

## ICCSPA'22 Program Overview

Time	Day 1: Tuesday, December 27, 2022
8:30 onwards	Registration
9:00–11:00	Ice Breaker (Coffee and Refreshments will be available)
11:00–12:00	<b>Opening Ceremony</b>
12:00–12:30	Break
12:30–13:15	<b>Keynote Speech 1 – Dr. Marwan Krunz (U. of Arizona)</b>
13:15–14:00	<b>Distinguished Speech 1 – Dr. Abdallah Shami (Western U.)</b>
14:00–15:15	Lunch Break
15:15–16:00	<b>Distinguished Speech 2 – Dr. Magdy Bayoumi – ZOOM – (U. of Louisiana)</b>
16:00–16:45	<b>Keynote Speech 2 – Dr. Jelena Mistic – ZOOM – (Toronto Metropolitan U.)</b>
16:45–17:00	Coffee Break
17:00–18:30	<b>Tutorial #1 - Dr. Huseyin Arslan (Istanbul Medipol U.)</b>

Time	Day 2: Wednesday, December 28, 2022		
8:30 onwards	Registration		
9:00–11:00	<b>Sessions A1</b>	<b>Sessions B1</b>	<b>Sessions C1</b>
11:00–11:15	Coffee Break		
11:15–12:45	<b>Tutorial #2 - Dr. Walid Saad (Virginia Tech.)</b>		
12:45–13:00	Break		
13:00–14:00	<b>Keynote Speech 3 - Dr. Petar Popovski – ZOOM – (Aalborg U.)</b>		
14:00–15:00	Lunch Break		
15:00–17:00	<b>Sessions D1</b>	<b>Session C2</b>	<b>Session E1</b>
19:30–22:00	<b>Conference Banquet &amp; Award Ceremony</b>		

Time	Day 3: Thursday, December 29, 2022		
8:30 onwards	Registration		
9:00–11:00	<b>Sessions A2</b>	<b>Sessions B2</b>	<b>Sessions C3</b>
11:00–11:15	Coffee Break		
11:15–12:45	<b>Tutorial #3 - Dr. Hesham Ali (U. of Nebraska)</b>		

**Session A1: Artificial Intelligence, Machine Learning and Optimization for Communications, Networks and Signal Processing (Chair: Dr. Sherin Youssef)**

9:00 - 9:20	<i>DSFL: Dynamic Sparsification for Federated Learning</i>	Mahdi Beitollahi; Mingrui Liu; Ning Lu
9:20 - 9:40	<i>An Efficient Hardware Accelerator for Lossless Data Compression</i>	Khaled Salah Mohamed
9:40 - 10:00	<i>A Hybrid Deep-Learning/Fingerprinting for Indoor Positioning Based on IEEE P802.11az</i>	Nader Gamal Helmy Rihan; Mahmoud Abdelaziz; Samy S. Soliman
10:00 -10:20	<i>ESMAANI: A Static and Dynamic Arabic Sign Language Recognition System Based on Machine and Deep Learning Models</i>	Sherine Nagy Saleh; Essam Hisham
10:20 -10:40	<i>Low Complexity Image Inpainting Using AutoEncoder</i>	Abeer Elbeherly; Yasmine Fahmy; Mai Kafafy
10:40 -11:00	<i>Theft Cyberattacks Detection in Smart Grids Based on Machine Learning</i>	Abdelfatah Ali; Mohamed Mokhtar; Mostafa Shaaban

**Session B1: Advances in Wireless Communications, Signal Processing and Emerging Applications (Chair: Dr. Ahmad ElMoslimany)**

9:00 - 9:20	<i>A Design of a mmWave Compact Antenna with a Microstrip Line Balun Feed for 5G Communications</i>	Alireza Jafarieh; Mahdi Nouri; Hamid Behroozi; Nazih Khaddaj Mallat
9:20 - 9:40	<i>A Machine Learning Based Design of mmWave Compact Array Antenna for 5G Communications</i>	Nazih Khaddaj Mallat; Alireza Jafarieh; Mahdi Nouri; Hamid Behroozi
9:40 - 10:00	<i>A Multibeam Antenna for Multi-Orbit LEO Satellites and Terminals with a Very Simple Tracking Technique</i>	Mohamed Sanad
10:00 -10:20	<i>Modeling and Optimization of a Range-Selective Digital Array Radar</i>	Ameen Awwad; Hasan Mir; Lutfi Albasha

**Session C1: Emerging Technologies, IoT and Applications****(Chairs: Dr. Mahmoud Ismail Ibrahim)**

9:00 - 9:20	<i>Wavelet-Based ECG-Derived Respiration Denoising</i>	Chanki Park; SeungYoon Nam; John Lorenzo Bautista; HyunSoon Shin
9:20 - 9:40	<i>Uplink Power Analysis of RIS-Assisted Communication over Shared Radar Spectrum</i>	Mai Kafafy; Ahmed S. Ibrahim; Mahmoud H. Ismail
9:40 - 10:00	<i>The Use of Capsule Endoscopic Examination Videos in the Detection of Abnormalities in the Gastrointestinal Tract</i>	Sandra Said Marc
10:00 -10:20	<i>Machine Learning Approach on Photoplethysmogram Morphology for Psychiatric Disorders Prediction</i>	Nazrul Anuar Nayan
10:20 -10:40	<i>Lumerical Simulation of Surface-Illuminated Silicon PIN Photodiodes for Datacenter Interconnects</i>	Soroush Ghandiparsi; Dhouha Ben Hamadou; Dara Varam; Ali Soufi; Taha Landolsi; Aly Elrefaie; Ahmed Sulaiman Mayet; Cesar Bartolo Perez; Ekatrina Ponizovskaya Devine; Shih-Yuan Wang; Toshishige Yamada; Saif Islam
10:40 -11:00	<i>Scheduling Optimization of Household Equipment Using a Wireless Home Automation System</i>	Rached Dhaouadi

**Session D1: Advances of Wireless Communication Theory, Protocols, and Security****(Chair: Dr. Amira Zaki)**

15:00 - 15:20	<i>Network Security Challenges in SDN Environments</i>	Rolan Khalifa
15:20 - 15:40	<i>Overview of the Orthogonal Time-Frequency Space for High Mobility Communication Systems</i>	Ahmed Eldemiry; Abdelazeem A. Abdelsalam; Heba M. Abdel-Atty; Ahmed Azouz; Abd Elhamid Gaafar; Walid Raslan
15:40 - 16:00	<i>Fine-Tuned LSTM-Based Model for Efficient Honeypot-Based Network Intrusion Detection System in Smart Grid Networks</i>	Abdullatif Albaseer; Mohamed M. Abdallah
16:00 - 16:20	<i>Performance Evaluation and Comparative Analysis for Widely Used Sound Source Localization Algorithms</i>	Ala Khalifeh; Yasir Kadhim

**Session C2: Emerging Technologies, IoT and Applications****(Chair: Dr. Karu Esselle)**

15:00 - 15:20	<i>Leveraging Semi-Connected Devices to Enhance Federated Learning</i>	Hend K. Gedawy; Khaled A. Harras; Aiman Erbad
15:20 - 15:40	<i>A Computer-Aided Brain Tumor Detection Integrating Ensemble Classifiers with Data Augmentation and VGG16 Feature Extraction Model</i>	Sherin Youssef; Yasmina Ayman Kamal; Jomana Ahmed Gaber
15:40 - 16:00	<i>Capacity of the Beaulieu-Xie Fading Channel Under Adaptive Transmission Strategies</i>	Refaat Mohamed; Mahmoud H. Ismail
16:00 - 16:20	<i>Metasurface-Driven Beam Steering Antenna for Satellite Communications</i>	Foez Ahmed; Khushboo Singh; Karu Esselle; Dush Thalakatuna
16:20 - 16:40	<i>Cooperative Perception: Mitigating Messages Content Duplication</i>	Bassel Chawky; Mohamed S Hefeida; Aboelmagd Noureldin
16:40 - 17:00	<i>Smart Monitoring of Outdoor Insulators</i>	Ayman El-Hag; Abdulla Lutfi

**Session E1: Wireless Positioning and Multi-Sensor Navigation****(Chair: Dr. Ashraf Abosekeen)**

15:00 - 15:20	<i>Smartphone Positioning Enhancement Using Several GNSS Satellite Selection Techniques</i>	Mohamed F Elkhalea; Hossam Hendy; Ahmed M. Kamel; Ibrahim Arafa; Ashraf Abosekeen
15:20 - 15:40	<i>LiDAR/Visual SLAM-Aided Vehicular Inertial Navigation System for GNSS-Denied Environments</i>	Nader Abdelaziz; Ahmed El-Rabbany
15:40 - 16:00	<i>Online Motion Sensors Error Modelling for Robust Navigation Using Fast Orthogonal Search</i>	Eslam Mounier; Michael Korenberg; Aboelmagd Noureldin
16:00 - 16:20	<i>Real-Time Position, Velocity and Attitude Estimation Using Low-Cost GNSS Only Reduced Navigation System</i>	John E. Fekry; Ahmed Radi; Shady Zahran
16:20 - 16:40	<i>Performance Analysis of Real-Time Galileo Precise Point Positioning Using Different Dual-Frequency Ionosphere-Free Combinations</i>	Mohamed Abdelazeem
16:40 - 17:00	<i>A Review of Sensor System Schemes for Integrated Navigation</i>	Umar Iqbal; Ashraf Abosekeen; Mohamed Elsheikh; Aboelmagd Noureldin; Michael Korenberg

**Session A2: Artificial Intelligence, Machine Learning and Optimization for Communications, Networks and Signal Processing (Chair: Dr. Umar Iqbal)**

9:00 - 9:20	<i>A Generic Real Time Autoencoder-Based Lossy Image Compression</i>	Khaled Salah Mohamed
9:20 - 9:40	<i>Predicting Respiratory Diseases from Lung Sounds Using Ensemble Model</i>	Razan Youssef; Sherin Youssef; Noha M. Ghatwary
9:40 - 10:00	<i>Ensemble Regression for 1-Bit Channel Estimation</i>	Ahmed Elsheikh; Ahmed S. Ibrahim; Mahmoud H. Ismail
10:00 -10:20	<i>An Efficient Patient-Independent Epileptic Seizure Assistive Integrated Model in Human Brain-Computer Interface Applications</i>	Rowan Ihab Halawa; Sherin Youssef; Mazen Nabil Elagamy
10:20 -10:40	<i>Safe Reinforcement Learning Using Data-Driven Predictive Control</i>	Mahmoud A Selim; Amr Alanwar; M. Watheq El-Kharashi; Hazem Abbas; Karl H. Johansson

**Session B2: Advances in Wireless Communications, Signal Processing and Emerging Applications (Chair: Dr. Samy Soliman)**

9:00 - 9:20	<i>Cross-Entropy Method for Combinatorial Mixed-Parameter Optimization of Waveguide Polarizers for Ku-Band</i>	Khushboo Singh; Foez Ahmed; Karu Esselle; Dush Thalakatuna
9:20 - 9:40	<i>Seamless Device Handover for Pervasive Speech Communication</i>	Vijaya Nirmala Mitnala; Martin J Reed; Ian Kegel; John Bicknell
9:40 - 10:00	<i>A Unified Performance Analysis of OGS-To-Satellite FSO Uplink Under Turbulence and Beam Wander</i>	Esmail Elsaidy; Tamer Rakia
10:00 -10:20	<i>Comparative Performance Analysis of PI Controller and MRAC for a Differential Drive Robot</i>	Ahmed Mohsen Khalil; Shayok Mukhopadhyay; Habib-ur Rehman
10:20 -10:40	<i>Optimal Power Allocation in NOMA-Based Diamond Relaying Networks</i>	Samy S. Soliman; Noha H. Khattab

**Session C3: Emerging Technologies, IoT and Applications****(Chair: Dr. Khalid Elgazzar)**

9:00 - 9:20	<i>Analyzing Walking and Driving Behavior Across Different Age Groups Using Population Analysis and Correlation Networks</i>	Hesham H. Ali; Rama Krishna Thelagathoti; Saiteja Malisetty
9:20 - 9:40	<i>Dynamic Maps Requirements for Autonomous Navigation on Construction Sites</i>	Philip Wickberg; Markus Bohlin; Anas Fattouh; Sara Afshar; Johan Sjöberg
9:40 - 10:00	<i>On the Design of a High Data Rate Underwater Acoustic Receiver</i>	Ahmad A ElMoslimany; Amal Samir; Belal ELDiwany; Mohamed Nafie; Amr El-Sherif; Tamer ElBatt
10:00 -10:20	<i>Wavelet Denoising for Amplitude-Modulated Interference Signal Mitigation for GPS Software Receiver</i>	Haidy Elghamrawy; Aboelmagd Noureldin
10:20 -10:40	<i>Intelligent Assistance System for Visually Impaired/Blind People (ISVB)</i>	Noha M. Ghatwary; Ahmed Abouzeina; Ahmed Kantoush; Bahaa Eltawil; Mohamed Ramadan; Mohamed Yasser
10:40 -11:00	<i>A Robotic System for Automatic Identification and Collection of Recyclable Plastic Bottles</i>	Uzma Ahmed Din; Shayok Mukhopadhyay; Usman Tariq

# Virtual Program

(Presentations are available online <https://2022.iccspa.org>)

<i>A Framework for Real-Time Remote ECG Monitoring and Diagnoses</i>	Ahmed Badr; Khalid Elgazzar
<i>Adaptive ECG Leads Selection for Low-Power ECG Monitoring Systems Using Multi-Class Classification</i>	Hebatalla Ouda; Hossam S. Hassanein; Khalid Elgazzar
<i>Road Boundary Detection Using Camera and Mmwave Radar</i>	Dipkumar Sureshbhai Patel; Khalid Elgazzar
<i>Aol-Based Priority-Aware Transmission Scheduling for State Estimation in Industrial IoT Systems</i>	Ling Lyu; Lihong Zhao; Yanpeng Dai
<i>Secrecy Analysis over Correlated Generalized Gamma Fading Channels</i>	Youssef Eldokmak; Mahmoud H. Ismail; Mohamed S. Hassan
<i>Machine Learning-Based Electric Vehicle Charging Demand Prediction Using Origin-Destination Data: A UAE Case Study</i>	Eiman A Elghanam; Mohamed S. Hassan; Ahmed Osman
<i>Novel Recovery Algorithms for Block Sparse Signals with Known and Unknown Borders</i>	Neda Haghighatpanah; Ramy Gohary
<i>On the Modeling of Reliability in Extreme Edge Computing Systems</i>	MHD Saria Allahham; Amr Mohamed; Aiman Erbad; Hossam S. Hassanein
<i>Intrusion Detection Systems Based on Stacking Ensemble Learning in VANET</i>	Mahshid Behravan; Ning Zhang; Arunita Jaekel; Marc Kneppers
<i>SigT: An Efficient End-To-End MIMO-OFDM Receiver Framework Based on Transformer</i>	Ziyou Ren; Nan Cheng; Ruijin Sun; Xiucheng Wang; Ning Lu; Wenchao Xu
<i>Rate Maximization for Active-IRS-Aided Secure Communication Networks</i>	YueDong Li; Fei Wang
<i>Enhanced Deep Learning for Massive MIMO Detection Using Approximate Matrix Inversion</i>	Ali Jamal Almasadeh; Khawla Alnajjar; Mahmoud A. M. Albreem
<i>Automatic Modulation Classification in Deep Learning</i>	Khawla Alnajjar; Sara Ghunaim; Sam Ansari
<i>Design and Analysis of Various Narrow-Band LNA Topologies</i>	Ahmed El Meligy; Lutfi Albasha
<i>Dual Band All-Metal T-Shaped Patch Antenna for X/Ku-Band CubeSat Applications</i>	Suhila Abulgaseem; Faisel EM Tubbal; Raad Raad; Panagiotis Ioannis Theoharis
<i>High Gain Circularly Polarized Fabry-Pérot Antenna for S-Band CubeSat Applications</i>	Faisel EM Tubbal; Raad Raad; Augustinraj Lourdunathan; Panagiotis Ioannis Theoharis; Suhila Abulgaseem; Akram Alkaseh

<i>Flexibly Controlled 5G Network Slicing</i>	Henry Alexander; Hesham El-Sayed; Manzoor Khan; Parag Kulkarni
<i>Performance Analysis of the Impact of DDoS Attack on Routing Protocols in Infrastructure-Less Mobile Networks</i>	Mohamad T. Sultan; Hesham El-Sayed; Manzoor Khan
<i>Similarity-Based Predictive Maintenance Framework for Rotating Machinery</i>	Sulaiman A. Aburakhia; Tareq Tayeh; Ryan Myers; Abdallah Shami