad Younis (Imam Abdulrahman Bin Faisal University, Saudi Arabia); Nazar A Saqib (Imam AbdulRahman Bin Faisal University, Saudi Arabia)
14:40 Hybridizing Deep Neural Network for Genes Expression classification using Histone Modification
    Rajit Nair (Jagran Lakecity University, India); Manit Bhagat (MANIT, Bhopal, India); Piyush Kumar Shukla (UIT RGPV, India); Pushan Kumar Dutta (Amity University Kolkata, India & Amity School of Engineering and Technology, Romania)
15:00 EEG-based classification of visually evoked emotions using multiscale entropy features
    Mohammed N Al Sallout (University of Bahrain, Bahrain); Ebrahim Abdulla Mattar (University of Bahrain & IET Bahrain Local Network, Bahrain)

Tuesday, September 22 14:20 - 15:25 (Asia/Bahrain)
LB2: Ending-Day2
Room: Virtual Networking-Hall

Tuesday, September 22 15:25 - 15:30 (Asia/Bahrain)
CD-2: Closing of Day-2
Room: Virtual Networking-Hall

D3: Day3 - Getting Ready, and Virtual Platform Technical Help

Wednesday, September 23 9:00 - 9:30 (Asia/Bahrain)

KN8: Keynote 8: White Box cryptography: Applications, Attacks,

9:00 White Box cryptography: Applications, Attacks & Countermeasures for Smart City Paradigm
Piyush Kumar Shukla (UIT RGPV, India)
Dr Piyush Kumar Shukla University Institute of Technology, Rajiv Gandhi Proudyogiki Vishwavidyalaya (Technological University of Madhya Pradesh)
Room: Main-Virtual Hall: 3SCS-2020
Chair: S Ali Al-Mawsawi (University of Bahrain, Bahrain)

by Dr Piyush Kumar Shukla (PDF, PHD, SMIEEE) Asso. Professor at University Institute of Technology, Rajiv Gandhi Proudyogiki Vishwavidyalaya (Technological University of Madhya Pradesh)

TALK ABSTRACT: In this talk, we will discuss on the white-box cryptography (WBC), its applications, security issues, known attacks, and countermeasures on various WBC designs. The prime objective of this talk is to explore the ways to secure smart and intelligent devices against several security threats. Especially in Digital Resource Management (DRM), as the attacker has full control to access the software implementation, algorithms in WBC. for the smart city paradigm, it is essential to provide adequate security in all aspects.

Speaker: Dr Piyush Kumar Shukla: Dr Piyush Kumar Shukla (PDF, PHD, SMIEEE) is Associate Professor at University Institute of Technology, Rajiv Gandhi Proudyogiki Vishwavidyalaya (Technological University of Madhya Pradesh). He obtained his B.E. (Electronics & Communication Engineering) form RGPV (LNCT), M.Tech. (Computer Science & Engineering), RGPV (SATI). He has completed Post Doctorate Fellowship(PDF) recently (March, 2020) under "Information Security Education and Awareness Project Phase II" funded by Ministry of Electronics and Information Technology (MeitY), from SVNIT Surat, Gujarat, India from Department of Computer Engineering. He has published more than 100 research papers/book chapters and books at National/International level that includes very resent IEEE/ACM Transactions on Computational Biology and Bioinformatics paper on "Deep bidirectional classification model for COVID-19 disease infected patients, & "Most downloaded Paper in May-2020, "Deep Transfer Learning Based Classification Model for COVID-19 Disease" IRBM (Innovation and Research in Biomedical engineering), SCI, Elsevier, Impact Factor 1.022, 20 May 2020. He has published more than 20 Indian patents in collaboration with other institutes. He is currently editing 04 international books on Blockchain for Information Security & Privacy (CRC Press/Taylor & Francis, Innovative Engineering With AI Applications (Wiley-SP), Internet of Everything (IoE) for Biomedical Applications (CRC Press/Taylor & Francis-AAP); Intelligent Sensor Node-based Systems and Applications in Engineering and Sciences (CRC Press/Taylor & Francis-AAP). He is an active reviewer and editorial member of more than 10 reputed International Journals in his research areas, such as IEEE Transactions, Elsevier Journals, and Springer Journals etc. He has teaching and research experience of 15 years. He has been Assistant Registrar, Academic (PhD), Co-Coordinator of Intellectual property Right Cell (RGPV), Co-Coordinator AICTE at RGPV. Dr Shukla has been delivering so many lectures. He is the recipient of many awards and recognition like Selected for Best Researcher Award-2020, 2nd International Research Awards on Science, Health and Engineering by International Research Awards Sciencefather, India. He is also a member of many National Professional bodies: Senior IEEE, ISTE. He has Project Grants under TEQIP-III: 01, Principal Investigator (PI), Titled "Precision Agriculture: Smart Farming with IoT and Drone for increasing productivity of Crops in India" worth of Rs. 3.0 Lakh under research grant funded by TEQIP-III, RGPV, Bhopal. He has delivered more than 25 Expert Lecture and Chaired many Technical Sessions in International Conferences across the world such as the USA. His research interest includes Machine Intelligence, Medical Image Processing, White-Box Cryptography. He has Supervised 07 PhD Scholars and 50 M.Tech dissertations till date. He has served the department in capacity of PG In-charge/Coordinator M.Tech, DDIPG programs, Department Coordinator NBA, NAAC, and NIRF & also as HoD several times.

Wednesday, September 23 9:30 - 9:50 (Asia/Bahrain)

KN9: Keynote Speaker 9: Design, Architecture, Urban Planning for Humans Waste Management and Recycling must be considered

Kai Miethig (Wastrepreneur & Founder of W-AI-STE)
Room: Main-Virtual Hall: 3SCS-2020
Chair: Bader Almannai (University of Bahrain, Bahrain)

SYMPOSIUM KEYNOTE TALK Design, Architecture, Urban Planning for Humans Waste Management and Recycling must be considered by Kai Miethig (Wastrepreneur & Founder of W-AI-STE)

TALK ABSTRACT: Anything worldwide, in general, is designed, planned and made suitable for human usage. May it be a car, a bottle, a tool, a bag or a house. A neighborhood, a park, a computer, mobile or TV. All these items and structures have a limited life duration. From a few seconds like a bag up to a few hundred years maybe, so everything has to come to an end, but what after usage/life ends? Throwing away is not a solution, actually, it is never a solution. All that products humans create has an end and these products will not vanish like whatever comes from animals will disappear. So we need o start considering in any design the waste management and recycling possibilities to achieve sustainable design, fitting to human behavior.

Kai Miethig: Kai Miethig is an Architect and Project Manager with over 15 years of experience in the fields of design, project management and coordination, construction, site supervision, and team leadership. His has professional expertise and social competence in leading teams towards achieving project goals on high efficiency and quality He is also since many years engaged and experienced in waste management and technology solutions for the ever-increasing worldwide problem of waste and recycling along with humans habits to preserve the environment and nature. He developed recently a special training program suitable for all humans in order to have a better understanding of what waste is exactly, how behavior can be changed as well as how others can be influenced to switch habits for a better world. Environmental awareness along with handy solutions and the respective technologies is his passion.

9:30 Design, Architecture, Urban Planning for Humans - Waste Management and Recycling must be considered
        Kai Miethig (UACC & United Arab Construction Company, Bahrain)

Wednesday, September 23 9:50 - 10:00 (Asia/Bahrain)
SB-3: Short Break-4

Wednesday, September 23 10:00 - 10:25 (Asia/Bahrain)

KN10: Symposium Keynote Speaker 10: Technoprenuership and Design Methodology

Dr. Pushan Kumar Dutta School of Engineering and Technology Amity University, India
Room: Main-Virtual Hall: 3SCS-2020
Chair: Bassam Al Hamad (University of Bahrain, Bahrain)

SYMPOSIUM KEYNOTE TALK Technoprenuership and Design Methodology-Journey from Research work to Commercialization

by Dr. Pushan Kumar Dutta School of Engineering and Technology Amity University, India.

TALK ABSTRACT: An entrepreneur is a person who identifies an opportunity, converts it into a product or service, estimates earnings and profit and builds a successful business with it. A technopreneur starts out with nothing but an 'idea'. He defies existing practices and systems and thinks of doing things differently. He creates a product or solution that uses the heft and capability of technology to change the way something was traditionally done. He succeeded admirably. Do you want to be an Industrial Design Thinking in relation to Smart Ecosystem development? Learn more from our sharing session by Dr Pushan Kumar Datta who is currently the Assistant Professor in School of Engineering and Technology, Amity University, Kolkata. He is passionate about the dynamics between business and the role that technology and has been identified by the NITI Aayog, as a mentor of change for eastern zone from Mentor India from the professional and industry community to mentor students at ATL and AIC Incubators / startups. He has recently guided mentees to be a part of Bengal Chamber of Commerce and Industries, whereby offering mentorship and Incubation programme with three projects selected from Amity University Kolkata in the final round of twenty as a mentor and is ready to share with young inventors on how to bring your prototype, into a commercial product by innovation thinking.

Speaker: Dr. Pushan Kumar Dutta Dr. Pushan Kumar Dutta is present living in Kolkata, India which is his birthplace. He has been associated with Amity University Kolkata as Assistant Professor Grade 2 in the department of Electronics and Communication Engineering. He is presently having a cumulative experience of over 12 years in wide range of projects in the fields of Electronics Engineering to remote monitoring projects like earthquake studies and present innovation day challenges on healthcare and surveillance. He has been working in the field of research and trying to develop incubates and entrepreneurship as a Faculty of Engineering. He has previously worked with an autonomous engineering college and a part time faculty with Marine Engineering institute to design their corporate classes besides being a part time research scholar in Jadavpur University. Presently as a research coordinator and Assistant Professor he has been associated with engineering bodies like Institution of Engineers India and the Institution of Engineering and Technology UK. He has been identified by the NITI Aayog as a mentor of change for eastern zone. Notably under his stewardship role, mentees became a part of Bengal Chamber of Commerce and Industries whereby offering mentorship and Incubation program with three projects selected from Amity University Kolkata in the final round of twenty as a mentor. He has been enlisted in numerous programs like Erasmus Mundus Chapter India, Times Innovation Challenge by the Neotia group of Industries and worked with mentees from IIM Innovation Park on products such as smart dustbin and waste management and IoT enabled surveillance in the fields like robotics and automation. He has received National Academic merit recognition to present research and do a workshop for South East Asian countries in IIT Roorkee innovation workshop in 2012.Same year received the Young Scientist grant to present paper in China in Asian Seismological commission. Presently as a faculty of Amity University Kolkata he has published over 35 publications and submitted first patent and also have been recently awarded the Young Faculty in Engineering award from Venus International Foundation in 2018 and IOSRD and IJBST group for research and development in 2019. He has worked with under graduate students of Incubation cell and fellow science and research collaborators from Kolkata, Russia, USA and Turkey, Romania. Post PhD research includes work in National Institute of Earth Physics in Bucharest and University of Oradea and South Asian Institute of Research and Advanced Research and Development.

10:00 Technoprenuership and Design Methodology - Journey from Research work to Commercialization
    Pushan Kumar Dutta (Amity University Kolkata, India & Amity School of Engineering and Technology, Romania)

Wednesday, September 23 10:25 - 12:45 (Asia/Bahrain)

SE01: Smart Building Automation

Smart Building Automation
Rooms: Parallel-Session-1, Virtual-Room-01
Chair: Mostefa M Ghassoul (University of Bahrain, Bahrain)

10:25 Predication of Future Energy Consumption Using SARIMAX
    Elham Iskandarnia and Mustafa Hammad (University of Bahrain, Bahrain)
10:45 IoT-enabled Controlled Environment Agriculture
    Alia AlKameli (University of Bahrain, Bahrain); Wael M El-Medany (University Of Bahrain, Bahrain)
11:05 A Deep Comparisons for Using FPGAs In Parallel Processing and Computing
    Mohammed Majid M. Al-Khalidy (University of Bahrain & Engineering College, Bahrain); Ali Abdulla Alsaffar (UoB, Bahrain)
11:25 A Novel Battery Energy Storage System (BESS) using Refurbished and Certified Li-ion Batteries
    Nihad Aljuboori, Shebel Alsabbah and Salam Ismaeel (Ryerson University, Canada); Ayman Al-khazraji (University of Bahrain, Bahrain)
11:45 Smart Fuel Pump Station Controlled by IoT and WSN Deployment
    Ali Othman Al Janaby (Ninevah University & College Of Electronics Engineering, Iraq)
12:05 Solar Panel Angle Position Correction using Light Sensor and Fuzzy Logic Control
    Muhammad Ikhwan (Universitas Syiah Kuala, Indonesia); Mardlijah Mardlijah (Institut Teknologi Sepuluh Nopember, Indonesia); Chairul Imron (Institut Teknologi Sepulh Nopember Surabaya (ITS), Indonesia); Winny Safitri (Survey and Policy Analysis Research Group (SPARG), Universitas Syiah Kuala, Indonesia); Siti Rusdiana (Syiah Kuala University, Indonesia)
12:25 A Mobile application prototype of materials procurement for the Bahraini construction industry
    Alaa Alshuwaikh (University of Bahrain, Bahrain); Jehan Shabani and Kawthar Tooq (Engineer- University of Bahrain, Bahrain); Ehab Juma Adwan and Yusuf Al-Malki (University of Bahrain, Bahrain)

Wednesday, September 23 11:20 - 12:45 (Asia/Bahrain)

SE02: Smart City Architecture and its Applications Based on IoT-2

Rooms: Parallel-Session-2, Virtual-Room-02
Chair: Khaled Zehar (University of Bahrain, Bahrain)

11:20 11:20 Systemic Framework of Time-Series Prediction via Feed-forward Neural Networks
        Qasem S Abu Al-Haija (Tennessee State University, USA); Nour Jebril (King Faisal University, Saudi Arabia)
11:41 An approach to Summarize Java Classes In Software Systems
        Mohamed Hammad and Mustafa Hammad (University of Bahrain, Bahrain)
12:02 Water from Sun: An energy conservation initiative for Smart Cities
        Satish Tanavade and Suresh Manic (National University of Science and Technology, Oman); Ayman Al-khazraji
        (University of Bahrain, Bahrain); Assil Charkaoui (National University of Science and Technology, Oman)
12:23 The Value of Design Thinking for Smart Cities
        Fatema A.Aziz Qaed (University of Bahrain, Bahrain)

Wednesday, September 23 11:20 - 13:00 (Asia/Bahrain)

SE03: Smart Homes, Smart Hospitals, and Smart Campuses

Rooms: Parallel-Session-3, Virtual-Room-03
Chair: Zouhir Bahri (University of Bahrain, Bahrain)

11:20 A Source Code Summarization Technique for Object Oriented Classes
        Afrah Ali Yusuf and Mustafa Hammad (University of Bahrain, Bahrain)
11:40 What the Prophet Says About Electrical Consumption: Forecasting Techniques for Big Temporal Data
        Elham Iskandarnia and Hesham al-Ammal (University of Bahrain, Bahrain); Wael M El-Medany (University Of Bahrain,
        Bahrain)
12:00 University Campus Indoor Navigation for Android Devices using Augmented Reality and A* Search Algorithm (UCIN)
        Khaled Alsabbagh and Abdulla Abdulaziz Alkaabi (AMA International University, Bahrain)
12:20 A Circular Symmetric UWB Antenna for enhancement of underground communications in Smart Cities
        Ali Bostani (American University of Kuwait & Microwavesoft, Canada); Girish Awadhwal (UIT Bhopal, India)
12:40 A Proposed Prototype Design of a Student Attendance System Based on a Combined RFID -WSN Technology
        Ahmed A. Radhi (AL-Ma'moon University College, Iraq); Fawzi Mohammed Munir Al-Naima (Al-Nahrain University & Al-
        Ma'moon University College, Iraq)

Wednesday, September 23 11:20 - 12:45 (Asia/Bahrain)

SE04: Robotics and AI Applications - AI enabled Digital Solutions

Rooms: Parallel-Session-4, Virtual-Room-04
Chair: Ebrahim Abdulla Mattar (University of Bahrain & IET Bahrain Local Network, Bahrain)

11:20 Fuzzy Modeling of Electroencephalography for Decoding Techniques
        Hessa Al-Junaid (University of Bahrain, Bahrain)
11:34 Calibration of Autonomous Vehicles in PTV VISSIM
        Uneb Gazder, Khaled Alhalabi and Mohammed Omar (University of Bahrain, Bahrain)
11:48 Modelling Scenarios for Faulted Squirrel-Cage Six-Phase Induction Machine (6PIM)
        Mohamed Amine Fnaiech, Salwa Baserrah and Mohab A. Mangoud (University of Bahrain, Bahrain)
12:02 Artificial Intelligent and FPGAs for Omnidirectional 3-Wheeled Mobile Robot
        Mohammed Majid M. Al-Khalidy (University of Bahrain & Engineering College, Bahrain); Rasha Nasser Ebrahim (Uob,
        Bahrain); Ahmed Mohammed Al Khalidy (UoB, Bahrain)
12:16 Object Detection Tool for Self-Driving 3-D Printed Electrical Vehicles

Samer K Al Kork (American University of the Middle East, Kuwait); Abdullah S Karar (Queen's University, Canada); Murtaza Sheikh, Yasmine Al-Zuabi, Safiah Al-Ali, Zainab Ramadan, Zahraa Bosakher and Hawraa Al-Fardan (American University of the Middle East, Kuwait); Sherif Said (American University of The Middle East, Kuwait)

12:31 Automated Brake System for Drivers Distraction Cases

Sherif Said (American University of The Middle East, Kuwait); Murtaza Sheikh, Taha Beyrouthy and Samer K Al Kork (American University of the Middle East, Kuwait)

SE05: Smart City Architecture and its Applications Based on IoT-2

Rooms: Parallel-Session-5, Virtual-Room-05
Chair: Norrideen Mansour (University of Bahrain, Bahrain)

11:20 Load Forecasting in Different Scale and Horizon -A review

Elham Iskandarnia and Hesham al-Ammal (University of Bahrain, Bahrain); Wael M El-Medany (University Of Bahrain, Bahrain)

11:32 A Survey: Security issues in IoT Environment and IoT Architecture

Khadijah AbdulSattar and Alauddin Yousif Al-Omary (University of Bahrain, Bahrain)

11:44 A web-based system using IOT to economize the power consumption of Air conditioner: A case study in Bahrain

Ahmed M. Zeki (University of Bahrian & College of IT, Bahrain); Ali Mohsin and Ali Jassim (University of Bahrain, Bahrain)

11:56 New vision of an e-health integrated system's model: constructive factors and imperative components

Amina El murabet (Faculty of Sciences of Tetuan - Abdelmalek Essaadi University, Morocco); Anouar Abtoy (The National School of Applied Sciences (ENSA) ot Tetuan, Abdelmalek Essaâdi University, Morocco); Abderrahim Tahiri and Ali Younes (Abdelmalek Essaadi University, Morocco)

12:08 Creating Value Thru Real-time Data Acquired from Distributed Farm-IoT Devices

Anderson Carvalho (IT Tralee, Ireland)

12:20 Design and Implementation of a Smart Vertical-Axis Wind Turbine

Moath Waleed, Mohammad Abdul Rasheed Rahil, Anis Ur Rehman, Omar Bahri, Ahmed Mohamed, Zouhir Bahri and Omar Al-Abbasi (University of Bahrain, Bahrain)

12:32 Efficient Watermark Reconstruction for Medical Images under Rotation Attacks using DWT

Piyush Kumar Shukla (UIT RGPV, India); Paresh Rawat (Sagar Institute of Science and Technology, India); Pushan Kumar Dutta (Amity University Kolkata, India & Amity School of Engineering and Technology, Romania); Ramanand Singh (Lakshmi Narain College of Technology, Bhopal, India)

Wednesday, September 23 12:40 - 13:00 (Asia/Bahrain)
ZB3: Day-3 - Mid-Day Break
Room: Virtual Networking-Hall

Wednesday, September 23 13:00 - 15:30 (Asia/Bahrain)

SF01: Internet of Things and Smart Applications-3- Technology Enabled Homes and Interiors

Rooms: Parallel-Session-1, Virtual-Room-01
Chair: Mohammed Majid M. Al-Khalidy (University of Bahrain & Engineering College, Bahrain)

13:00 A Data-Driven WAN Reference Architecture for K-12 Education Sector

Mirza Kamaludeen (IG2 group, Canada); Salam Ismaeel (Ryerson University, Canada)

13:25 Enhanced Features of Smart Parking System

Ahmed Mubarak, Khalifa Showaiter, Alaa Al-Hamami and Ali AlSoufi (British University of Bahrain, Bahrain)

13:50 Hybrid Sensor-Based Traffic Monitoring And Managing Urban Areas In Hyderabad City

John Moses C (Sreyas Institute of Engineeing and Technology, India); MVV Prasad Kantipudi (Sreyas Institute Of Engineering and Technology, India)

14:15 Online Stock Lot Service System Development

Shafiqul Islam, Md. Sadiqul Islam Khan and Md. Sajid-ul Islam (North South University, Bangladesh); Mohammad Monirujjaman Khan (North South University & Queen Mary University of London, Bangladesh)

14:40 Multi-layered Swastika Shape Antenna Patch Design for GSM and WiMAX Applications

Sri Sai Satyanarayana Damaraju (Sreyas Institute Of Engineering & Technology, India); Sumedh Reddy Koppula (Sreyas Institute of Engineering & Technology, India); Shashank Murki (Jawaharlal Nehru Technological University Hyderabad, India)

15:05 Towards a Privacy Preserving Surveillance Approach for Smart Cities

Fatima Tariq (Lahore College for Women, Pakistan); Nadia Kanwal (Athone Institute of Technology, Ireland); Mohammad Samar Ansari (Athlone Institute of Technology, Ireland & Aligarh Muslim University, India); Ayesha Afzaal (Lahore College for Women University Lahore & LCWU, Pakistan); Mamoona Asghar (Athlone Institute of Technology, Ireland); Muhammad Anjum (COMSATS University Islamabad, Lahore Campus, Pakistan)

SF02: Green Computing, Big Data, and Analysis-1

Rooms: Parallel-Session-2, Virtual-Room-02
Chair: Ehab Juma Adwan (University of Bahrain, Bahrain)

13:00 Reverse engineering Approach for Classes' representations and interactions in Software Projects

Ahmad Alalawi and Mustafa Hammad (University of Bahrain, Bahrain)

13:25 Bug-Fix Time Prediction Using Non-Linear Regression Through Neural Network

Hussain Mahfoodh and Mustafa Hammad (University of Bahrain, Bahrain)

13:50 Towards a Comprehensive Self-Admitted Technical Debt Extraction Technique from Source Code Comments

Yaqoob S Al-Slais (University of Bahrain, Bahrain)

14:15 Data Analytics for Business Dynamism with Extension to Smart Cities

Elsayed Elamir (University of Bahrain, Bahrain); Gehan Abdel-hady Mousa (University of Bahrain, Bahrain & College of Business Administration, Egypt)

14:40 The Prime Numbers and Smart Cities, I

Moustafa Ibrahim Moustafa Mohamed (University of Bahrain, Bahrain)

15:05 Residual Networks based Classification of Right Whales in the Ocean

Ghazanfar Latif (Prince Mohammad bin Fahd University, Saudi Arabia); Faisal Anezi (Prince Mohmmad bin Fahd University, Saudi Arabia); M. Omair Butt (Prince Mohammad bin Fahd University, Saudi Arabia); Jaafar Alghazo (Prince Mohmmad bin Fahd University, Saudi Arabia)

SF03: Smart Urban Planning, & Design Solutions-2, The Smart City Design

Rooms: Parallel-Session-3, Virtual-Room-03
Chair: Nehal Ali Almurbati (University of Bahrain, Bahrain)

13:00 The Application of Virtual and Augmented Reality Technologies in the Real Estate Industry in Bahrain

Amna Alaseeri, Alaa Janahi and Fay Al khalifa (University of Bahrain, Bahrain)

13:30 Spatio-Temporal Land Use Analysis and Urban Growth Dynamic Prediction in the Kingdom of Bahrain

Ebrahim Ali Alburshaid and Mohab A. Mangoud (University of Bahrain, Bahrain)

14:00 Design of optimum tower crane foundation for infrastructures construction

Md Shah Alam and Ebrahim Shabbir (University of Bahrain, Bahrain)

14:30 Resilient Morphogenesis: A Prototype for Bahrain

Alaa Hassan and Fay Al khalifa (University of Bahrain, Bahrain)

15:00 The Makerspaces contribution to smart cities learner community

Nehal Ali Almurbati, Sabika Albuainain and Fay Al khalifa (University of Bahrain, Bahrain)

Rooms: Parallel-Session-4, Virtual-Room-04
Chair: Ali Othman Al Janaby (Ninevah University & College of Electronics Engineering, Iraq)

13:00 Technical Methods for Accelerating CNNs for IoT using FPGAs and Machine Learning
    Mohammed Majid M. Al-Khalidy (University of Bahrain & Engineering College, Bahrain); Amna Mohammed Abdulla (UoB, Bahrain)
13:21 Design of Wireless Sensor Network in the Agricultural Sector
    Zainab Alansari (University of Malaya, Malaysia & AMA International University, Bahrain); Nor Badrul Anuar (University of Malaya, Malaysia); Mohammad Riyaz Belgaum (Malaysian Institute of Information Technology Universiti Kuala Lumpur & Kuala Lumpur. Malaysia, Malaysia); Safeeullah Soomro (AMA International University Bahrain, Bahrain)
13:42 Performance of a Series Solar-Grid driving a Typical Home Appliance
    Suraj Chavda, Mohamed Abd Almaqsood, Ayman Abuzaid and Razan Alodili (University of Bahrain, Bahrain); Maamar Taleb (UOB, Bahrain)
14:04 Design A Heuristic controller for Nonlinear type liquid level Industrial process
    Suresh Manic (National University of Science and Technology, Oman); Feras Alattar (Caledonian College of Engineering, New Zealand & Seeb111, Muscat, Oman); Fadeela Al Matrushi and Imad Al Naimi (National University, Oman); Ayman Al-khazraji (University of Bahrain, Bahrain)
14:25 Smart Fuel Pump Station Controlled by IoT and WSN Deployment
    Ali Othman Al Janaby (Ninevah University & College of Electronics Engineering, Iraq)
14:47 IOT Theft Capture System
    M. Almawlani, K. Alalawi, Alaa Al-Hamami and Ali AlSoufi (British University of Bahrain, Bahrain)
15:08 Smart Real-time Water Contamination Monitoring System
    Hassan Khalil, Norrideen Mansour and Sarah Al-Shareeda (University of Bahrain, Bahrain)

Wednesday, September 23 15:30 - 15:45 (Asia/Bahrain)
LB3: Day-3 - Symposium Ending - Short Break
Room: Virtual Networking-Hall

Wednesday, September 23 15:45 - 16:00 (Asia/Bahrain)
CD-3: Closing of the 3rd SMART CITIES SYMPOSIUM, 2020
Room: Virtual Networking-Hall