

# ACTEA'19: Schedule at a Glance

<b>Wednesday, July 3, 2019</b>	8:00 AM - 9:00 AM	<b>Registration</b> Conference Business Center	
	9:00 AM - 9:30 AM	<b>Opening Ceremony</b> Issam Fares Hall	
	9:30 AM - 10:30 AM	<b>Keynote Lecture: Prof. Chadi Assi</b> Issam Fares Hall	
	10:30 AM - 11:00 AM	<b>Coffee Break</b> Conference Business Center	
	11:00 AM - 12:30 PM	TS.IA: <b>Electromagnetics &amp; FPGA</b> Fares Hall	TS.IB: <b>Bioengineering</b> Abu-Khater Hall
	12:30 PM – 2:00 PM	<b>Lunch</b> University Restaurant	
	2:00 PM – 3:30 PM	TS.IIA: <b>Microelectronics</b> Fares Hall	TS.IIB: <b>Renewable Energy</b> Abu-Khater Hall
	3:30 PM – 4:00 PM	<b>Coffee Break</b> Conference Business Center	
	4:00 PM – 5:30 PM	TS.IIIA: <b>Control Systems</b> Fares Hall	TS.IIIB: <b>Transportation</b> Abu-Khater Hall
	6:00 PM – 11:00 PM	<b>Social Event I</b>	

<b>Thursday, July 4, 2019</b>	8:00 AM - 9:30 AM	<b>Registration</b> Conference Business Center	
	9:30 AM - 10:30 AM	<b>Keynote Lecture: Prof. Essam Khalil</b> Issam Fares Hall	
	10:30 AM - 11:00 AM	<b>Coffee Break</b> Conference Business Center	
	11:00 AM - 12:30 PM	TS.IVA: <b>Communication &amp; Signal Processing I</b> Fares Hall	TS.IVB: <b>Thermal Sciences</b> Abu-Khater Hall
	12:30 PM – 2:00 PM	<b>Lunch</b> University Restaurant	
	2:00 PM - 3:30 PM	TS.VA:	TS.VB:

		<b>Communication &amp; Signal Processing II</b> Fares Hall	<b>Materials</b> Abu-Khater Hall
	3:30 PM – 4:00 PM	<b>Coffee Break</b> Conference Business Center	
	4:00 PM – 5:30 PM	TS.VIA: <b>Artificial Intelligence</b> Fares Hall	TS.VIB: <b>Environmental Applications</b> Abu-Khater Hall
	6:00 PM – 11:00 PM	<b>Social Event II</b>	

8:00 AM - 9:00 AM **Registration** Conference Business Center

9:00 AM - 9:30 AM **Opening Ceremony** Fares Hall

*Introduction by Jeanette Elias (Notre Dame University, Lebanon)*

9:05 **ACTEA'19 Welcome Note, Dr. Michel Hayek, General Chair, Dean of Engineering, Notre Dame University-Louaize**

9:10 **IEEE, Dr. Bachar El Hassan, President of IEEE Lebanon Section, Lebanese University**

9:15 **Federation of Lebanese Engineers, Mr. Bassam Ziadeh, President, Order of Engineers and Architects - Tripoli**

9:25 **NDU Welcome Speech, Dr. Elie Badr, Vice-President for Academic Affaris, Notre Dame University-Louaize**

9:30 AM - 10:30 AM **Keynote Lecture I** Fares Hall

*Introduction by Maurice Khabbaz (Notre Dame University, Lebanon)*

### Edge Computing for IoT-Enabled Smart Cities

Prof. Chadi Assi

Concordia University, Canada

10:30 AM - 11:00 AM **Coffee Break** Conference Business Center

11:00 AM - 12:30 PM **Session IA: Electromagnetics & FPGA** Fares Hall

*Co-Chairs: Rafic Ayoubi (University of Balamand, Lebanon) & Elias Nassar (Notre Dame University, Lebanon)*

11:00 - 11:20 **Hardware Architecture for a Shift-Based Parallel Odd-Even Transposition Sorting Network**, Rafic A. Ayoubi, Samer Istambouli and Abdel-Wahed Abbas (University of Balamand, Lebanon); Ghattas Akkad (ENSTA Bretagne, France)

11:20 - 11:40 **Analysis of MIMO Antenna Characteristics in Underground Mine**, Ali Nehme (University of Quebec in Abitibi-Temiscamingue, Canada); Nahi Kandil (Université du Québec en Abitibi-Temiscamingue, Canada); Nadir Hakem (Université du Québec en Abitibi Témiscamingue & LRTCS Research Laboratory Télébec in Underground Communications, Canada)

11:40 - 12:00 **Speech Encryption on FPGA Using a Chaotic Generator and S-Box Table**, Ahmed Madian (Nile University, Egypt); Ahmed G. Radwan (Faculty of Engineering, Cairo University, Egypt); Hassan I. Saleh (Jouf University (King Saud University), Saudi Arabia); Ahmed Tarek, Heba Yassin and Ahmed Abdel-Gawad (Nile University, Egypt)

12:00 – 12:20 **Massive Planar Antenna Arrays for Physical Layer Security**, Mahdi Chehimi and Rofaida Al Ahmad Matar (American University of Beirut (AUB), Lebanon); Elias Yaacoub (Self Employed, Lebanon); Ali Chehab (American

**11:00 AM - 12:30 PM**      **Session IB: Bioengineering**      **Abu Khater Hall**

*Co-Chairs: Lobna Said (Nile University, Egypt) & Bachar El Hassan (Lebanese University, Lebanon)*

**11:00 - 11:20** **SCOP-Aided Fragment Assembly Protein Structure Prediction**, Jad Abbass (Lebanese International University, Lebanon & Kingston University London, United Kingdom); Jean-Christophe Nebel (Kingston University, United Kingdom)

**11:20 - 11:40** **Brain Tumor Classification Using Back Propagation Algorithm of MLP**, Roger Achkar (American University of Science and Technology, Lebanon); Michel J Owayjan, Batoul Harajli, Daniel Khazaal and Mohammad Dbouk (American University of Science & Technology, Lebanon)

**11:40 - 12:00** **Toward Portable Bio-Impedance Devices**, Ahmed Abo Bakr and Lobna Said (Nile University, Egypt); Ahmed G. Radwan (Faculty of Engineering, Cairo University, Egypt); Ahmed Elwakil (University of Sharjah, United Arab Emirates); Ahmed Madian and Menna Mohsen (Nile University, Egypt)

**12:00 - 12:20** **Heating and Freezing Injury to Plant Tissues and Their Effect on Bioimpedance: Experimental Study**, Lobna Said, Mostafa Abdelrahman Mousa and Ahmed Madian (Nile University, Egypt); Ahmed Elwakil (University of Sharjah, United Arab Emirates); Ahmed G. Radwan (Faculty of Engineering, Cairo University, Egypt); Ahmed Abo Bakr (Nile University, Egypt)

**12:30 PM - 2:00 PM**      **Lunch Break**      **University Restaurant**

**2:00 PM - 3:30 PM**      **Session IIA: Microelectronics**      **Fares Hall**

*Co-Chairs: Ahmed Madian (Nile University, Egypt) & Abdallah Kassem (Notre Dame University, Lebanon)*

**2:00 - 2:20** **A Simple BJT Inverse Memristor Emulator and Its Application in A Chaotic Oscillators**, Lobna Said (Nile University, Egypt); Nariman Khalil (Nahda University, Egypt); Ahmed G. Radwan (Faculty of Engineering, Cairo University, Egypt); Ahmed Soliman (Cairo University, Egypt)

**2:20 - 2:40** **Fractional-order Nonminimum-phase Filter Design**, Ahmed M. Hassanein and Omar Elwy (NISC Research Center, Nile University, Egypt); Lobna Said and Ahmed Madian (Nile University, Egypt); Ahmed G. Radwan (Faculty of Engineering, Cairo University, Egypt); Ahmed Soliman (Cairo University, Egypt)

**2:40 - 3:00** **Fractional-Order Oscillators Based on Double Op-Amp**, Lobna Said, Ahmed Madian and Gehad Mostafa (Nile University, Egypt); Ahmed G. Radwan (Faculty of Engineering, Cairo University, Egypt)

**3:00 - 3:20** **Fractional Order Inverse Filters Based on CCII Family**, Lobna Said (Nile University, Egypt); Nariman Khalil (Nahda University, Egypt); Ahmed Soliman

**2:00 PM - 3:30 PM**      **Session IIB: Renewable Energy**      **Abu Khater Hall**

*Co-Chairs: Gabriel Ibarra-Berastegi (University of the Basque Country, Spain) & Semaan Georges (Notre Dame University-Louaize, Lebanon)*

**2:00 - 2:20** **Calculation of Lebanon Offshore Wind Energy Potential Using ERA5 Reanalysis: Impact of Seasonal Air Density Changes**, Gabriel Ibarra-Berastegi, Alain Ulazia, Jon Saenz and Santos Jose Gonzalez-Roji (University of the Basque Country, Spain); Sheila Carreno-Medinabeitia (Tecnalia Research & Innovation, Spain)

**2:20 - 2:40** **Modeling, Control and Simulation of a Modular Multilevel Converter**, Nassar Mendalek (Notre Dame University - Louaize, Lebanon); Eliane Zouein, Vana Ajemian and Wissam Rayess (Notre Dame University-Louaize, Lebanon)

**2:40 - 3:00** **Development of a Wave Buoy Device for Energy Harvesting**, Christine Khairallah, Elias Eid and Pierre Rahme (Lebanese University, Lebanon); Charbel Bou-Mosleh (Notre Dame University-Louaize, Lebanon)

**3:00 - 3:20** **Modeling and Dynamic Simulation of an Integrated Storage System in a Hybrid Solar-Wind Power Generation System**, Semaan Georges (Notre Dame University-Louaize, Lebanon)

**3:30 PM - 4:00 PM**      **Coffee Break**      **Conference Business Center**

**4:00 PM - 5:30 PM**      **Session IIIA: Control Systems**      **Fares Hall**

*Co-Chairs: Roy Abi Zeid Daou (Lebanese German Unievrstity, Lebanon) & Najib Metni (Notre Dame University, Lebanon)*

**4:00 - 4:20** **Investigating Performance of Adaptive and Robust Control Schemes for Quanser AERO**, Andrew AlHamouch (Technical University of Hamburg Harburg (TUHH), Germany); Mohammad Tuqan, Carine Bardawil and Naseem Daher (American University of Beirut, Lebanon)

**4:20 - 4:40** **Simulation of the Tape Laying Process with Steering of Tapes**, Eddy Barakat (LIU & ZTA, Lebanon); Mikhael Tannous (LIU, Lebanon)

**4:40 - 5:00** **Automated Calibration Machine for Spirometers**, Pamela Chaaya, Bedouin Sassiya and Chady Ghnatios (Notre Dame University-Louaize, Lebanon); Abdallah Kassem (Notre Dame University, Lebanon)

**5:00 - 5:20** **Design of a Pendulum Based Micro-Thrust Measuring Device Application to Plasma Microthrusters**, Khalil El Rai (Notre Dame University, Lebanon); Charbel Habchi (Notre Dame University - Louaize, Lebanon); Alexios Rustom (Notre Dame University-Louaize, Lebanon); Najib Metni (Notre Dame University - Louaize, Lebanon); Ghassan Antar (American University of Beirut, Lebanon)

**4:00 PM - 5:30 PM**

**Session IIIB: Transportation**

**Abu Khater Hall**

*Co-Chairs: Ziad Doughan (Beirut Arab University, Lebanon) & Dima Jawad (Notre Dame University, Lebanon)*

**4:00 - 4:20 Automatic Radial Routing Protocol for Public Transport System**, Hiba Koleilat, Ziad Doughan and Youssef Attallah (Beirut Arab University, Lebanon)

**4:20 - 4:40 Sensitivity Analysis of Personal Rapid Transit Parameters in Urban Setting - Case Study: Beirut Central District**, Mark el Ayashe (Notre Dame University-Louaize NDU, Lebanon); Dima Jawad (NDU-Louaize, Lebanon); Francesco Rouhana and Chloe Aouad (Notre Dame University-Louaize NDU, Lebanon)

**4:40 - 5:00 A Study of Beirut Rapid Transit System Using Probabilistic Approach**, Charbel Haddad Barouke (Notre Dame University-Louaize NDU, Lebanon); Dima Jawad (NDU-Louaize, Lebanon); Francesco Rouhana (Notre Dame University-Louaize NDU, Lebanon)

**5:00 - 5:20 Estimating Travel Mode Choices of NDU Students Using Multinomial Logit Model**, Ismail Abou Ali (NDU, Lebanon); Francesco Rouhana (Notre Dame University-Louaize NDU, Lebanon); Rasha Zeineddine and Samer Zoer (NDU, Lebanon)

**6:00 PM - 11:00 PM**

**Social Event I**

**6:00 – 8:30** Transportation, Sightseeing at Harissa Shrine & Jbeil Old Souks

**8:30 – 10:30** Dinner at a local restaurant to be announced during the conference

**10:30** Ride to hotels

8:00 AM - 9:30 AM *Registration* Conference Business Center

9:30 AM - 10:30 AM *Keynote Lecture II* Fares Hall

*Introduction by Michel Hayek (Notre Dame University-Louaize, Lebanon)*

**Computer Simulation in Energy Efficient Buildings**

Prof. Essam Khalil, FASME, FAIAA, FASHRAE

Cairo University, Egypt

10:30 AM - 11:00 AM *Coffee Break* Conference Business Center

11:00 AM - 12:30 PM *Ses. IVA: Communication & Signal Processing I* Fares Hall

*Co-Chairs: Nahi Kandil (University of Quebec at Abitibi, Canada) & Ghassan Kraidy (Notre Dame University, Lebanon)*

**11:00 - 11:20 Gradient Descent Localization Algorithm Based on Received Signal**

***Strength Technique in a Noisy Wireless Sensor Network***, Hussein Hijazi (Universite du Quebec en Abitibi-Temiscamingue (UQAT), Canada); Nahi Kandil (Université du Québec en Abitibi-Temiscamingue, Canada); Nour Zaarour (Université du Québec-INRS, Canada); Nadir Hakem (Université du Québec en Abitibi Témiscamingue & LRTCS Research Laboratory Télébec in Underground Communications, Canada)

**11:20 - 11:40 Wireless SDN Architecture Testbed to Support IP Multimedia Subsystem,**

Ali Hassan Issa (University of Quebec in Abitibi-temiscamingue, Canada); Nadir Hakem (Université du Québec en Abitibi Témiscamingue & LRTCS Research Laboratory Télébec in Underground Communications, Canada); Nahi Kandil (Université du Québec en Abitibi-Temiscamingue, Canada)

**11:40 - 12:00 New Bounds on Convolutional Code Performance over the Bernoulli-**

***Gaussian Channel***, Hassan Hamad (Technical University of Munich, Germany); Ghassan M. Kraidy (Notre Dame University - Louaize, Lebanon)

**12:00 - 12:20 Use of Signal Processing to Study Internal Erosion in Porous Media,** Yara

Maalouf and Naji Khoury (Notre Dame University - Louaize, Lebanon); Christophe Voisin and Gregory Bievre (University Grenoble-Alpes, France)

11:00 AM - 12:30 PM *Session IVB: Thermal Sciences* Abu Khater Hall

*Co-Chairs: Marius van Wyk (CSIR, South Africa) & Talal Salem (Notre Dame University, Lebanon)*

**11:00 - 11:20 Effect of Volumetric Gas Radiation on Double-Diffusive Mixed Laminar**

***Convection***, Abderrahmane Benbrik and Mohammed Cherifi M'Hamed Bougara University, Boumerdes, Algeria); Siham Laouar-Meftah and Khaled

Sahnoune (University M'Hamed Bougara, Boumerdes, Algeria); Mourad Moderres (University Djilali Bounaama, Khemis-Miliana, Algeria)

**11:20 - 11:40** *Numerical Analysis of Different Indoor Heating Methods*, Hassan Ali Karkaba (Lebanese International University & IMT Lille Douai, Lebanon); Charbel Habchi (Notre Dame University - Louaize, Lebanon); Ahmad Takash (Lebanese International University, Lebanon)

**11:40 - 12:00** *Simulation of Water Gaps in Detonic Initiation Trains*, Marius van Wyk, Frikkie Mostert, Billy Cloete and Richard Mattheyse (CSIR, South Africa)

**12:00 - 12:20** *Accurate Prediction of Gas Compressibility Factor using Kernel Ridge Regression*, Maher Maalouf, Dirar Homouz and Kyriaki Polychronopoulou (Khalifa University, United Arab Emirates); Naji Khoury (Notre Dame University - Louaize, Lebanon)

**12:30 PM - 2:00 PM** *Lunch Break* **University Restaurant**

**2:00 PM - 3:30 PM** *Ses. VA: Communication & Signal Processing II* **Fares Hall**

*Co-Chairs: Azar Peter Dagher (University of Maryland School of Medicine, USA) & Marwan Bou Sanayeh (Notre Dame University, Lebanon)*

**2:00 - 2:20** *Resampling of Data with Rothstein's Code for the Slope of a Line*, Azar Peter Dagher and Thomas Ptak (University of Maryland School of Medicine, USA)

**2:20 - 2:40** *Extrinsic Dynamics and Equivalent Circuit Modeling of High-Speed VCSELs*, Wissam Hamad (Technische Universität Berlin, Lebanon); Marwan Bou Sanayeh and Mustapha Hamad (Notre Dame University-Louaize, Lebanon); Werner Hofmann (Technische Universität Berlin, Germany)

**2:40 - 3:00** *On Optimizing the Performance of Impulse Radio Pulse Position Modulation Based on UWB Gaussian Pulse Derivatives*, Haidar Taki (Ecole Nationale Supérieure de Techniques Avancées (ENSTA)-Bretagne, France); Ali Mansour (ENSTA Bretagne, France); Abbass Nasser (Ensta-Bretagne, France & AUCE, Lebanon); Koffi-Clement Yao (Université de Bretagne Occidentale, France)

**3:00 - 3:20** *Modelling and Identification of the Musicians Blowing Part and the Flute Musical Instrument*, Gaby H Abou Haidar (American University of Science and Technology, Lebanon); Roy Abi Zeid Daou (Lebanese German University, Lebanon); Xavier Moreau (University of Bordeaux I, France)

**2:00 PM - 3:30 PM** *Session VB: Materials* **Abu Khater Hall**

*Co-Chairs: Chady Ghnatios (Notre Dame University, Lebanon) & Sary Malak (Notre Dame University, Lebanon)*

**2:00 - 2:20** *Efficient Modeling of the Thermal-Cracking of a Cylindrical Shell Encapsulating a Cylinder Inclusion*, Gerard-Philippe Zehil (Notre Dame University - Louaize, Lebanon)



**2:20 - 2:40** *Modeling Elastic Shock in Isotropic Solids*, Hadi Al Boustany (Phoenix Machinery Member of INDEVCO Group, Lebanon); Chady Ghnatios (Notre Dame University-Louaize, Lebanon)

**2:40 - 3:00** *Estimation of Power-Law Rheological Parameters for Non-Newtonian Fluids Using the Vane Test*, Chady Ghnatios (Notre Dame University-Louaize, Lebanon); Gerard-Philippe Zehil (Notre Dame University - Louaize, Lebanon)

**3:00 - 3:20** *Computational and Modeling Design Techniques Used in the Progressive Collapse Analysis of Structures*, Sary A Malak (Notre Dame University, Lebanon)

**3:30 PM - 4:00 PM** *Coffee Break* Conference Business Center

**4:00 PM - 5:30 PM** *Session VIA: Artificial Intelligence* Fares Hall

*Co-Chairs: Michel J Owayjan (American University of Science and Technology, Lebanon) & Gerard Philippe Zehil (Notre Dame University, Lebanon)*

**4:00 - 4:20** *Monitoring System for Prediction and Detection of Epilepsy Seizure*, Nashaat El Halabi (AUST, Lebanon); Roy Abi Zeid Daou (Lebanese German University, Lebanon); Ali Hayek (University of Kassel, Germany); Roger Achkar (American University of Science and Technology, Lebanon); Josef Boercsoek (University of Kassel, Germany)

**4:20 - 4:40** *Mobile Robot Path Planning using Genetic Algorithm in a Static Environment*, Samia Choueiri, Michel J Owayjan and Hassan Diab (American University of Science & Technology, Lebanon); Roger Achkar (American University of Science and Technology, Lebanon)

**4:40 - 5:00** *Ethnicity Recognition System using Back Propagation Algorithm of an MLP*, Roger Achkar, Gaby H Abou Haidar, Mireille El Assal and Tarek Maylaa (American University of Science and Technology, Lebanon)

**5:00 - 5:20** *Advanced Biomimetic Cells Architecture for Parallel Operations in Artificial Intelligence*, Ziad Doughan, Wassim Itani and Ali Massoud Haidar (Beirut Arab University, Lebanon)

**4:00 PM - 5:30 PM** *Session VIB: Environmental Applications* Abu Khater Hall

*Co-Chairs: Charbel Khoury (KCI Technologies, USA) & Sophia Ghanimeh (Notre Dame University-Louaize, Lebanon)*

**4:00 - 4:20** *A Look at the Relationship Between Tropospheric Nitrogen Dioxide and Aerosol Optical Thickness over Lebanon using Spaceborne Data of the Copernicus Programme*, Elie El Khoury (Notre Dame University - Louaize, Lebanon); Sophia Ghanimeh (Notre Dame University-Louaize, Lebanon); Elsy Ibrahim (Université de Liège, Belgium)

**4:20 - 4:40** *Using Finite Difference Approach to Model Nitrate Contaminant Transport to a Contaminated Well*, Jeffrey Fadlallah, Stephanie Sarrouf and Fadi Saliba (Notre Dame University-Louaize, Lebanon); Naji Khoury (Notre Dame University - Louaize, Lebanon)

**4:40 - 5:00** *Geotechnical Modeling of Landfill Expansion Stability*, Charbel Khoury, Kofi Acheampong and Kwabena Ofori-Awuah (KCI Technologies, USA)

**5:00 - 5:20** *Overview of Hydrological Modeling of Climate Impacts on Rivers in The Mediterranean and Lebanon*, Jad Saade (Notre Dame University - Louaize & Engineering, Lebanon); Sophia Ghanimeh (Notre Dame University-Louaize, Lebanon); Maya Atieh (Notre Dame University Louaize, Lebanon)

**6:00 PM - 11:00 PM**

*Social Event II*

**6:00 - 8:30** Sightseeing at Jeita Grotto

**8:30 - 10:30** Dinner at a local restaurant to be announced during the conference

**10:30** Ride to hotels