

**2022 International Conference on Smart Systems and Power Management  
(IC2SPM) Program**

Time	Conference Room 1	Conference Room 2
<i>Thursday, November 10</i>		
08:30 am 10:00 am	<i>Registration</i>	
10:00 am 10:40 am	<i>Opening Ceremony</i>	
10:40 am 11:00 am	<i>Break Cocktail/Coffee</i>	
11:00 am 12:00 pm	<i>Keynote Speaker</i>	
12:00 pm 01:30 pm	<i>S11(A): Biomedical and Bio-informatics</i>	<i>S11(B): Neural Networks, AI, Machine Learning, Deep Learning</i>
01:30 pm 02:50 pm	<i>Lunch Break</i>	
03:00 pm 04:15 pm	<i>S12(A): Power Electronics, Industrial Electronics</i>	<i>S12(B): Computer Systems and Applications</i>
<i>Friday, November 11</i>		
10:30 am 11:30 am	<i>Keynote Speaker: Advanced Grid-Connected Power Electronics for Power Quality Management</i>	
11:30 am 12:00 pm	<i>Coffee Break</i>	
12:00 pm 01:30 pm	<i>S21(A): Control Systems, Instrumentation, and Robotics</i>	<i>S21(B): Power Energy, Power Managements</i>
01:30 pm 02:45 pm	<i>Lunch Break</i>	
03:00 pm 04:15 pm	<i>S22(A): Circuits and Systems</i>	<i>S22(B): IoT and HW/SW System Design of Everything</i>

Thursday, November 10

Thursday, November 10 10:00 - 10:40 (Asia/Beirut)

Opening Ceremony [zoom](#)

Rooms: Conference Room 1

<https://zoom.us/j/96402885146?pwd=YmdxSGlLRm03M2FwbHBCUlgwSnh1Zz09>

Chairs: Mohamad Arnaout (LIU & BIU, Lebanon), Abdallah Kassem (Notre Dame University, Lebanon)

Thursday, November 10 11:00 - 12:00 (Asia/Beirut)

Keynote Speaker [zoom](#)

Abdulmotaleb El Saddik

**Keynote Speaker**

Rooms: Conference Room 1

<https://zoom.us/j/96402885146?pwd=YmdxSGlLRm03M2FwbHBCUlgwSnh1Zz09>

Chair: Abdallah Kassem (Notre Dame University, Lebanon)

**Multisensory Interactions in the Metaverse: Perspectives & challenges**

Thursday, November 10 12:00 - 1:30 (Asia/Beirut)

*S11(A): Biomedical and Bio-informatics* [zoom](#)

Conference Room 1

<https://zoom.us/j/96402885146?pwd=YmdxSGlLRm03M2FwbHBCUlgwSnh1Zz09>

Chair: Amira J. Zaylaa (Beirut Arab University, Lebanon)

**S11(A).1 *Design and Implementation of an EMG-based System for Monitoring and Help Request***

Carla Zeine (Kassel University, Germany); Roy Abi Zeid Daou (Université La Sagesse, Lebanon); Samer Telawi and Ali Hayek (University of Kassel, Germany); Gaby H Abou Haidar (American University of Science and Technology, Lebanon); Josef Boercsoek (University of Kassel, Germany)

**S11(A).2 *Design and Implementation of a Smart Health Monitoring Device using a Wearable Vest***

Ziad Khoury, Adib Karkafi, Ali Choucair and Roy Abi Zeid Daou (Université La Sagesse, Lebanon); Javier Serrano (UPM, Spain)

**S11(A).3 *Unsupervised Variable Selection Using a Genetic Algorithm: An Application to Textual Data***

Abbas Rammal (Mines School of Saint Etienne, France); Kenneth Ezukwoke (Ecole of Mines Saint Etienne, France); Anis Hoayek (University of Lyon, France); Mireille Batton-Hubert (France)

**S11(A).4 *Optimization of Darknet-19 model for the early diagnosis of Covid-19 based on CXR images***

Khoulood Samrouth and Bouchra Abdelaziz (Lebanese University, Lebanon)

**S11(A).5 *Breast Abnormalities' Classification Using Convolutional Neural Network***

Hawraa Hoteit, Fatima Sbeity and Mohamad Abou Ali (Lebanese International University, Lebanon); Adnan Harb (International University of Beirut, Lebanon); Lara Hamawy (LIU, Lebanese International University, Lebanon); Ali Hage-Diab and Mohamad Hajj-Hassan (Lebanese International University, Lebanon); Abdallah Kassem (Notre Dame University, Lebanon)

Thursday, November 10 12:00 - 1:30 (Asia/Beirut)

*S11(B): Neural Networks, AI, Machine Learning, Deep Learning* **zoom**

Conference Room 2

<https://zoom.us/j/98330754854?pwd=aGNaelBzczBTWxhER3VtRi9NNHBSQT09>

Chairs: Mohamad Abou Ali (Lebanese International University, Lebanon), Mohammad Ayache (Beirut Arab University (BAU), Lebanon)

**S11(B).1 AI to Preserve Energy and Environment**

Hussam A Hseiki, Hiba S Bazzi, Rola Kassem, Ahmad El-Hajj and Ali Massoud Haidar (Beirut Arab University, Lebanon)

**S11(B).2 Marine Object Detection Based on Top-View Scenes Using Deep Learning on Edge Devices**

Jana Sharafaldeen (Lebanese University, France); Mostafa Rizk (Lebanese International University & Lab-STICC, Lebanon); Dominique Heller (Université de Bretagne-Sud, France); Amer Baghdadi (Télécom Bretagne, France); Jean-Philippe Diguët (Lab-STICC / CNRS, France)

**S11(B).3 Thalassemia Diagnosis Through Medical Imaging: A New Artificial Intelligence-Based Framework**

Amira J. Zaylaa, Mohammad Makki and Rola Kassem (Beirut Arab University, Lebanon)

**S11(B).4 Acoustic Drone Detection Based on Transfer Learning and Frequency Domain Features**

Mohammad Yaacoub (Lebanese University, Lebanon); Hamoud Younes (LIU, Lebanon); Mostafa Rizk (Lebanese International University & Lab-STICC, Lebanon)

**S11(B).5 Logic-Based Neural Network for Pattern Correction**

Ziad Doughan, Hadi M. Al Mubasher, Rola Kassem, Ahmad El-Hajj and Ali Massoud Haidar (Beirut Arab University, Lebanon); Layth Sliman (EFREI- Paris, France)

Thursday, November 10 3:00 - 4:15 (Asia/Beirut)

*S12(A): Power Electronics, Industrial Electronics* **zoom**

Conference Room 1

<https://zoom.us/j/96402885146?pwd=YmdxSGILRm03M2FwbHBCUlgwSnh1Zz09>

Chairs: Alaa Daher (Electrical and Computer Engineering, Faculty Of Engineering, Beirut Arab University, Lebanon), Ziad Noun (Lebanese International University, Lebanon)

**S12(A).1 Designing a Smart Alarm System to Prevent Child Heatstroke in Vehicles**

Moutaz Saleh Saleh (Qatar University, Qatar)

**S12(A).2 Regression Model for a Proton Exchange Membrane Electrolyzer**

Noureddine Badie Itani (Saint Joseph University & Lebanese University, Lebanon); Nazih Moubayed (CRSI, Faculty of Engineering, Lebanese University, Lebanon)

**S12(A).3 State-Space Modeling of an Open-Loop Conversion Chain in Electric Vehicles**

Youssef O Ajra (& BAU, Lebanon); Hiba Al Sheikh (City University, Lebanon); Ghaleb Hoblos (IRSEEM, France); Nazih Moubayed (CRSI, Faculty of Engineering, Lebanese University, Lebanon)

**S12(A).4 SCADA System for Solar Backup Power System Automation**

Ali Khadra (Lebanese International University, Lebanon); Rabih Rammal (International University of Beirut, Lebanon)

Thursday, November 10 3:00 - 4:15 (Asia/Beirut)

*S12(B): Computer Systems and Applications* **zoom**

Conference Room 2

<https://zoom.us/j/98330754854?pwd=aGNaelBzczBTWXhER3VtRi9NNHBSQT09>

Chair: Ali Massoud Haidar (Beirut Arab University, Lebanon)

**S12(B).1 *Blockchain Overcomes Corruption: Towards Smart Institutions and Governance***

Hasan Mazloun and Nawaf Ali Mazloun (Charisma University, Lebanon)

**S12(B).2 *Visual Data Security Incorporating Fibonacci Sequence, S-Box, and Chaos Theory***

Hisham Hussein (Universities of Canada, Egypt); Wassim Alexan (German University in Cairo, Egypt); Mohamed khaled Mohamed F ElBeltagy (Cairo & Dell, Egypt); Amr Aboshousha (German University in Cairo, Egypt)

**S12(B).3 *Hierarchical Game for Resource Sharing and Pricing in Multi-Tenant Networks***

Soha Farhat (LIU-BIU & UL, Lebanon); Nour Nasser (Lebanese International University, Lebanon); Nurelhuda Younis (Lebanese International University, Lebanon)

**S12(B).4 *Smart Small-Scale Grid Sharing System for Renewable Energy Surplus Usage in Lebanon***

Nawaf Ali Mazloun and Hasan Mazloun (Charisma University, Lebanon)

Friday, November 11

Friday, November 11 10:30 - 11:30 (Asia/Beirut)

*Advanced Grid-Connected Power Electronics for Power Quality Management* [zoom](#)

Dr. Hadi Y. Kanaan

**Keynote Speaker**

Rooms: Conference Room 1

<https://zoom.us/j/96402885146?pwd=YmdxSGlLRm03M2FwbHBCUlgwSnh1Zz09>

Chair: Nazih Moubayed (CRSI, Faculty of Engineering, Lebanese University, Lebanon)

The massive proliferation of nonlinear electric devices at the load level (three-phase rectifiers, adjustable-speed drives, uninterruptible power supplies, etc.) and the generation level (renewable sources, storage devices, etc.) could have a severe impact on the power quality of the grid. The presence of current and/or voltage harmonics may cause technical and economic damages due to additional losses in the transmission lines, over-voltages, over-heating, Electro Magnetic Interference (EMI) problems, and other undesirable effects. In addition, harmonic reduction is becoming more and more relevant due to the limitations imposed by grid requirements by international standards. This talk will address the solutions adopted to mitigate power quality issues in distributed power systems, at the load, generation and distribution levels. More specifically, it will present advanced power electronics topologies used for power quality enhancement and reactive power compensation in the grid. Also, the mathematical modeling of the converters will be addressed on the basis of which control systems are designed. Several case studies will be presented and discussed.

Friday, November 11 12:00 - 1:30 (Asia/Beirut)

*S21(A): Control Systems, Instrumentation, and Robotics* [zoom](#)

Conference Room 1

<https://zoom.us/j/96402885146?pwd=YmdxSGlLRm03M2FwbHBCUlgwSnh1Zz09>

Chairs: Rodrigue Elias (LIU, Lebanon), Jean Sawma (Université Saint-Joseph, Lebanon)

**S21(A).1 *LabVIEW Simulation of a Flute Wind Musical Instrument Taking into Consideration the Fractional Behavior of Visco Thermal Losses in the Resonator***

Roy Abi Zeid Daou (Université La Sagesse, Lebanon); Xavier Moreau (University of Bordeaux I, France); Gaby H Abou Haidar (American University of Science and Technology, Lebanon)

**S21(A).2 *Techniques and Control Systems in Upper-Limb Bionic Prostheses: A Technological Review***

Dana Terrazas-Rodas (Universidad Tecnológica del Perú, Peru); Lily Lopez-Chavez (Universidad de Ingeniería y Tecnología, Peru)

**S21(A).3 *Control Systems in Lower-limb Exoskeletons for Rehabilitation and/or Assistance: A Brief Review***

Dana Terrazas-Rodas, Lisbeth Rocca-Huaman, César Ramírez-Amaya, Jean Requejo-Rosales, Juan Gutiérrez-Atacusi and Frank Estacio-Cayetano (Universidad Tecnológica del Perú, Peru)

**S21(A).4 *A Simulation Model for Thermal Management of Endoscopic LED-based Light Source***

Mohamad Hajj-Hassan and Hussein Hajj-Hassan (Lebanese International University, Lebanon); Mariam Khayreldeen (LIU, Lebanon); Mohamad Abou Ali (Lebanese International University, Lebanon); Hussein Mohamad Wehby (LIU, Lebanon)

**S21(A).5 *High-Precision Micro Capacitance Signal Measurement System-Based on Pcap01***

Xiaoya Song, xiaoya (Hebei University of Technology, China)

**S21(B): Power Energy, Power Managements** [zoom](#)

Conference Room 2

<https://zoom.us/j/98330754854?pwd=aGNaelBzczBTWXhER3VtRi9NNHBSQT09>

Chairs: Mohamad Hajj-Hassan (Lebanese International University, Lebanon), Rabih Rammal (International University of Beirut, Lebanon)

**S21(B).1 Study and Simulation of a Lebanese Microgrid**

Mohamad Arnaout (LIU & BIU, Lebanon); [Ali Koubayssi](#) and Andrea Al Chami (Lebanese International University, Lebanon)

**S21(B).2 Optimal Tuning of Power System Stabilizers Using Metaheuristic Optimization Algorithms: A Comparative Study**

Eyad A. Feilat and [Anas Abu-Fedda](#) (The University of Jordan, Jordan)

**S21(B).3 An Enhanced MPPT with Incremental Conductance and Owl Search Algorithm under Partial Shading**

[Sara N Altamimi](#) (Electrical Power Engineering, Jordan); Hani Jamleh (University of Jordan, Jordan); Eyad A. Feilat and Dia I. Abualnadi (The University of Jordan, Jordan)

**S21(B).4 Automatic Angle Calculation for Heliostat Tracking System**

[Youssef Moustafa Farachi](#) and Khodor Hamzeh Hamzeh (Lebanese University, Lebanon); Fadi El Assal (Electricity of LEBANON, Lebanon); Nabil Karami (Higher Colleges of Technology, United Arab Emirates)

**S21(B).5 Recycling of Electrical and Electronic-Waste with the Help of Marx Power Pulse Generator**

[Saman Madanian](#) (Islamic Azad University Najafabad Branch, Iran); [S. Mohammadali Zanjani](#) (Islamic Azad University Najafabad Branch & Smart Microgrid Research Center Najafabad Branch, Iran); Amir Baktash and Mahshad Mahmoudian (Islamic Azad University Najafabad Branch, Iran); Ghazanfar Shahgholian (Islamic Azad University, Najafabad Branch, Iran); [Mohammad-hossein Fayaz-dastgerdi](#) (Islamic Azad University Najafabad Branch, Iran)

Friday, November 11 3:00 - 4:15 (Asia/Beirut)

**S22(A): Circuits and Systems** [zoom](#)

Conference Room 1

<https://zoom.us/j/96402885146?pwd=YmdxSGILRm03M2FwbHBCUlgwSnh1Zz09>

Chairs: Mustapha Hamad (Notre Dame University-Louaize, Lebanon), Adnan Harb (International University of Beirut, Lebanon)

**S22(A).1 45nm CMOS Two-Stage Latched Comparator**

Raffi Der Yeghiayan, [Elias Salameh](#) and Mohamad El Mokdad (Lebanon); Jad G. Atallah (Notre Dame University - Louaize, Lebanon)

**S22(A).2 Automated Training Data Construction using Measurements for High-Level Learning-Based FPGA Power Modeling**

[Majdi Richa](#), Jean-Christophe Prévotet and Mickaël Dardaillon (Univ Rennes, INSA Rennes, CNRS, IETR - UMR 6164, F-35000 Rennes, France); Mohamad Mroue and Abed Ellatif Samhat (Lebanese University, Lebanon)

**S22(A).3 An Analog Nearest Class with Multiple Centroids Classifier Implementation, for Depth of Anesthesia Monitoring**

Vassilis Alimisis, [Vassilis Mouzakis](#), Georgios Gennis and Errikos Tsouvalas (National Technical University of Athens, Greece); Paul Peter Sotiriadis (Johns Hopkins University EPP & Soteco Electronics LLC, USA)

**S22(A).4 A New Correlation Manipulation Circuit for Stochastic Computing**

[Hamdan Abdellatef](#) (Lebanese American University, Lebanon); Abdallah Abdellatif (Universiti Malaya, Malaysia); Nehad Ramaha (Karabuk University, Turkey)

Friday, November 11 3:00 - 4:15 (Asia/Beirut)

*S22(B): IoT and HW/SW System Design of Everything* [zoom](#)

Conference Room 2

<https://zoom.us/j/98330754854?pwd=aGNaelBzczBTWXhER3VtRi9NNHBSQT09>

Chairs: Ali Bazzi (Lebanese International University & LIU, Lebanon), Lara Hamawy (LIU, Lebanese International University, Lebanon)

**S22(B).1 *Objects Classification based on Hand Grasping in Virtual Reality Environment***

Ali Ibrahim (LIU, Lebanon); Mohamad Hajj-Hassan (Lebanese International University, Lebanon); Hoda Fares (University of Genoa & Lebanese University- EDST, Italy); Maurizio Valle (University of Genova, Italy)

**S22(B).2 *Implementation and Optimization of Neural Networks for Tiny Hardware Devices***

Hadi Al Zein and Mohamad A. Aoude (Lebanese University, Lebanon); Youssef Harkouss (Lebanon)

**S22(B).3 *On Path Planning and Optimization Strategies: Toward Embedded Road Applications***

Taha Houda (ESIEE-IT SCHOOL, France); Jinan Charafeddine (Paris Saclay, France); Hani Hamdan (CentraleSupélec, Université Paris-Saclay, France); Sylvain Chevallier (University of Versailles-Saint Quentin, France)

**S22(B).4 *A Strategic Assessment and Evaluation of the Implementation and the Management of Cloud Computing Online Services: Case of the Lebanese Government***

Atef Harb (Notre Dame University, Lebanon); Robert Madi (regiealfa, Lebanon); Ziad Azzi (NDU, Lebanon); Abdallah Kassem (Notre Dame University, Lebanon)