IEEE 19th International Conference on Smart Communities: Improving Quality of Life using ICT, IoT and AI

IEEE HONET 2022 Program

December 19-21, 2022,
Marietta, GA, USA
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DAY 1

Monday, December 19, 2022

8:20 – 8:30am	Opening Remarks
8:30 – 9:15am	Keynote Speech: Michael Hunter *The Uncertain Role of Emerging Technology in Quality of Life and Smart Cities.*
9:15–10:00am	Keynote Speech: Jurek Z. Sasiadek *Navigation of Autonomous Robots*
10:00–10:30am	*Break*
10:30–12:00pm	Technical Session 1 Artificial Intelligence, Internet of Things, and AI & IoT for Smart Cities *HS1-1 to HS1-5*
12:00 –1:30pm	*Lunch*
1:30 –3:00pm	Technical Session 2 Artificial Intelligence, Internet of Things, and AI & IoT for Smart Cities *HS2-1 to HS2-5*
3:00 – 3:30pm	*Break*
3:30 – 5:00pm	Technical Session 6 Robotics *HS6-1 to HS6-6*

DAY 2
Tuesday, December 20, 2022

8:30 – 9:15am	Keynote 3: Ehab Al-Shaer Towards Autonomous Cyber Deception
9:15–10:00am	Keynote 4: Simone Keller Fuchter *Augmented Reality - Techniques and Possibilities*
10:00–10:30am	*Break*
10:30–12:00pm	*Technical Session 3* Artificial Intelligence, Internet of Things, and AI & IoT for Smart Cities *HS3-1 to HS3-5*
12:00 –1:30pm	*Lunch*
1:30 –3:00pm	Symposium C Smart City and IoT Applications (SCIAP'22) *Technical Papers* *SC-1 to SC-5*

Co-chairs:
Prof. Dr. Mohammad Ilyas, ilyas@fau.edu, Professor,
Department of Electrical Engineering and Computer Science, Florida Atlantic University, Boca Raton, FL, USA

Prof. Dr. Junaid Ahmed Zubairi, zubairi@fredonia.edu,
Distinguished Professor and Chair, Department of Computer and Information Sciences, SUNY at Fredonia, Fredonia NY, USA

Engr. Shaftab Ahmed, shaftab_2010@yahoo.com,
Associate Professor, HOD Computer and Software Engineering Department, Bahria University, Islamabad, Pakistan

3:00 – 3:30pm	*Break* ***(Poster Session)***
3:30 –5:00pm	Technical Session 4 Computer Networks and Network Security *HS4-1 to HS4-5*
5:30pm	*Banquet & Award*
6:00 –6:20pm	SK Battery America
6:20 –6:50pm	Invited Talk 8: Beibei Jiang *Solid-State Lithium metal batteries: Mapping Existing and Emerging Design Space*
6:50 –7:00pm	*Best Paper Award*

DAY 3
Wednesday, December 21, 2022

8:30 – 9:00am	Invited Talk 1: Satyam Agarwal *Machine Learning Driven Signal Demodulation*
9:00–9:30am	Invited Talk 2: Hossam Hassanein *Anticipatory Radio Resource Management for 5G Networks and Beyond*
9:30–10:00am	Invited Talk 3: Abasifreke (Aba) Ebong *The solar cell architectures, cost and reliability for affordable and sustained photovoltaic electricity*
10:00–10:20am	*Break*
10:20–11:00am	Workshop Online Simulations and Remote Access Visualization Tools for Science & Technology Curricula *Co-chairs:* *Ahmed S Khan, Ph.D.* *Fulbright Specialist (2017-2022)* *Salahuddin Qazi* *Professor Emeritus, SUNY Polytechnic Institute, Utica, NY13502.* *Email: qazi@sunypoly.edu* *Atilla Ozgur Cakmak* *Grand Valley State University, Michigan*
11:00–11:30am	Invited Talk 4: Paul Lee *Diffuse optical spectroscopies for monitoring cerebral hemodynamics in children with sickle cell disease.*
11:30 –12:15pm	Symposium A Secure, Automated and Intelligent 6G and Beyond Networks *Technical Papers* *SA-1 to SA-3*
12:15 –1:30pm	*Lunch*
1:30 –3:00pm	Technical Session 5 *HS5-1 to HS5-6*
3:00 –3:30pm	*Break*
3:30 –4:00pm	Invited Talk 5: Maria Valero de Clemente *Pervasive Glucose Monitoring: A Non-Invasive Approach based on Near-Infrared Spectroscopy* Symposium C Smart City and IoT Applications (SCIAP'22) *Invited Speakers*
4:00 –4:30pm	Invited Talk 6: Dr. Muhammad Ilyas *Emerging Role of Artificial Intelligence in Smart Cities*
4:30 –5:00pm	Invited Talk 7: Dr. Waleed Ijaz *Enabling Technologies for Internet of Things in 6G Networks*

Keynotes and Invited Talks		
Paper	**Title**	**Presenters / Authors**
Keynote 1	*Michael P Hunter* *The Uncertain Role of Emerging Technology in Quality of Life and Smart Cities.*	*Professor of School of Civil and Environmental Engineering at Georgia Institute of Technology, Georgia, USA*
Keynote 2	*Jurek Z. Sasiadek* *Navigation of Autonomous Robots*	*Professor of Aerospace Engineering, Aerospace Robotics, Guidance, Navigation and Control Centre, Department of Mechanical and Aerospace Engineering, Carleton University, Ontario, Canada*
Keynote 3	*Mohammad Atiquzzaman* *Connecting Space Assets to the Internet: Challenges and Solutions*	*Edith J. Kinney Gaylord Presidential Professor, School of Computer Science University of Oklahoma, Norman, OK, USA*
Keynote 4	*Simone Keller Fuchter* *Augmented Reality - Techniques and Possibilities*	*Professor, University of Estácio of Santa Catarina, Brazil*
Invited 1	*Satyam Agarwal* *Machine Learning Driven Signal Demodulation*	*Prof., EE, Indian Institute of Technology Ropar Ropar, Punjab, India*
Invited 2	*Hossam Hassanein* *Anticipatory Radio Resource Management for 5G Networks and Beyond*	*Prof.,University of Alberta Kingston, Ontario, Canada*
Invited 3	*Abasifreke (Aba) Ebong* *The solar cell architectures, cost and reliability for affordable and sustained photovoltaic electricity*	*Prof.,ECE, The University of North Carolina at Charlotte, Charlotte, NC, USA*
Invited 4	*Paul Lee* *Diffuse optical spectroscopies for monitoring cerebral hemodynamics in children with sickle cell disease.*	*Prof., Electrical and Computer Engineering, Southern Polytechnic College of Engineering and Engineering Technology, Kennesaw State University*
Invited 5	*Maria Valero de Clemente* *Pervasive Glucose Monitoring: A Non-Invasive Approach based on Near-Infrared Spectroscopy*	*Prof., College of Computing and Software Engineering, Information Technology, Kennesaw State University*
Invited 6	*Dr. Muhammad Ilyas* *Emerging Role of Artificial Intelligence in Smart Cities*	*Prof., College of Engineering and Computer Science, Florida Atlantic University, Boca Raton, Florida*
Invited 7	*Dr. Waleed Ijaz* *Enabling Technologies for Internet of Things in 6G Networks*	*Director, Wireless Communication & Networks (WCN) Research Group, Electrical Engineering, Lakehead University, Barrie, ON, Canada*
Invited 8	*Beibei Jiang* *Solid-State Lithium metal batteries: Mapping Existing and Emerging Design Space*	*Prof., Electrical and Computer Engineering, Southern Polytechnic College of Engineering and Engineering Technology, Kennesaw State University*

Technical Session 1:		
Paper	**Title**	**Authors**
HS1-1	Ensemble-based Intrusion Detection for Internet of Things Devices	*Priscilla Kyei Danso and Euclides Neto (University of New Brunswick, Canada); Sajjad Dadkhah (University of New Brunswick(UNB), Canada); Alireza Zohourian (University of New Brunswick, Canada); Heather Molyneaux (National Research Council Canada, Canada); Ali A. Ghorbani (University of New Brunswick, Canada)*
HS1-2	Sustainable and Secure Optimization of Load Distribution in Edge Computing	*Euclides Neto (University of New Brunswick, Canada); Sajjad Dadkhah (University of New Brunswick(UNB), Canada); Ali A. Ghorbani (University of New Brunswick, Canada)*
HS1-3	Label Noise Detection in IoT Security based on Decision Tree and Active Learning	*Mahdi Abrishami (University of New Brunswick & Canadian Institute for Cybersecurity, Canada); Sajjad Dadkhah (University of New Brunswick(UNB), Canada); Euclides Neto (University of New Brunswick, Canada); Pulei Xiong (National Research Council Canada, Canada); Shahrear Iqbal (National Research Council, Canada); Suprio Ray (University of New Brunswick, Fredericton, Canada); Ali A. Ghorbani (University of New Brunswick, Canada)*
HS1-4	Accuracy-Aware Data Reduction for Internet of Things	*Taimur Hafeez and Gavin McArdle (University College Dublin, Ireland)*
HS1-5	VDAG: A vehicle-to-vehicle opportunistic resource sharing framework for dependent tasks	*Areeba Iftikhar and Assad Waqar (NUST, Pakistan); Anis Ur Rahman (National University of Sciences and Technology (NUST), Pakistan); Samee U. Khan (Mississippi State University, USA)*
Technical Session 2		
Paper	**Title**	**Authors**
HS2-1	Optimization Techniques for Scheduling IoT tasks in Fog-based Environments	*Rija Tariq (National Institute of Science and Technology NUST, Pakistan); Hareem Ashraf (NUST, Pakistan); Maira Sohail (National University of Sciences & Technology (NUST), Pakistan); Hasan Ali Khattak (National University of Sciences and Technology, Pakistan)*
HS2-2	Modeling of Artificial Intelligence Enabled Crowd Density Classification for Smart Communities	*Mohamed Yasin Noor Mohamed (Sultan Qaboos University, Oman)*
HS2-3	Blockchain-based Reputation System For IoT Data Ecosystem: A Utility Maximization Approach	*Seyednima Khezr and Abdulsalam Yassine (Lakehead University, Canada); Rachid Benlamri (University of Doha for Science and Technology, Qatar)*

HS2-4	Crime Classification Using Machine Learning and Data Analytic	*Muhammad Naqi Haider and Rafia Mumtaz (National University of Sciences and Technology, Pakistan); Syed Mohammad Hassan Zaidi (National University of Sciences & Technology, Pakistan)*
HS2-5	Monitoring the Electronic Footprint of Home Appliances for Electricity Management	*Arooj Arif (National University of Sciences and Technology Islamabad, Pakistan)*

Technical Session 3

Paper	Title	Authors
HS3-1	Improving the Performance of Pakistan's Justice System and its Ranking using Data Analytics	*Faisal Mehmood (National University of Sciences & Technology, Pakistan); Rabia Irfan (National University of Sciences and Technology (NUST), Islamabad, Pakistan)*
HS3-2	Energy Efficient Wireless Communication Utilizing Reinforcement Based Learning	*Sumit Chakravarty (Kennesaw State, USA); Madhushri Banerjee (Georgia Gwinnett College, USA); Satyam Agarwal (Indian Institute of Technology Ropar, India)*
HS3-3	Quantum Internet: A Revolutionary Disruption	*Syed Mohammad Hassan Zaidi (National University of Sciences & Technology, Pakistan); Muhammad Annas Khan (National University of Science and Technology Islamabad, Pakistan); Maham Iftikhar (National University of Science and Technology Nust, Islamabad, Pakistan); Rafia Mumtaz (National University of Sciences and Technology, Pakistan); Parsa Rukhsar (NUST Islamabad, Pakistan); Hafiza Zunera Abdul Sattar (Islamabad & National University of Science and Technology, Pakistan); Muhammad Abdul Aleem (Nust, Pakistan)*
HS3-4	Development of Mobile Application for Empowerment of the Rural Self Help Groups	*Harikrishna Aluri and Anirban Pal (IIT Kharagpur, India); Piyush Singh (Indian Institute of Technology Kharagopur, India)*
HS3-5	Sleep Scheduling Based Protocol design for delay tolerant traffic in RF energy harvesting IoT network	*Sumit Chakravarty (Kennesaw State, USA); Tamaghna Acharya (Indian Institute of Engineering Science and Technology Shibpur, India)*

Technical Session 4

Paper	Title	Authors
HS4-1	Performance Improvement in Cellular V2X (CV2X) by Using Massive MIMO Jacobi Detector	*Utpal Kumar Dey and Robert Akl (University of North Texas, USA); Robin Chataut (Fitchburg State University, USA)*
HS4-2	Cybersecurity Risk with Wearable Technology in Sports: Why Should We Care?	*Stefan Andjelic and Callum Doyle (West Texas A M University, USA); Gahangir Hossain (University of North Texas, USA)*

HS4-3	An Analysis of Multipath TCP Security Vulnerabilities: A Research Study	*Fatima Shafique, Shayan Fatima, Faheem Yar Khuhawar and Zulfiqar Ali Arain (Mehran University of Engineering and Technology, Pakistan)*
HS4-4	An Efficient Adversarial Defiance Towards Malware Detection System (MDS)	*Syed Khurram Jah Rizvi (National University of Sciences & Technology (NUST), Islamabad, Pakistan); Muhammad Moazam Fraz (National University of Sciences and Technology (NUST), Pakistan)*
HS4-5	Study of Zero Trust Architecture for Applications and Network Security	*Farhan Qazi (Capitol Technology University, USA)*

Technical Session 5		
Paper	**Title**	**Authors**
HS5-1	A Comprehensive Demand Response Strategy Considering Household Comfort and Economy	*Xiheng Sun, Chun Sing Lai, Zhanlian Li, Haoliang Yuan and Loi Lei Lai (Guangdong University of Technology, China)*
HS5-2	Efficiency of Inter-Chain Transport Mechanism of BaCrxFe(12-x)O19 Magnetic Materials	*Anam Mansoor, Tafruj Ilayas, Safia Anjum* and M. Yasin Akhtar Raja (University of North Carolina at Charlotte, USA); *LC Women University, Lahore, Pakistan*
HS5-3	Structural and Dielectric Properties of Sb-substituted Cd-Spinel Ferrite using Solid State Methods	*Tafruj, Ilyas, Anam Mansoor ,Safia Anjum and M. Yasin Akhtar Raja (University of North Carolina at Charlotte, USA) *(LC Women University, Lahore, Pakistan)*
HS5-4	Cost-Effective Portable Photonic Sensor for Liquid Adulteration Detection	*Kaleemullah Shaikh ; Abi Waqas; Umair Ahmed Korai Baloch and Badar Muneer ; Nawab Muhammad Faseeh Qureshi* and Aftab Memon; (Mehran University of Engineering & Technology, Pakistan) * (Sungkyunkwan University, South Korea)*
HS5-5	Development of Dark Field Illumination Algorithm for Railway Surface Fault using Machine Learning Approach	*Hafsa Noaman, Ayesha Saeed Awan, Faizan Kehar , Ali Shah , Abi Waqas , Qasim Arain , Faisal Karim Shaikh* (Mehran University of Engineering and Technology, Jamshoro, Pakistan) *(Technical University of Darmstadt, Pakistan)*
HS5-6	Cavitated Ag Paste for Next Generation Solar Cells	Sandra Huneycutt, Donald L. Intal, and Abasifreke Ebong (University of North Carolina at Charlotte, USA)

Technical Session 6		
Paper	**Title**	**Authors**
HS6-1	Improving Biomedical Systems With Robotics & Automation	*Samuel J Slate, Cole C Tryon, Fernando E Uribe and William Howland (Kennesaw State University, USA); Matthew Marshall (Kennesaw State University, Department of Mechatronics Engineering, USA); Razvan Cristian Voicu (Georgia Institute of Technology & Kennesaw State University, USA)*

HS6-2	Mimicking Muscle Relaxation Through 3D Print Materials & Magnetic Systems	*Santana Roberts (Kennesaw State University, USA); Razvan Cristian Voicu (Georgia Institute of Technology & Kennesaw State University, USA); Amir Ali Amiri Moghadam (Kennesaw State University, USA); Yusun Chang (Kennesaw State University & The Georgia Institute of Technology, USA)*
HS6-3	Robust Control of a DC Motor and Load Using Quantitative Feedback Theory	*Amir Ali Amiri Moghadam (Kennesaw State University, USA); Razvan Cristian Voicu (Georgia Institute of Technology & Kennesaw State University, USA); Kishan Patel and Ying Wang (Kennesaw State University, USA); Yusun Chang (Kennesaw State University & The Georgia Institute of Technology, USA)*
HS6-4	Independent Optimization for Robot Path Planning and Dynamic Obstacle Avoidance	*Terrance Hall, Christopher Johnson, Brighton Swales, Charles Koduru and Muhammad Hassan Tanveer (Kennesaw State University, USA)*
HS6-5	A Novel Soft Robotic Hand for Prosthetic Applications	*Frank Parsa (Azad University, Iran); Amir Ali Amiri Moghadam (Kennesaw State University, USA); David Stollberg (Stollberg, USA); Ayse Tekes, Cameron Coates and Turaj Ashuri (Kennesaw State University, USA)*
HS6-6	Deformation Analysis of Planar Closed Chain Compliant Mechanism and Soft Robot Using Matlab Simscape and Anfis	*Pt Angel Tran, Ricardo Ramirez, Tinh Tran, Andrea Contreras-Esquen, Amir Ali Amiri Moghadam and Ayse Tekes (Kennesaw State University, USA)*

Symposium A: Secure, Automated and Intelligent 6G and Beyond Networks		
Paper	**Title**	**Authors**
SA-1	An Adversarial Approach: Comparing Windows and Linux Security Hardness Using Mitre ATT&CK Framework for Offensive Security	*Muazzam A. Khan Khattak (Quaid-i-Azam University, Islamabad, Pakistan); Hira Shahzadi Sikandar and Usman Sikander (COMSATS University Islamabad, Pakistan); Adeel Anjum (Comsats Institute of IT, Islamabad, Pakistan)*
SA-2	Design and Analysis of a Novel Plasmonic Power Splitter Based on an Air-Slot Coupler	*Rami Wahsheh (PSUT & Police Communication and Information Technology Department, Amman, Jordan, Jordan)*
SA-3	Sector-wise Investigation of BYOD Security Policies in Pakistan	*Ayesha Sajid (National University of Sciences and Technology, Pakistan); Yousra Javed (Illinois State University, USA)*

Symposium C: Smart City and IoT Applications (SCIAP'22)		
Paper	**Title**	**Authors**
SC-1	Feedback is Needed for Retakes: An Explainable Poor Image Notification Framework	*Kazuya Ohata and Shunsuke Kitada (Hosei University, Japan); Hitoshi Iyatomi (Hosei University & Faculty of Science and Engineering, Japan)*
SC-2	Video Based Localization Using V2X, Machine Learning, and Blockchain Storage	*Billy Kihei, Mfon Okpok, Prem Kurumpanai and Parth Bhavsar (Kennesaw State University, USA)*
SC-3	Robotic System Control using Embedded Machine Learning and Speech Recognition	*Joseph M Phillips and James M. Conrad (University of North Carolina at Charlotte, USA)*
SC-4	Smart City Traffic Management for Reducing Congestion	*Junaid Zubairi (Fredonia, USA); Sahar Idwan (Hashemite University, Jordan); Syed Ali Haider and David Hurtgen (SUNY at Fredonia, USA)*
SC-5	HMI Development for displaying V2X Safety Alerts	*Girma Tewolde (Kettering University, USA)*