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Tuesday, December 12

Tuesday, December 12 9:00 - 9:30

Open Ceremony: IMCET 2023 📇

Welcome words by Conference Chair and Coordinator
Room: Room-A

Tuesday, December 12 9:30 - 10:30

KS-1: The Energy Transition Agenda: A Techno-Economic Perspective 📇

Prof. Amjad Anvari-Moghaddam
Keynote Speaker
Room: Room-A

Most trajectories of energy demand and supply to 2050 anticipate significant new system challenges as we incorporate more low carbon generation, and meet increases in peak demand, driven largely by the extent to which transport and heating become increasingly electrified. At the same time, the energy landscape is changing rapidly with far-reaching implications for the global energy industry and actors. Some changes are already happening. Changes to energy grid management are underway and utility companies are developing commercial platforms that will make it easier for them to trade in flexibility with generators and consumers, even at very small scale. Renewable are also becoming key players. Harvesting renewable energies implies decentralization, where many consumers also become producers, who at times export electricity to the grid. To accommodate large numbers of renewable resources, energy distribution and transmission networks need to be adapted and expanded to avoid network congestion and failures. Flexibility options and services have to be also enabled not only at the supply side but also through responsive loads and suitable means of energy storage to maximize the security of supply and the quality of service in the most efficient way. Accelerating the energy transition also requires a rethinking of electricity markets in many aspects, a key one being the adaptation of their design and operation to support higher shares of variable renewables as well as distributed power generation. This talk covers the aforementioned promising areas in green energy transition and discusses the current and future opportunities and challenges exist in this context.

Tuesday, December 12 10:30 - 11:00

BK: Break

Rooms: Room-A, Room-B

Tuesday, December 12 11:00 - 12:30

S1b: Control Systems, Instrumentation and Robotics 📇

Room: Room-B
Chair: Roy Abi Zeid Daou

11:00 *Design and Implementation of an Angry Birds Game Controller Using Flex Sensor and a Potentiometer...1*

Mohammad Zinati, Elio Ghaoui, Roy Abi Zeid Daou, Ali Hayek and Josef Boercsoek

11:15 *An Overview of the Energy Efficiency and Power Management Strategies in Robots...7*

Wajih-Georges El Tayar, Sary Yehia, Noel Maalouf and Nagham El Ghossein

11:30 *Fuzzified Model Predictive Control Allocation for Integrated Control of Ground Vehicles...15*

Rawan Hoteit and Naseem Daher

11:45 *Enhancing Human Cobot Interaction using Natural Language Processing...21*

Gautam Siwach and Cheryl Q Li

12:00 *Design and Control of a Diameter-Adaptable In-Pipe Inspection Robot...27*

Ahmed Zeid, Amer Al-Yahmadi, Riadh Zaier and Issam Bahadur

S1a: Communications and Information Systems 📠

Room: Room-A

Chairs: Nadine Abbas, Jacques Bou Abdo

11:00 *CTXDQ: An Automated Context-Driven Data Quality Assessment...32*

Hadi Fadlallah, Rima Kilany, Mitri Haber and Ali Jaber

11:15 *User to Access point Distribution: Coded caching approach...38*

Mirna Hamad Haidar, Yasser Fadlallah, Hadi Edmond Sawaya and Abed Ellatif Samhat

11:30 *Home Automation System with IoT Stack and ChatGPT for People with Reduced Mobility...44*

Joseph Azar, Teressa Khoury, Abdallah Makhoul and Raphaël Couturier

11:45 *Detection and Prevention of TCP DoS/DDoS Attacks in Software Defined Network...50*

Saeddin Kalash, Norma Makarem, Lara Issa, Ayman Tajeddine and Nadine Abbas

12:00 *Energy-Efficient UAV-Assisted Cluster-Based Control Messages Relay System in IoT Networks...56*

Baneen Ayyad and Nadine Abbas

12:15 *A Multi-Armed Bandit Game for Multi-Tenant RAN Slicing...62*

Zeina Awada, Melhem El Helou, Kinda Khawam and Samer Lahoud

Tuesday, December 12 12:30 - 1:30

LB: Break

Rooms: Room-A, Room-B

Tuesday, December 12 1:30 - 3:00

S2b: Power, Power Electronics, Industrial Electronics and Energy 📲

Room: Room-B

Chairs: Mohamad Arnaout, Jean Sawma

1:30 *The Modified hybrid Multi-Objective Genetic Algorithm and Loss Sensitivity Factor for Optimal Siting and Sizing of PV-Based Distributed Generation in Distribution Networks...69*

Jessica Joseph Korkmaz and Raymond Ghajar

1:45 *Life Cycle Assessment of A Pico Hydro Generator Made of E-Waste Components Based on Frugal Innovation...75*

Abdulrahman Olaniyan, Catherine Azzaro-Pantel, Stéphane Caux and Pascal Maussion

2:00 *Design of Low Cost Mini CNC Laser Engraver...81*

Mustapha Barakat, Nour Aridi and Jad Moadad

2:15 *Neural Network to predict Energy Efficiency for Space Heating in Residential Buildings...85*

Mohamad Moussa Naim, Rafic Younes and Hassan Moussa Nahim

2:30 *Enhancement Simulation of Electric Vehicle Regenerative Brake System...91*

Mohamad Arnaout, Ali Koubayssi and Haidar Hamdan

2:45 *Advanced Phase-Locked Loop Synchronization Techniques for Utility Interface Converters Under Highly Distorted Operating Conditions...96*

Nizar Daou, Jean Sawma and Flavia Khatounian

S2a: Computer Systems and Applications-I 📲

Room: Room-A

Chair: Mohamad Mostafa Awad

1:30 *Addressing the Velocity Challenge of Big Data in Radiation Pollution Monitoring: Implementation and Demonstration...104*

Hadi Fadlallah, Rima Kilany, Mitri Haber and Ali Jaber

1:45 *Phoenician Corpus in the Eshmun Project: Managing the Corpus...110*

Elie Aouad and Maroun Chamoun

2:00 *Statistics on Phoenician Inscriptions in the Eshmun project: Using the Eshmun Platform Phoenician Corpus...116*

Elie Aouad and Maroun Chamoun

2:15 *Traffic Sign Detection in the Digital Era: Leveraging Convolutional Neural Networks...122*

Kothai G, Anna Anbumozhi, R Abirami and T Kalyani

2:30 *Pose Estimation Keypoints in Age Recognition of Full Body Image...128*

Rachad Lakis, Joseph Constantin, Ibtissam Constantin, Vinh Truong Hoang and Yassine Ruichek

Wednesday, December 13

Wednesday, December 13 9:00 - 10:00

KS-2: How Intent Based Management and AI can unleach the full potential of Autonomous Networks 📧

Prof. Nazim Agoulmine
Keynote Speaker
Room: Room-A

Intent-Based Networking (IBN) is a technology that aims to simplify the way administrators interact with an autonomous networks. Administrators could easily express their business goals (preferably in natural language), and then IBN interprets these goals and translate them into operational configurations of the IT infrastructure and into appropriate autonomous mechanisms that enable the implementation of intentions in the event of a change in the operations with full understanding of the execution context of the infrastructure. This concept has been successfully implemented to some extend in the ONOS SDN (Software Defined Network) controller and is already used in operational networks. However, recent advances in artificial intelligence predict further progress in providing greater flexibility and agility to IT and network infrastructures reducing further the human interventions. This presentation is intended to introduce this new concept and how how IBN leverages previous approaches such as goal based management. In particular, it shows how closed-loop network automation instrumented with intents can address the challenges of modern system and network dynamics.

Wednesday, December 13 10:00 - 10:15

BK: Coffee Break

Rooms: Room-A, Room-B

Wednesday, December 13 10:15 - 12:00

S3b: Electronics, Industrial Electronics and Robotics 📧

Room: Room-B
Chair: Naseem Daher

10:15 *Faults Detection in PV Panels Using an Artificial Neural Network...140*
Bechara Nehme, Nakhle Badawi, Jad Nawfal, Eddy El Hachem and Tilda Akiki

10:30 *SVPWM Inverters for Photovoltaic Systems Applications...144*
Mohamed Tarnini, Abdallah El Ghaly and Nazih Moubayed

10:45 *Thermo-Economic Comparison of Solar Thermal Cooling and Solar Photovoltaic Cooling Systems for a Typical Residential Building - Lebanese Case Study...150*

Christy Lahoud, Chawki Lahoud, Marwan Brouche and Mohammed Hmadi

11:00 *Cascaded Sliding Mode Voltage Controller and Model Reference Adaptive Current Controller for Regulating MIMO DC-DC Boost Converter...157*

Aman El Masri and Naseem Daher

11:15 *Mapping, Path Optimization, and Motion Control of a Robotic Seawater Waste-Management System...163*

Amanda L. Saliba, Naseem Daher, Sadek Zaher and Dany Youssef

11:30 *Mixed-sensitivity Controller Design for a Tethered UAV-buoy System...169*

Amanda L. Saliba and Naseem Daher

11:45 *Motion Control of Hexacopters: A Comparative Study of Adaptive Backstepping and Sliding Mode Control With Control Allocation...175*

Hassan Khanafer, Jad Bhamdouni, Dany Abou Jaoude and Naseem Daher

S3a: Biomedical and Bioinformatics

Room: Room-A

Chairs: Mohammad Ayache, Amira J. Zaylaa

10:15 *Mechanical behavior of titanium foams for dental implants: experimental, theoretical and numerical studies...181*

Hussein Farroukh, Fouad Kaddah and Toufic Wehbe

10:30 *Comparing the Effectiveness of EMG and Electrical Impedance myography Measurements for Controlling Prosthetics...189*

Saad Abdullah, Abdelakram Hafid and Hira Shahid

10:45 *Estimating Physiological Parameters in Various Age Groups: Windkessel 4 Element Model and PPG Waveform Analysis Approach...194*

Abdelakram Hafid and Saad Abdullah

11:00 *Exploring the Efficacy of Deep CNN Algorithms for Pulmonary Infections Detection using X-rays: Case Study COVID-19...198*

Ali Kalakech and Thamer Ibrahim

11:15 *Detecting Cardiovascular Disease From PPG Signals using Machine Learning...203*

Tamara Sadek, Julia Ahmad, Fadi Khoury, Heba Badawe and Massoud Khraiche

11:30 *Optimizing Wrist-Based Bioimpedance: The Role of Electrode Type, Positioning and Signal Frequency in Health Monitoring...209*

Helen W Najjar, Fadi Khoury, Sahera Saleh and Massoud Khraiche

11:45 *ICU admission medical triage of COVID19 patients using Artificial Intelligence...214*

Sandy Rihana, Christelle Bou Rjeily, Joseph Matar and Walid Hleihel

Wednesday, December 13 12:00 - 1:00

LB2: Lunch Break

Rooms: Room-A, Room-B

Wednesday, December 13 1:00 - 2:15

S4b: Antennas, Microwave, Magnetics and RF circuits 📧

Room: Room-B

Chairs: Usamah O. Farrukh, Ernst Huijer

1:00 *A Compact UWB antenna with Dual-Reject Band...218*
Hanein Akila and Heba El-Halabi

1:15 *Enhancing Transistor Sizing in Analog IC Design using a Circuit-Focused Semi-Supervised Learning...223*
Rayan Mina, George E. Sakr and Houssam Nassif

1:30 *Hexagonal Patch Antenna for Ultra Wide Band Applications...229*
Heba El-Halabi, Ahmad Itani, Malek Al Khatib and Karim Kahwaji

1:45 *Interaction of radiated electromagnetic waves with biological phantoms and their relation to phantom density using a microstrip antenna...233*
Abraham Hernandez-Jimenez, Jesús F Córdova-Manzo, Gibran Segovia-Cristiani and Alejandro Rodriguez-Peña

2:00 *Products Allocation to Minimize Shipping Using Jellyfish Search Optimization...237*
Ali Kalakech and Ahmad Hashem Yahya

Wednesday, December 13 1:00 - 2:45

S4a: Computer Systems and Applications-II 📧

Room: Room-A

Chairs: Walid P Karam, Mohamad Kassab

1:00 *Securing academic certificate verification with blockchain-based algorithmic rules...242*
Sandeep Joshi and Manoj R

1:15 *Gamifying Digital Logic Education: A Super Mario World Approach...248*
Ahmad Kobeissi

1:30 *A Disruptive Blockchain Framework for Notary: Smart Contract and Digital Record Keeping...253*
Elie Nasr, Farid Nakhleh, Joe Nasr, Omar El Khatib and Lyne El Khatib

1:45 *Impact of Crypto Art Sentiment on Art Valuation...259*
    Elie Nasr, Mohamed Othman, Joe Nasr and Liliane Karam

2:00 *Cost-Effective Tweet Classification through Transfer Learning in Low-Resource NLP Settings...264*
    Elio Sarkis, Anthony Tannoury and Rony Darazi

2:15 *Towards Safer Wi-Fi Networks: Leveraging Neural Networks for Intrusion Detection...273*
    Mustafa El Bizri, Ali Massoud Haidar and Ahmad El-Hajj

2:30 *Innovative Single-Camera Depth Mapping for Enhanced Indoor Fire Detection & Localization...278*
    Ahmad Kobeissi and Majd Boulos