



**Under the High Patronage of His Excellency
The President of the Republic of Lebanon**

General Joseph AOUN

5th IEEE Middle East & North Africa COMMunications
Conference

IEEE MENACOMM 2025

Lebanese American University (LAU)

Byblos - Lebanon, February 20-22, 2025

Detailed Program



5th IEEE Middle East & North Africa COMMunications Conference
Breaking Boundaries: Pioneering the Next Era of Communication
Hybrid: In-Person & Virtual
20-22 February 2025 // Byblos Lebanon
Lebanese American University (LAU)

09:00 - 10:00 Accommodation and Registration

10:00 - 10:40 Official Opening Ceremony

[Auditorium]

- **Dr. Chadi Abou Rjeily**, General Co-Chair, Lebanese American University
- **Dr. Jacques Demerjian**, IEEE MENACOMM Steering Committee Chair, IEEE ComSoc Lebanon Chapter Chair
- **Dr. Nazih Moubayed**, IEEE Lebanon Section Chair
- **Dr. Chaouki Abdallah**, President of the Lebanese American University
- **His Excellency General Joseph Aoun**, The President of the Republic of Lebanon

10:40 - 11:40 Panel Discussion

[Auditorium]

Chair: Dr. Nadine Abbas, Lebanese American University, Lebanon

Breaking Boundaries: Pioneering the Next Era of Communication in the MENA Region

- **Mr. Ziad Zorkot**, Network Management Director, Touch
- **Mr. Bachir Cheaib**, Senior Sales Account Manager in Lebanon and Jordan, Nokia Mobile Networks
- **Dr. Chadi Abou-Rjeily**, Lebanese American University

11:40 - 12:00 Coffee Break

12:00 - 13:00 Plenary Session I

[Auditorium]

Artificial General Intelligence (AGI)-Native Wireless Systems with Common Sense: A Journey to 6G and Beyond

- **Prof. Walid Saad**, Virginia Tech, USA

13:00 - 14:00 Lunch Break

14:00 - 15:30 Parallel Sessions I

Session I-A: Physical Layer and Fundamentals

[Auditorium]

Chair: Dr. Sarah Al-Shareeda, The Ohio State University, USA

An UHF RFID Indoor Localization System based on the Maximum Likelihood Estimator with an Effective Tags Deployment Density and a Sub-Metric Accuracy

Sara Abou Chakra and Bachar ElHassan (Lebanese University, Lebanon); Elizabeth Colin (EFREI Paris, France); Elias Hatem (Lebanese University, France & EFREI, Lebanon); Jean-Marc Laheurte (Université Gustave Eiffel & ESYCOM Lab, France)

Increasing Power Efficiency of Spatial Cognitive Radio System by Sectorization Technique

Zeinab Kteish (Université de Bretagne Occidentale, France); Jad Abou Chaaya (ENIB, France); Abbass Nasser (Holy-Spirit University of Kaslik and ENSTA-Bretagne); Koffi-Clement Yao (Université de Bretagne Occidentale, France); Ali Mansour (ENSTA Bretagne, France)

Free Space Optical Relaying via an Energy Harvesting Harvest-Store-Use Buffer-Aided Relay

Chadi Abou-Rjeily and Rania Minkara (Lebanese American University, Lebanon)

Integrating NOMA and SWIPT for Enhanced Efficiency in UDNs

Ghina Rahal, Tasneem Hamzi and Abdel Mehsen Ahmad (Lebanese International University, Lebanon)

Encoding Cyclic Redundancy Checked Sequences

Khaled Abdel-Ghaffar (University of California, USA)

A Comprehensive Analysis of Fetal Electrocardiogram Signals

Brandon Camacho and Muhammad Ullah (Florida Polytechnic University, USA)

Session I-B: Emerging Technologies and Applications

[Room 5401]

Chair: Dr. Nadine Akkari, Jeddah International College, KSA

A Novel Approach for Detecting LED Light Blinking Patterns

Jason Diab, Hiba Houhou, Maarouf Yassine, Imad H Elhadj, Ayman Kayssi and Salam A. Tabet (American University of Beirut, Lebanon); Mohamad Kahil (University of Texas at Austin, USA); Samer Salam (Cisco, USA)

Exploiting Blockchain and AI in a Decentralized Application for Students' Admission to University

Wiam Marshoud, Rasha Issa and Khaleel W Mershad (Lebanese American University, Lebanon); Omar Cheikhrouhou (CES Laboratory, National School of Engineers of Sfax, University of Sfax, Tunisia)

Improving Rural Mobile Connectivity in Nigeria Using Low-cost Transceiver Architecture

Francis Idachaba (Military Technological College, Oman); Onyinyechi Florence Steve-Essi (Virginia Commonwealth University, USA); David Olowokere (Texas Southern University, USA)

Efficient lightweight image compression approach for Multimedia Internet of Things

Sara Kadhum Idrees (Université de Technologie de Belfort Montbéliard, France & University of Babylon, Iraq); Raphaël Couturier and Joseph Azar (University Bourgogne Franche-Comté, France); Ali Kadhum Idrees (University of Babylon, Iraq); Franck Gechter (Université de Technologie de Belfort Montbéliard, France)

IoT Air Monitoring and Reporting System for Residential Environments

Farah Shaheen and Mohab A. Mangoud (University of Bahrain, Bahrain)

Compact 1:2 Wilkinson Power Divider using Slow-Wave Transmission Lines

Hamza Issa (American University of the Middle East, Kuwait); Heba El-Halabi (Beirut Arab University, Lebanon)

15:30 - 15:45

Coffee Break

15:45 - 17:15

Parallel Sessions II

Session II-A: Physical and Cyber-Physical Systems

[Auditorium]

Chair: Dr. Ahmad El Hajj, American University of Beirut, Lebanon

Module Addition-Aware Dynamic Shape Recognition for Lattice-Based Modular Robots

Jad Bassil, Benoit Piranda, Abdallah Makhoul and Julien Bourgeois (University of Franche-Comté Institut FEMTO-ST, France)

Information diffusion in modular robots and drone networks

Charbel Mattar and Jacques Demerjian (Lebanese University, Lebanon); Joseph Gemayel and Charbel El Gemayel (Antonine University, Lebanon); Jacques Bou Abdo (University of Cincinnati, USA); Abdallah Makhoul (University of Franche-Comté Institut FEMTO-ST, France)

Towards Securing Water Systems Communications from Adversarial Attacks using AI Assurance

Mehmet Yardimci (Virginia Tech, USA & Amazon.com, USA); Feras Batarseh (Virginia Tech, USA)

Assessment of supervised machine learning methods for predicting COVID-19 likelihood

Abbas Rammal (Lebanese American University, Lebanon); Rabih Assaf and Mohammad Kacim (Holy Spirit University of Kaslik, Lebanon)

Integrating Vector Stores and Information Retrieval for Analysis Literature Data on Mycobacterium tuberculosis: experience feedback

Christophe Guyeux (University of Franche-Comté, France)

Developing a Tuberculosis Q&A Database Using Q&A-ET: Question and Answer Evaluator Toolkit

Jihad Al Akl, Chady Abou Jaoude and Zahi Al Chami (Antonine University, Lebanon); Christophe Guyeux (University of Franche-Comté, France); David Laiymani (LIFC, France); Christophe Sola (University of Paris-Saclay, France)

Session II-B: Machine Learning in Communication

[Room 5401]

Chair: Dr. Joe Tekli, Lebanese American University, Lebanon

Empirical Dataset Generation for AI-Optimized IoT Infrastructure Placement

Fayad Taleb and Khoulood Samrouth (Lebanese University, Lebanon); Georgios Bouloukakis and Houssam Hajj Hassan (Telecom SudParis, France)

Coupling Variable Selection and Anomaly Detection: Record-Based Approach

Michel Kamel (University of Lyon, France); Anis Hoayek and Mireille Batton-Hubert (Ecole des Mines de Saint Etienne, France)

Implementing a Cell-Free 6G Distributed AI Network With the Use of Deep ML Under a Traditional Multi-Cell Mobile Network

Iacovos Ioannou (University of Cyprus & CYENS Centre of Excellence, Cyprus); Andreas Gregoriades (Cyprus University of Technology, Cyprus); Christophoros Christophorou (CYENS Centre of Excellence & UCLan Cyprus, Cyprus); Marios Raspopoulos (University of Central Lancashire, Cyprus Campus, Cyprus); Vasos Vassiliou (University of Cyprus & CYENS Center of Excellence, Cyprus)

Optimization of 5G Antenna Using Machine Learning

Aline Hassan (American University of Beirut, Lebanon); Aya Sharanek, Rayan Hamzeh and Rached Zantout (Rafik Hariri University, Lebanon); Dina Serhal (EFREI Paris, France)

A CNN-Random Forest Hybrid Model for Network Traffic Classification

Jean Paul Chaiban, Imad Elhajj, Ayman Kayssi and Salam Tabet (American University of Beirut, Lebanon)

Optimizing FSO System Performance: Integrating Machine Learning for Security and Reliability

Bouchra Tartoussi (Lebanese University, Lebanon); Baraa Altayebrrafei (Le CNAM, Lebanon); Najah Tartoussi (Le Cnam - Lebanese University); Jinan Charafeddine (Engineering School Léonard de Vinci - ESILV, France); Wafaa Mohammed Ridha Shakir (Al-Furat Al-Awsat Technical University, Iraq); Nancy Chendeb (Ecole Supérieure d'Ingénieurs Léonard de Vinci, France)

08:30 - 09:00 **Accommodation and Registration**

09:00 - 10:30 **Plenary Session II**

[Auditorium]

TelecomGPT: Next Generation AI powered Network

- Prof. Merouane Debbah, Khalifa University, United Arab Emirates

Advanced Architectures of Next Generation Wireless Networks

- Prof. Pascal Lorenz, University of Haute-Alsace, France

10:30 - 10:45 **Coffee Break**

10:45 - 12:15 **Parallel Sessions III**

Session III-A: Reconfigurable Intelligent Surface and Green Communication

[Auditorium]

Chair: Dr. Nadine Abbas, Lebanese American University, Lebanon

A Study on Malicious Attacks for RIS-Aided Wireless Systems

Ammar El Falou (King Abdullah University of Science and Technology, Saudi Arabia)

RIS-NOMA Systems in Nakagami-m Channels: Performance Metrics

Said Mohammed Awad and Mohammed Abdel Hafez (United Arab Emirates University, UAE)

Spectral Efficiency Analysis for Dynamic H-RIS-Assisted NOMA Network

Abdelrahman Ahmed Elkhateeb (German University in Cairo & Orange Business, Egypt); Engy Aly Maher (German University in Cairo, Egypt); Sara Farrag (University of Ottawa, Canada)

Investigation on FBI LoRaWAN Communication System

Sindhukavi S (St. Joseph's Institute of Technology, India); Parameswaran Ramesh (Madras Institute of Technology & Anna University, India); Vidhya N and Sanjeetha Gowthaman (Madras Institute of Technology, India); Shabana Parveen M (Sri Sairam Engineering College, India); Bhuvana P.T.V.Bhuvanawari (Anna University, India)

MIMO-Assisted Wake-up Radio in a Single-Cell IoT Network

Carine Tannous and Israa Khaled (IMT Atlantique, France); Charlotte Langlais (IMT Atlantique Bretagne Pays de la Loire & Lab-STICC, France); Ammar El Falou (King Abdullah University of Science and Technology, Saudi Arabia)

Session III-B: Vehicular Networks

[Room 5500]

Chair: Dr. Kabalan Chaccour, Antonine University, Lebanon

Detecting Malicious Artificial Congestion in Connected Cars Environment

Ali El Attar, Mohammad Ali Awali and Makram Hatoum (Arab Open University, Lebanon); Rida Khatoun (Telecom Paris, France); Khoulood Samrouth (Lebanese University, Lebanon)

Accurate AI-Driven Emergency Vehicle Location Tracking in Healthcare ITS's Digital Twin

Sarah Al-Shareeda (The Ohio State University, USA & Istanbul Technical University, BTS R&D Group, Turkey); Yasar Celik and Bilge Bilgili (ITU, Turkey); Ahmed Y Al-Dubai and Berk Canberk (Edinburgh Napier University, United Kingdom)

Comprehensive Evaluation of Environmental Impact on the Performance of V2V Visible Light Communication

Rasha Shamat Al Hasnawi (University Politehnica of Bucharest & University Polytechnic of Bucharest, Romania); Ion Marghescu (University Politehnica of Bucharest, Romania); Amjed A Al-Mudhafar (Al-Furat Al-Awsat Technical University, Iraq)

Design of an IoT-based Vehicle Accident Severity Detection System with Artificial Intelligence

Luae' Al-Tarawneh, Laith Al Abweh, Areen Athamneh, Ata Refai and Mohammad Alja'afreh (Princess Sumaya University for Technology, Jordan)

Electric Vehicle Charging System Using RFID and IoT for Enhanced User Experience

Md Mehedi Hassain (International Islamic University Chittagong, Bangladesh); Injamul Haque Jamil (University of Greenwich, United Kingdom); Md Mahmudul Hoque (CCN University of Science and Technology, Bangladesh); Md. Jahid Hasan (Comilla University, Bangladesh)

Session IV-A: IoT Security & Applications**[Auditorium]****Chair: Dr. Samer Saab Jr., Lebanese American University, Lebanon*****Inexpert Sensor Fusion Using an Adaptive Kalman Filter Approach***

Samer Saab, Jr (Lebanese American University, Lebanon)

FedDQ: An Intelligent Federated Data Quality Assessment for Wireless Sensors Network

Ahmad Traboulsi (Beirut Arab University, Lebanon); Hadi Fadlallah and Lynn Moussaoui and Rima Kilany (Saint Joseph University, Lebanon)

Securing the Future of IoT: Exploring the Role of Blockchain Technology in IoT Security

Mohamad Farouk Ajaj and Saeddin Kalash (Lebanese American University, Lebanon)

A Framework for Securing Electronic Payments via the Dual Channel Security Protocol

Maria Barada, Afnan Mshellem, May Shaker and Khaleel W Mershad (Lebanese American University, Lebanon); Omar Cheikhrouhou (CES Laboratory, National School of Engineers of Sfax, University of Sfax, Tunisia)

Federated Sampling for Privacy-Preserving and Efficient Data Sharing in IoT Networks

Joseph Azar (University Bourgogne Franche-Comté - UFC & FEMTO-ST/DISC, France); Mohammad Abdullah Tahir (University Bourgogne Franche-Comté, France); Jacques Bou Abdo (University of Cincinnati, USA); Jacques Demerjian (Lebanese University, Lebanon); Nadine Akkari (Jeddah International College, Saudi Arabia)

Leveraging A Deep Learning-Based Privacy Compliance Framework For IoT Applications

Amna Eleyan and Hamza Ahmed (Manchester Metropolitan University, United Kingdom); Tarek Bejaoui (University of Carthage, Tunisia)

Session IV-B: Social Networks, Social Media and Content Classification**[Room 5500]****Chair: Dr. Noel Maalouf, Lebanese American University, Lebanon*****Decentralizing Social Data: A Blockchain-Based Approach to Transparent and Trustworthy Social Networks***

Hussein Elghor (Lebanese University, Lebanon); Bilal Nakhla and Mohamad Daher (Beirut Arab University, Lebanon); Sara Nasr (MUBS University, Lebanon)

Generative AI in Arabic Music: Composition and Innovation

Shireen Anaie and Lise Safatly (Holy Spirit University of Kaslik, Lebanon)

A Lightweight Neural Network Model Based on Response-Based and Feature-Based Cross-Modal Knowledge Distillation for Image Classification

Ahmed Hamdi, Joseph Azar and Hassan Noura (University of Franche-Comté, France & Femto-St, France)

Multi-Level Cyberbullying Detection on Social Media Using Machine and Deep Learning Models

Marwa Hzami and Tarek Bejaoui (University of Carthage, Tunisia); Hela Mahersia (University of Carthage & National Engineering School of Tunis, Tunisia)

GAN-Guarded Fine-Tuning: Enhancing Adversarial Robustness in NLP Models

Tarek Ali, Amna Eleyan and Mohammed Al-Khalidi (Manchester Metropolitan University, United Kingdom); Tarek Bejaoui (University of Carthage, Tunisia)

A Novel Approach for Developing Intrusion Detection Systems in Mobile Social Networks

Elaheh Rivandi and Rozita Jamili Oskouei (Islamic Azad University, Iran)

13:45 - 14:45

Lunch Break

14:45- 16:15

Parallel Sessions V

Session V-A: Electromagnetics, Antennas and Wave Propagation

[Auditorium]

Chair: Dr. Rania Minkara, Lebanese American University, Lebanon

Investigating Ku-band Up-Link Interference from Terrestrial Microwaves on Satellite Reception

Ali Karaky and Hiba Abdallah (Beirut Arab University, Lebanon); Hamza Issa (American University of the Middle East, Kuwait)

Dual Wideband Dielectric Resonator Antenna Array for WiMAX / WLAN Applications

Atallah Sufian A-Muhaisen, Ahmed Ayman Salem and Yanal S Faouri (University of Jordan, Jordan)

Dual Band Frequency Reconfigurable Antenna With an AMC Structure

Katya Abdel Wahab, Mutaz Banat, Mira Alash and Yanal S Faouri (University of Jordan, Jordan)

Coplanar Waveguide Antenna With an AMC Structure for Frequency Agility Applications

Mutaz Banat, Katya Abdel Wahab, Mira Alash and Yanal S Faouri (University of Jordan, Jordan)

Triple Circular Radiators Frequency Diversity Microstrip Antenna with AMC Structure

Mira Alash, Mutaz Banat, Katya Abdel Wahab and Yanal S Faouri (University of Jordan, Jordan)

2x2 Reconfigurable Phased Array Antenna With Circular SRR For 5G Applications

Reem AL-Khatib and Yanal Faouri (University of Jordan, Jordan)

Session V-B: Network Organization, Security and Resilience

[Room 5500]

Chair: Dr. Maria Abi Saad, Lebanese American University, Lebanon

Network Bandwidth Optimization Using Software Defined Networking (SDN)

Gaby Abou Haidar, Ali Noaman Khasro Zangana, Michel Owayjan and Roger Achkar (American University of Science & Technology, Lebanon); Roy Abi Zeid Daou (Université La Sagesse, Lebanon)

Revisiting spectral clustering: assessments and extended capabilities

Johny Matar and Hicham EL Khoury (Lebanese University, Lebanon); Jean-claude Charr and Christophe Guyeux (University of Franche-Comté, France)

Evaluating Transformer Architectures for Fault Detection in Industry 4.0: A Multivariate Time Series Classification Approach

Mohamed Al Hamed and Mohammad Ali Nemer (University of Franche-Comte - UFC, France); Joseph Azar (Université de Franche-Comté - UFC & FEMTO-ST/DISC, France); Abdallah Makhoul and Julien Bourgeois (University of Franche-Comté, France & FEMTO-ST, France)

Ensemble Learning-Based Approach for Email Spam Detection

Ibrahim El Bitar (Lebanese American University & Lebanese International University, Lebanon); Nadine Abbas (Lebanese American University, Lebanon); Mohamad Raad, Farah Shmouri and Fatima El Khechen (Lebanese International University, Lebanon)

Securing Networks Against ICMP Covert Channels: Detection and Countermeasures

Giovanni Kaddissi, Makram Hatoum and Ali El Attar (Arab Open University, Lebanon); Khoulood Samrouth (Lebanese University, Lebanon)