2020 International Conference on Electronics, Control, Optimization and Computer Science (ICECOCS)

December 2nd-3rd, 2020

FSK, ENSAK, Ibn Tofail University, Kenitra, Morocco

GENERAL CHAIRS

MY EL HASSAN CHARAF
ABDESSALAM AIT MADI
SALMA AZZOUZI
MOHAMMED TALIBI ALAOUI

https://www.uit.ac.ma/icecocs2020/

Welcome Message

On behalf of the Organizing committee, we would like to extend a warm welcome to all the participants of the 2020 International Conference on Electronics, Control, Optimization and Computer Science (ICECOCS'20) held on December 2nd -3rd , 2020 in KENITRA.

This scientific event organized by the Ibn Tofail University of Kenitra (The Faculty of Sciences and the National School of Applied Sciences) has been expected to become one of the important conferences in Morocco in the area of control and optimization on the fields of Electronic and Computer Science. It will provide a remarkable opportunity for academic and industrial communities to address new challenges, share experiences and discuss future research directions. The technical program will include plenary and regular technical sessions.

More than 205 papers were submitted to ICECOCS'20. After a strict review process, the acceptance rate for presentation in this conference was around 50%. A selected number of papers may be invited to submit extended versions of their papers for publication, as full journal papers, in the International Journal of Modelling, Identification and Control (IJMIC) Indexed in: (Scopus (Elsevier), DBLP, …) and Statistics, Optimization & Information Computing Journal (SOIC) Indexed in: (Scopus (Elsevier), DBLP, …)

The ICECOCS'20 is honored this year to have the following distinguished keynotes speakers: Dr. Dimitri LEFEBVRE (University of Le Havre Normandie- France) , Dr. Luciano TARRICONE (University of Salento, Italy) , Dr. Colin SNOOK (Senior Research Fellow in the cyber-physical systems group , University of Southampton, UK), Dr. Mohamed DAOUDI (Computer Science Department at IMT Lille Douai- France) and M. Chakib ACHOUR (Director of Marketing Strategy of Huawei Morocco) that have been invited to deliver lectures on relevant issues of Electronics, Control, Optimization and Computer Science. Therefore, we would like to thank all of them for accepting our invitation and we are privileged to have had the opportunity to learn from and with them.

We would like to express our gratitude to our university officials for their efforts and unlimited collaboration. We would like to thank all members of different committees for their efforts before and during the conference and all members of Technical Program Committee for their hard work in providing reviews in timely manner. Special thanks also go to all authors for their valuable contributions since ICECOCS'20 would not be possible without their contributions.

We are also grateful to all our partners and sponsors, especially the Ibn Tofail University, the FSK faculty, the ENSAK school of engineers, Sidi Mohamed Ben Abdellah University, the Faculty of Science and Technics FSTF, the IEEE Section Morocco, the CNRST center, the AMIRS association and Huawei Morocco.

We hope you enjoy your time with us and we look forward to meeting you all in the next edition of the ICECOCS conference.

ICECOCS'20 Organizing Committee

CONFERENCE PROGRAM

WEDNESDAY DECEMBER 2nd , 2020

OPENING CEREMONY [Online Meeting ID https://meet.google.com/jve-mfun-wfk]

9H30 – 10H00 (UTC+1)

- Pr. Azzeddine EL MIDAOUI, President of Ibn Tofail University, Kenitra - Morocco.
- Pr. Mohamed EBN TOUHAMI, Dean of Faculty of Sciences, Kenitra - Morocco.
- Pr. Mohamed CHAFIK EL IDRISSI, Director of the ENSA, Kenitra - Morocco.
- Pr. Abdelmajid SOULAYMANI, Director of the Doctoral Studies Center, Kenitra- Morocco.
- Pr. Nasser ASSEM, IEEE Morocco Section Chair.
- Pr. Mohammed EL MOHAJIR, IEEE Morocco Section Past Chair.
- Pr. My El Hassan CHARAF, Faculty of Sciences, Kenitra - Morocco.
- Pr. Abdessalam AIT MADI, ENSA, Kenitra - Morocco.
- Pr. Salma AZZOUZI, Faculty of Sciences, Kenitra - Morocco.
- Pr. Mohammed TALIBI ALAOUI, FSTF FEZ-Morocco.

PLENARY SESSION [Online Meeting ID https://meet.google.com/jve-mfun-wfk]

10H00– 11H00 (UTC+1)

HUAWEI

Connectivity and ICT are the foundation of digital Smart Country.

M. Chakib ACHOUR Director of Marketing Strategy of Huawei Morocco

Session Chairs: Pr. ADNANE ADDAIM; Pr. ABDESSALAM AIT MADI

11H00-13H00 (UTC+1)

Oral Session 1.1	Oral Session 2.1	Oral Session 3.1	Oral Session 4.1
ELECTRONICS	**CONTROL**	**OPTIMIZATION**	**COMPUTER SCIENCE**
Meeting ID	Meeting ID	Meeting ID	Meeting ID
https://meet.google.com/pxg-zxdx-pxe	https://meet.google.com/nco-xnrg-zpa	https://meet.google.com/vms-tsgo-sxa	http://meet.google.com/naq-ramj-jfj
Session Chairs :	Session Chairs :	Session Chairs :	Session Chairs :
Pr. SAAD BENNANI DOSSE	Pr. HASSAN EL FADIL	Pr. BACHIR BENHALA	Pr. ARSALANE ZARGHILI
Pr. MOHAMMED JORIO	Pr. EL AYACHI CHATER;	Pr. BOUCHAIB CHERRADI	Pr. YOUNES LAKHRISSI
Pr. YOUNES ZOUINE	Pr. KHALID CHIKH	Pr. MOHAMMED KAICER	Pr. HIBA CHOUGRAD

PLENARY SESSION [Online Meeting ID https://meet.google.com/jve-mfun-wfk]

14H00 – 15H00 (UTC+1)

Safe, Sustainable and Low-cost Electromagnetic Technologies for the Internet of Things

Pr. Luciano TARRICONE, University of Salento, Italy

Session Chairs : Pr. AHLAME BEGDOURI; Pr. JALAL LAASIRI

15H00 – 17H00 (UTC+1)

Oral Session 1.2	Oral Session 2.2	Oral Session 3.2	Oral Session 4.2
ELECTRONICS	**CONTROL**	**OPTIMIZATION**	**COMPUTER SCIENCE**
Meeting ID	Meeting ID	Meeting ID	Meeting ID
https://meet.google.com/pxg-zxdx-pxe	https://meet.google.com/nco-xnrg-zpa	https://meet.google.com/vms-tsgo-sxa	http://meet.google.com/naq-ramj-jfj
Session Chairs :	Session Chairs :	Session Chairs :	Session Chairs :
Pr. SEDDIK BRI	Pr. SAID EL BEID	Pr. KHALIFA MANSOURI	Pr. BADRADDINE AGHOUTANE
Pr. JAMAL ZBITOU	Pr. HASSAN ABOUOBAIDA	Pr. RAIHANI ABDELHADI	Pr. HASSAN SATORI
Pr. MALIKA ALAMI MARKTANI	Pr. ABDELLAH AILANE	Pr. ABDELAALI CHAOUB	Pr. TARIK BOUJIHA

THURSDAY DECEMBER 3rd , 2020

09H00– 11H00 (UTC+1)	**Oral Session 1.3** **ELECTRONICS** **Meeting ID** https://meet.google.com/pxg-zxdx-pxe **Session Chairs :** **Pr. ABDELALI ED-DAHHAK** **Pr. MOHAMMED GUERBAOUI** **Pr. ABDELMAJID AIT TALEB**	**Oral Session 2.3** **CONTROL** **Meeting ID** https://meet.google.com/nco-xnrg-zpa **Session Chairs :** **Pr. MUSTAPHA OUARDOUZ** **Pr. SOUFIANE BELHOUIDEG** **Pr. AZIZ DEROUICH**	**Oral Session 3.3** **OPTIMIZATION** **Meeting ID** https://meet.google.com/vms-tsgo-sxa **Session Chairs :** **Pr. ALI AHAITOUF** **Pr. HANAA HACHIMI** **Pr. HAMID BOUYGHF**	**Oral Session 4.3** **COMPUTER SCIENCE** **Meeting ID** http://meet.google.com/naq-ramj-jfj **Session Chairs :** **Pr. FARID ABDI** **Pr. NOUREDDINE EL MAKHFI** **Pr. KHALID HOUSNI** **Pr. MOHAMMED CHAOUKI ABOUNAIMA**
PLENARY SESSION [**Online Meeting ID** https://meet.google.com/jve-mfun-wfk]				
11H00-12H00 (UTC+1)	**Performance Evaluation and Optimization for Cyber-Physical Systems** Pr. **Dimitri LEFEBVRE,** University of Le Havre Normandie, France **Session Chairs : Pr. SAOUSSEN CHEIKHROUHOU; Pr. SALMA AZZOUZI**			
PLENARY SESSION [**Online Meeting ID** https://meet.google.com/jve-mfun-wfk]				
12H00-13H00 (UTC+1)	**Formal modelling processes for analyzing cyber-physical systems** **Dr. Colin SNOOK,** Senior Research Fellow in the cyber-physical systems group , University of Southampton, UK. *Session Chairs : Pr. AOUATIF AMINE; Pr. MY EL HASSAN CHARAF*			
13H00-15H00 (UTC+1)	**Oral Session 1.4** **ELECTRONICS** **Meeting ID** https://meet.google.com/pxg-zxdx-pxe **Session Chairs :** **Pr. ABDELLAH MECHAQRANE** **Pr. HAJJI BEKKAY** **Pr. RACHID EL BOUAYADI**	**Oral Session 5.1** **COVID-19 related Research Approaches** **Meeting ID** https://meet.google.com/nco-xnrg-zpa **Session Chairs :** **Pr. AISSAM BERRAHOU** **Pr. ABDELMAJID EL OUADI** **Pr. MOHAMED LAZAAR**	**Oral Session 4.4** **COMPUTER SCIENCE** **Meeting ID** http://meet.google.com/naq-ramj-jfj **Session Chairs :** **Pr. ADNANE ADDAIM** **Pr. KHALIL IBRAHIMI** **Pr. MOHAMED EL KHAILI**	**Oral Session 1.5** **ELECTRONICS** **Meeting ID** https://meet.google.com/vms-tsgo-sxa **Session Chairs :** **Pr. ZHOUR MADINI-ZOUINE** **Pr. ANASS MANSOURI** **Pr. FATIHA MAAROUFI**
PLENARY SESSION [**Online Meeting ID** https://meet.google.com/jve-mfun-wfk]				
15H00-16H00 (UTC+1)	**Riemannian Geometry and Machine Learning for Human Behavior Understanding.** **Pr. Mohamed DAOUDI, Computer Science Department at IMT Lille Douai- France** **Session Chairs : Pr. HABIBA CHAOUI; Pr. MOHAMED TALIBI ALAOUI**			
16H00-18H00 (UTC+1)	**Oral Session 4.5** **COMPUTER SCIENCE** **Meeting ID** http://meet.google.com/naq-ramj-jfj **Session Chairs :** **Pr. ABDELALIM SADIQ** **Pr. ABDELMAJID DARGHAM** **Pr. AICHA MAJDA**	**Oral Session 5.2** **COVID-19 related Research Approaches** **Meeting ID** https://meet.google.com/nco-xnrg-zpa **Session Chairs :** **Pr. ANISS MOUMEN** **Pr. BRAHAMI MENAOUER** **Pr. RADOUANE YAFIA**	**Oral Session 1.6** **ELECTRONICS** **Meeting ID** https://meet.google.com/pxg-zxdx-pxe **Session Chairs :** **Pr. HICHAM GHENNIOUI** **Pr. JAMAL BELKADID** **Pr. FOUAD AYTOUNA**	**Oral Session 4.6** **COMPUTER SCIENCE** **Meeting ID** https://meet.google.com/vms-tsgo-sxa **Session Chairs :** **Pr. MOHAMMED QBADOU** **Pr. IKRAM EL AZAMI** **Pr. AYOUB BAHNASSE**
CLOSING CEREMONY				

TOPIC 1: ELECTRONICS

PARALLEL SESSION 1.1

Session Chairs Saad Bennani Dosse; Mohammed Jorio; Younes Zouine **Online Meeting ID** https://meet.google.com/pxg-zxdx-pxe		Date : **02 December 2020** **11h00- 13h00**
11:00 **11:15**	Amal Kadiri; Abdelali Tajmouati; Issam Zahraoui; Abdo-Rahmane Anas Laaraibi; Mohamed Latrach	A Planar High Pass Filter with Quasilumped Elements for ISM,Wimax and Wlan Applications
11:20 **11:35**	El ahmar Latifa; Ilham Bouzida; Ahmed Errkik; Mohamed Latrach	A New Passive UHF RFID Tag Using Square Split Ring Resonator
11:40 **11:55**	Fatima Ouberri, Abdelali Tajmouati, Issam Zahraoui, Ahmed Lakhssassi, Mohamed Latrach; Ridouane Er-rebyiy	A Novel Wideband CPW-Fed Square Aperture Monopole Antenna for Wireless and GPS Applications
12:00 **12:15**	Salaheddine Aourik, Ahmed Errkik, Mohamed Latrach, Ali Essaadani, Otman Oulhaj	Circular Patch Antenna Array with Defected Ground Structure for Ka-Band Radar Applications
12:20 **12:35**	Mouhsine Harbel; Jamal Zbitou; Mostafa Hefnawi; Mohamed Latrach	Mutual Coupling Reduction in MmWave Patch Antenna Arrays by Using Mushroom-like EBG Structure
12:40 **12:55**	Neetu Kumari; Manitrarivo Micky Rakotondrabe	Development, Presentation and Tests of a Hybrid Thermal Vibrational Energy Harvester Based on Lead Free Piezoelectric Material

PARALLEL SESSION 1.2

Session Chairs Seddik Bri ; Jamal Zbitou; Malika Alami Marktani **Online Meeting ID** **https://meet.google.com/pxg-zxdx-pxe**		Date : **02 December 2020** **15h00- 17h00**
15:00 **15:15**	Abdelfettah Belhabib; Mohamed Boulouird; Moha M'Rabet Hassani	New Strategy Based on Large Scale Fading Coefficients to Mitigate the Pilot Contamination Problem in Massive MIMO Systems
15:20 **15:35**	Jamal Amadid; Mohamed Boulouird; Moha M'Rabet Hassani	Channel Estimation with Pilot Contamination in Mutli-Cell Massive MIMO Systems
15:40 **15:55**	Mohammed Zerouali; Abdelghani El Ougli; Belkassem Tidhaf; Hafida Zrouri	Fuzzy Logic MPPT and Battery Charging Control for Photovoltaic System Under Real Weather Conditions
16:00 **16:15**	Assiya Lemmassi; Aziz Derouich; Ahmed Hanafi	Comparative Study of P&O and INC MPPT Algorithms for DC-DC Converter Based PV System on MATLAB/SIMULINK
16:20 **16:35**	Aziza Chaaire; Otman Chakkor; Fouad Aytouna	A Performance Study of Principals MIMO Detection Algorithms

PARALLEL SESSION 1.3

Session Chairs Abdelali Ed-Dahhak; Mohammed Guerbaoui; Abdelmajid Ait taleb **Online Meeting ID** **https://meet.google.com/pxg-zxdx-pxe**		Date : **03 December 2020** **09h00- 11h00**
09:00 **09:15**	Bouchaib Rached; Mustapha El haroussi; Elhassane Abdelmounim; Mounir Bensaid	A Hybrid Fuzzy - Sliding Mode Control of a Grid Connected DFIG Based Wind Power System
09:20 **09:35**	Mounir Bensaid; Abdellfattah Ba-razzouk; Mustapha El haroussi; Bouchaib Rached	Effects of Symmetrical Voltage Sags on Two Induction Motors System Coupled with an Elastic Web
09:40 **09:55**	Younes Abouelmahjoub; Hassan Abouobaida; Said El Beid; Abdelkhalek Chellakhi	Nonlinear Control Strategy of Full Bridge Shunt Active Power Filter
10:00 **10:15**	Hamid Chojaa; Aziz Derouich; Mohammed Taoussi; Othmane Zamzoum ; Ahmed Hanafi	An Improved Performance Variable Speed Wind Turbine Driving a Doubly Fed Induction Generator Using Sliding Mode Strategy
10:20 **10:35**	Khalifa Mansouri; Elhoussine Benchara; Sara Jennah; Naoual Belouggadia; Omar Bouattane	Thermal Energy Storage by Phase Change Materials Suitable for Solar Water Heaters: An Updated Review

PARALLEL SESSION 1.4

Session Chairs Abdellah Mechaqrane; Hajji Bekkay; Rachid El Bouayadi **Online Meeting ID** **https://meet.google.com/pxg-zxdx-pxe**		Date : **03 December 2020** **13h00- 15h00**
13:00 **13:15**	Mohammed Aissi; Younes Moumen; Jamal Berrich; Toumi Bouchentouf; Mohammed Bourhaleb; Mohammed Rahmoun	Autonomous Solar USV with an Automated Launch and Recovery System for UAV: State of the Art and Design
13:20 **13:35**	El kebir Mahha; Seddik Bri	Self-Heating in the HEMT AlGaN/GaN Transistor
13:40 **13:55**	Oussama Laayati; Mostafa Bouzi; Ahmed Chebak	Smart Energy Management: Energy Consumption Metering, Monitoring and Prediction for Mining Industry
14:00 **14:15**	Imad El hajjami; Bachir Benhala; Hamid Bouyghf	Comparative Study Between GE Algorithm and ABC Techniques for Sizing of Circular Planar Inductors
14:20 **14:35**	Markus Olbrich	Extended Probability Distribution Arithmetic

PARALLEL SESSION 1.5

Session Chairs Zhour Madini-zouine; Anass Mansouri; Fatiha Maaroufi **Online Meeting ID** **https://meet.google.com/vms-tsgo-sxa**		Date : **03 December 2020** **13h00- 15h00**
13:00 **13:15**	Mawouena Fongbedji; Nissrine Krami; Mohsine Bouya	Mobile Application and Wi-Fi Modules for Smart Home Control
13:20 **13:35**	Issam Senhaji Mouhaddib; Adnane Addaim	Anti-Jamming Techniques for Aviation GNSS-based Navigation Systems: Survey
13:40 **13:55**	Sanaa El aidi; Abderrahim Bajit; Anass Barodi; Habiba Chaoui; Ahmed Tamtaoui	An Elliptic-Curve Based Cryptographically Optimized Vehicular Protocols Applied to Secured Applicative Protocols SMQTT and SCoAP
14:00 **14:15**	Zoubida Bououchma; Jalal Sabor	Real-time Identification of Supercapacitor RC Model Parameters Using Recursive Least Squares Method
14:20 **14:35**	Mouncef Elmarghichi; Mostafa Bouzi; Naoufl Ettalabi	Online Parameter Estimation of an Electric Vehicle Lithium-Ion Battery Using AFFRLS

PARALLEL SESSION 1.6

Session Chairs Hicham Ghennioui; Jamal Belkadid; Fouad Aytouna **Online Meeting ID** https://meet.google.com/pxg-zxdx-pxe		Date : **03 December 2020** **16h00- 18h00**
16:00 **16:15**	Youssef Barkal; Larbi El Abdelaoui;Jamal Zbitou; Aali Essaadani; Mostafa Hefnawi; Mohamed Latrach	A New Design of Fractal Aperture Coupled Koch Snowflake Reconfigurable Multiband Antenna
16:20 **16:35**	Abdelkhalek Chellakhi; Said El Beid; Younes Abouelmahjoub	Ripples Amplitude Minimizing of the Output Boost Converter in a Novel MPPT Tactic for PV Systems
16:40 **16:55**	Sghir Elmahjouby; Ahmed Errkik; Jamal Zbitou; Otman Oulhaj; Mohamed Latrach	A New Compact LPF/BPF Filter Using Omega Resonator and Cascaded Cells for RF and MW Applications
17:00 **17:15**	Said Fadlo; Nabila Rabbah; Abdelhafid Ait elmahjoub	Physical Modeling Approch for a Differential Guide Mobile Robot Using Simscape
17:20 **17:35**	Abdelkhalek Chellakhi; Said El Beid; Younes Abouelmahjoub; Hassan Abouobaida	A Study and Implementation of Interleaved Boost Converter with a Novel MPPT Tactic for PV Systems

TOPIC 2: CONTROL

PARALLEL SESSION 2.1

Session Chairs Hassan EL Fadil; El Ayachi Chater; Khalid Chikh **Online Meeting ID** https://meet.google.com/nco-xnrg-zpa		Date : **02 December 2020** **11h00- 13h00**
11:00 **11:15**	Abdeslam Jaballaafou; Abdessalam Ait Madi; Adnane Addaim	Dynamic Control of DFIG Used in Wind Power Production, Based on PI Regulator
11:20 **11:35**	Farid Oufqir; Mohamed Bendaoud; Khalid Chikh; Abdesslam Lokriti	Modeling and Control of a Photovoltaic Solar System Using a Storage and Voltage Stabilization Battery for an Efficient Microgrid
11:40 **11:55**	Khawla Gaouzi; Hassan EL Fadil; Fatima Zahra Belhaj; Zakariae El idrissi	Model Predictive Control of an Inverter for Electric Vehicles Applications
12:00 **12:15**	Billel Meghni; Hamid Chojaa; Amira Boulmaiz	An Optimal Torque Control Based on Effective Tracking Range for MPPT of Wind Power Generation Systems Based on PMSG
12:20 **12:35**	Abdussalam Ali Ahmed; Omer Jomah	Modeling and Control of Car Active Suspension System Using a Neural Network-Based Controller and Linear Quadratic Regulator Controller
12:40 **12:55**	Abdussalam Ali Ahmed; Omer Jomah	Vehicle Yaw Rate Control for Lane Change Maneuver Using Fuzzy PID Controller and Neural Network Controller

PARALLEL SESSION 2.2

Session Chairs Said El Beid; Hassan Abouobaida; Abdellah Ailane **Online Meeting ID** **https://meet.google.com/nco-xnrg-zpa**		Date : **02 December 2020** **15h00- 17h00**
15:00 **15:15**	Younes Abouelmahjoub; Said El Beid; Hassan Abouobaida; Abdelkhalek Chellakhi	Advanced Nonlinear Control of Single Phase Half Bridge Series Active Power Filter
15:20 **15:35**	Youssef Admi; Mohammed Amine Moussaoui; Ahmed Mezrhab	Effect of a Flat Plate on Heat Transfer and Flow past a Three Side-by-Side Square Cylinders Using Double MRT- Lattice Boltzmann Method
15:40 **15:55**	Loukmane EL khaldi; Khadija Messaoudi; Mustapha Sanbi	Thermal Effects on Dynamic Control of Kirchhoff FG Plate
16:00 **16:15**	Ismail Ezzaraa; Nadir Ayrilmis; Manja Kitek Kuzman; Soufiane Belhouideg; Jamaa Bengourram	The Effects of Microstructure on the Mechanical Properties of 3D Printed Wood/PLA Composite Materials by a Micromechanical Approach
16:20 **16:35**	Hamid Hassani; Anass Mansouri; Ali Ahaitouf	A New Robust Adaptive Sliding Mode Controller for Quadrotor UAV Flight

PARALLEL SESSION 2.3

Session Chairs Mustapha Ouardouz; Soufiane Belhouideg; Aziz Derouich **Online Meeting ID** **https://meet.google.com/nco-xnrg-zpa**		Date : **03 December 2020** **09h00- 11h00**
09:20 **09:35**	Mhamed Madark; Mohammed El malah; Abdellfattah Barrazouk; Elhassane Abdelmounim	Nonlinear CTMV Control of a Solar Photovoltaic Water Pumping System
09:40 **09:55**	Hassan Abouobaida; Younes Abouelmahjoub; Said El Beid; Antonio J. Marques Cardoso; Hamid Chikhy	Open-Circuit Fault Diagnosis and Fault-Tolerent Control Strategies for Interleaved Boost Converter
10:00 **10:15**	Seif Eddine Chehaidia, Abdallah Abderezzak, Hamid Kherfane, Nourredine Guersi, Hakima Cherif, Boubekeur Boukhezzar	Fuzzy Gain Scheduling of PI Torque Controller to Capture the Maximum Power from Variable Speed Wind Turbines
10:20 **10:35**	El Ayachi Chater; Halima Housny; Hassan El Fadil	Robust Sliding Mode Control for Quadrotor UAV
10:40 **10:55**	Ali El kihel; Yosra El kihel; Amar Bakdid; Hassan Gziri; Imade Manssouri; Driss Amegouz	Optimization of Industrial Energy Efficiency by Intelligent Predictive Maintenance Tools Case of Misalignment of an Industrial System
11:00 **11:15**	Rishu Kumar; Satyam Anand; Amar Jha	Tuning of PID Controller Using BBBC Algorithm for Higher Order Oscillatory Systems

TOPIC 3: OPTIMIZATION

PARALLEL SESSION 3.1

Session Chairs Bachir Benhala; Bouchaib Cherradi; Mohammed Kaicer **Online Meeting ID** **https://meet.google.com/vms-tsgo-sxa**		Date : **02 December 2020** **11h00- 13h00**
11:00 **11:15**	Djamel Zeghida; Bounour Nora; Djamel Meslati	The Ant-Step Algorithms: Reloading the Ant System Heuristic and the Overlooked Basic Variants
11:20 **11:35**	Yasser Lamalem; Khalid Housni	An Improved Algorithm to Search All d-MPs for a Multi-State Systems
11:40 **11:55**	Abdullah Alwabli; Ivica N. Kostanic; Saeed Malky	Dynamic Route Optimization for Waste Collection and Monitering Smart Bins Using Ant Colony Algorithm
12:00 **12:15**	Loubna Lamrini; Mohammed Chaouki Abounaima; Mohammed Talibi Alaoui; Fatima Zahra El Mazouri; Noureddine El makhfi; Mohamed Ouzarf	Filtering Approach Used in a Massive Data Context to Reduce the Set of the Choices in a Multi-Criteria Decision Aid Process: Pareto-Optimal Solutions
12:20 **12:35**	Soufiane Abi; Bachir Benhala; Hamid Bouyghf	A Hybrid DE-ACO Algorithm for the Global Optimization
12:40 **12:55**	Soukayna Hmidach; Youssra El kihel; Youssef Regad; B. El Kihel; Driss Amegouz	Optimizing Warehouse Logistics Flows by Integrating New Technologies: Case Study of an Agri-Food Industry

PARALLEL SESSION 3.2

Session Chairs Khalifa Mansouri; Abdelaali Chaoub; Raihani Abdelhadi **Online Meeting ID** **https://meet.google.com/vms-tsgo-sxa**		Date : **02 December 2020** **15h00- 17h00**
15:00 **15:15**	Idrissi Otmane; Abdelmounaime Bikir; Khalifa Mansouri; Youssfi Mohamed	Enhancing the Management of Aircraft Taxiing Phase by Allocating Efficient and Conflict-Free Routes
15:20 **15:35**	Said Hammouda; Mokhtar Taffar; Ali Lemouari	A Simulated Annealing for the Resolution of "Dial-A-Ride-Problem with Transfer" Using Hybrid Neighborhood Methods
15:40 **15:55**	Marouane Lagouir; Abdelmajid Badri; Yassine Sayouti	Enhanced Chaotic Particle Swarm Optimization Based Approach for Optimal Power Management of a Hybrid Microgrid Running Under Grid Connected Mode
16:00 **16:15**	Loubna Terrada; Mohamed El Khaili; Hassan Ouajji; Abdelaziz Daaif	Smart Urban Traffic for Green Supply Chain Management
16:20 **16:35**	El Miloud Smaili; Soukaina Sraidi; Chaimaa Khoudda; Moulay El Hassan Charaf	An Optimized Method for Adaptive Learning Based on PSO Algorithm
16:40 **16:55**	Amal Hadri; Khalid Chougdali; Raja Touahni	Fuzzy L2;p-Norm Based PCA for Intrusion Detection System

PARALLEL SESSION 3.3

Session Chairs Ali Ahaitouf; Hanaa Hachimi; Hamid Bouyghf **Online Meeting ID** https://meet.google.com/vms-tsgo-sxa		Date : **03 December 2020** **09h00- 11h00**
09:00 **09:15**	Moumen Aziz; Abdelghani Lakhdar; Jammoukh Mustapha; Laidi Zahiri; Khalifa Mansouri	Optimization of the Mechanical and Morphological Properties of Polypropylene Bio-Loaded by Argan Nut Shell Particles with Different Theoretical and Numerical Models
09:20 **09:35**	Rajae Jemghili; Abdelmajid Ait Taleb; Khalifa Mansouri	Additive Manufacturing Progress as a New Industrial Revolution
09:40 **09:55**	Abbas Toloie-Eshlaghy; Sara Behbahaninezhad	Modeling and Optimization of Banking Processes for Human Resource Planning Utilizing Queuing Petri Nets
10:00 **10:15**	Hajlaoui Sonia; Nesrin Halouani; Chabchoub Habib	Implementation of the New Hesitant Fuzzy Linguistic Interaction Distance Operators in a MAGDM Problem
10:20 **10:35**	Jamal-Eddine Salhi; Youssef Es-Sabry; Hasna El Hour; Najim Salhi	Numerical Analysis of the Thermal Performance of a Nanofluid Based on Al2O3 Nanoparticles in a Heat Sink with Rectangular Microchannel as a Function of the Concentration of the Nanoparticles
10:40 **10:55**	Abdelaziz Lberni; Malika Alami Marktani; Ali Ahaitouf; Abdelaziz Ahaitouf	Adaptation of the Whale Optimization Algorithm to the Optimal Sizing of Analog Integrated Circuit: Low Voltage Amplifier Performances

TOPIC 4: COMPUTER SCIENCE

PARALLEL SESSION 4.1

Session Chairs Arsalane Zarghili; Younes Lakhrissi; Hiba Chougrad **Online Meeting ID** http://meet.google.com/naq-ramj-jfj		Date : **02 December 2020** **11h00- 13h00**
11:00 **11:15**	Aniss Moumen; Elhoucine Bouchama; Younès EL Bouzekri El Idrissi	The Application of Data Mining Techniques in Employments of Universities Graduates: Systematic Literature Review
11:20 **11:35**	Soukaina Sraidi; El Miloud Smaili; Moulay El Hassan Charaf	MOOCs Performance Analysis Based on Quality and Machine Learning Approaches
11:40 **11:55**	Mohamed Daoudi; Nada Lebkiri; Ilham Oumaira	Determining the Learner's Profile and Context Profile in Order to Propose Adaptive Mobile Interfaces Based on Machine Learning
12:00 **12:15**	Tarik Hachad; Abdelalim Sadiq; Fadoua Ghanimi	Student's Attendance Management Using Deep Facial Recognition
12:20 **12:35**	Zineb Sabri; Aniss Moumen; Youssef Fakhri	Gamifying eLearning to Improve the Labour Market Integration Systematic Literature Review

PARALLEL SESSION 4.2

Session Chairs Badraddine Aghoutane; Hassan Satori; Tarik Boujiha **Online Meeting ID** http://meet.google.com/naq-ramj-jfj		Date : **02 December 2020** **15h00- 17h00**
15:00 **15:15**	Benyoussef Abdellaoui; Aniss Moumen; Younès EL Bouzekri El Idrissi; Ahmed Remaida	Face Detection, Emotion Recognition and Student Engagement: A Systematic Review
15:20 **15:35**	Mohamed Karim Khachouch; Yassine Loukili; Sarah Benjelloun; Ayoub Korchi; Younes Lakhrissi; Aniss Moumen; Badraddine Aghoutane	E-Learning Techniques and Technologies Analysis for a Moroccan Vitual University Perspective
15:40 **15:55**	Aola Yousfi; Moulay Hafid El yazidi; Ahmed Zellou	CSSM: A Context-Based Semantic Similarity Measure
16:00 **16:15**	Ahmed Remaida; Aniss Moumen; Younès EL Bouzekri El Idrissi; Benyoussef Abdellaoui	Handwriting Personality Recognition with Deep Learning: A Comparative Study
16:20 **16:35**	Youssef Ben Youssef; Mohamed Merrouchi; Elhassane Abdelmounim; Gadi Taoufiq	Aircraft Type Classifiication in Remote Sensing Images Using Deep Learning

PARALLEL SESSION 4.3

Session Chairs Farid Abdi; Noureddine El makhfi; Khalid Housni; Mohammed Chaouki Abounaima **Online Meeting ID** http://meet.google.com/naq-ramj-jfj		Date : **03 December 2020** **09h00- 11h00**
09:00 **09:15**	Chaymae Gattoua; Otman Chakkor; Fouad Aytouna	An Overview of Cooperative Spectrum Sensing Based on Machine Learning Techniques
09:20 **09:35**	Jadli Aissam; Mustapha Hain; Adil Chergui; Abderrahman Jaize	DCGAN-Based Data Augmentation for Document Classification
09:40 **09:55**	Imene Hadjadji; Leila Falek; Khaled Lounnas; Mohamed Lichouri	Enhancement of the Interlocutor Emotion Recognition Rate from Non-Professionals Speakers in Arabic Database
10:00 **10:15**	Salhi Khalid; El Miloud Jaara; Mohammed Talibi Alaoui	GPU Accelerating for Color-Texture Image Clustering Based on Neuro-Morphological Approach
10:20 **10:35**	Youssef Talibi Alaoui; Aissam Berrahou; Khalid Douge; Imane Belabed; El Miloud Jaâra	Classification of Chest Pneumonia from x-Ray Images Using New Approaches of Deep Learning
10:40 **10:55**	Ayoub Aoulalay; Noureddine El makhfi; Mohammed Chaouki Abounaima; Mohammed Massar	Classification of Moroccan Decorative Patterns Based on Machine Learning Algorithms

PARALLEL SESSION 4.4

Session Chairs Adnane Addaim; Khalil Ibrahimi; Mohamed El Khaili **Online Meeting ID** http://meet.google.com/naq-ramj-jfj		Date : **03 December 2020** **13h00- 15h00**
13:00 **13:15**	Loubna Chaibi; Marouane Sebgui; Slimane Bah; Belhaj El Graini	An Accuracy Review of Sensors Used in Data Fusion Process for Flying Ad Hoc Networks (FANETs) Localization
13:20 **13:35**	Anass Deroussi; Imam Alihamidi; Lala Amina Charaf; Abdessalam Ait Madi; Adnane Addaim	Routing Protocols for WSN: A Survey Precision Agriculture Case Study
13:40 **13:55**	Abderrahim Zannou; Abdelhak Boulaalam; El Habib Nfaoui	Path Length Optimization in Heterogeneous Network for Internet of Things
14:00 **14:15**	Badr El Khalyly; Abdessamad Belangour; Allae Erraissi; Mouad Banane	Towards a New Metamodel of Microservices & Devops Based Internet of Things Ecosystem
14:20 **14:35**	Badr El Khalyly; Abdessamad Belangour; Mouad Banane; Allae Erraissi	Towards a New Metamodel of Internet of Things Ecosystem
14:40 **14:55**	Zakaria Chabou; Adnane Addaim; Ali Ouacha; Zouhair Guennoun	Performance Evaluation by Simulation of Slotted AlohaCA Protocol for Wireless Sensor Network Based on a Single LEO Nanosatellite

PARALLEL SESSION 4.5

Session Chairs Abdelalim Sadiq; Abdelmajid Dargham; Aicha Majda **Online Meeting ID** http://meet.google.com/naq-ramj-jfj		Date : **03 December 2020** **16h00- 18h00**
16:00 **16:15**	Smail Boussaadi; Hassina Aliane; Ouahabi Abdeldjalil	The Researchers Profile with Topic m Odeling
16:20 **16:35**	Inoussa Habou Laouali; Hamid Qassemi; Manal Marzouq; Antonio Ruano; Saad Bennani Dosse; Hakim El fadili	A Survey on Computational Intelligence Techniques for Non Intrusive Load Monitoring
16:40 **16:55**	Abdelhak Khalil; Mustapha Belaissaoui	Key-value Data Warehouse: Models and OLAP Analysis
17:00 **17:15**	Sara Alcabnani; Mohamed Oubezza; Jamal El Kafi	A Business Intelligence Model to Analyze Consumer Opinions on Social Networks Using Machine Learning Techniques
17:20 **17:35**	Fatima Zahra Moutai; Mohammed Amine Tajioue; Aicha Oualla; Salma Azzouzi	Towards Distributed Systems Testing in Cloud Environment
17:40 **17:55**	Fatimazahra Barramou; Khalifa Mansouri	Toward a Geo-Ontology Model for Economic Activity Zoning

PARALLEL SESSION 4.6

Session Chairs Mohammed Qbadou; Ikram El Azami; Ayoub Bahnasse **Online Meeting ID** https://meet.google.com/vms-tsgo-sxa		Date : **03 December 2020** **16h00- 18h15**
16:00 **16:15**	Khadija Ouazzani-Touhami; Nissrine Souissi	Towards a Reference Life Cycle of a Simulation Project
16:20 **16:35**	Erraioui Lamia; Taia Soufiane; Haida Souad; Elmansouri Bouabid; Chao Jamal; Mrabet Souad; Kamal Taj-Eddine	Semi-Distributed Modeling of A Large Scale Hydrological System Using SWAT Model
16:40 **16:55**	Abdelaziz El yazidi; Moulay Lahcen Hasnaoui; Mohamed Saad Azizi	Spark MapReduce Mode Cluster
17:00 **17:15**	Khadidja Yahyaoui	Agent-Based Control Architecture for Mobile Robot Navigation
17:20 **17:35**	Abou zakaria Faroukhi; Imane El Alaoui; Youssef Gahi; Aouatif Amine	Big Data Value Chain: A Unified Approach for Integrated Data Quality and Security
17:40 **17:55**	Khadija Arjdal; Oumaima Bouakline; Kenza Khomsi; Noureddine Semane; Salem Nafiri; Abdelhak Elidrissi; Houda Najmi	Prediction of Daily PM10 Concentration with Machine Learning
18:00 **18:15**	Mariem Bounabi; Karim EL Moutaouakil; Satori Khalid	The Automatic Option of Inference Rules for the Fuzzy TF-IDF

TOPIC 5: COVID-19 related Research Approaches

PARALLEL SESSION 5.1

Session Chairs Aissam Berrahou; Abdelmajid El ouadi; Mohamed Lazaar **Online Meeting ID** https://meet.google.com/nco-xnrg-zpa		Date : **03 December 2020** **13h00- 15h00**
13:00 **13:15**	Abdellah Oumina; Noureddine El makhfi; Mustapha Hamdi	Control the COVID-19 Pandemic: Face Mask Detection Using Transfer Learning
13:20 **13:35**	Zakariyaa Ait El Mouden; Jakimi Abdeslam; Rachida Moulay Taj; Hajar Moha	A Graph-Based Methodology for Tracking Covid-19 in Time Series Datasets
13:40 **13:55**	Oussama El gannour; Soufiane Hamida; Bouchaib Cherradi; Abdelhadi Raihani; Hicham Moujahid	Performance Evaluation of Convolutional Neural Networks for Automatic Detection of Patients with COVID-19 on X-Ray Images

14:00 14:15	Sara Hsaini; Hayat Bihri	Contact-Tracing Approaches to Fight Covid-19 Pandemic: Limits and Ethical Challenges
14:20 14:35	Youssef Mnaoui; Aouatif Najoua; Hassan Ouajji	Analyzing COVID-19 Crisis in North Africa: Using Health Indicators
14:40 14:55	Mohamed Touil; Lhoussain Bahatti; Abdelmounime El Magri	Telemedicine Application to Reduce the Spread of Covid-19

PARALLEL SESSION 5.2

Session Chairs Aniss Moumen ; Brahami Menaouer; Radouane Yafia **Online Meeting ID** **https://meet.google.com/nco-xnrg-zpa**		Date : **03 December 2020** **16h00- 18h00**
16:00 16:15	Soufiane Hamida; Oussama El gannour; Bouchaib Cherradi; Hassan Ouajji; Abdelhadi Raihani	Optimization of Machine Learning Algorithms Hyper-Parameters for Improving the Prediction of Patients Infected with COVID-19
16:20 16:35	Mohamed Abouelmajd; Ahmed Bahlaoui; Ismail Arroub; Manuel Lagache; Soufiane Belhouideg	Mechanical Characterization of PLA Used in Manufacturing of 3D Printed Medical Equipment for COVID-19 Pandemic
16:40 16:55	Aissam Jebrane; Aka Mouvoh; Anass Bouchnita	A Contact-Structured SEIR Model to Assess the Impact of Lockdown Measures on the Spread of COVID-19 in Morocco's Population
17:00 17:15	Oussama Maakoul; Sabah Boucht; Karima El Hachimi; Salma Azzouzi	Towards Evaluating the COVID'19 Related Fake News Problem: Case of Morocco
17:20 17:35	Lionel Landry Sop Deffo; Elie Fute T. ; Emmanuel Tonye	LIFADER: A Study of the Impact of Image Super-Resolution and Background Subtraction on Face Detection and Recognition in Tracking People Moving Out of Quarantine Zone

KEYNOTE SPEAKERS

Dimitri LEFEBVRE
University of Le Havre Normandie, France

Dimitri LEFEBVRE received the S.B. in Science and Engineering in 1990, the M.Eng. degree in Automatic Control and Computer Science in 1992, and the Ph.D. degree Automatic Control and Computer Science in 1994, all from University of Sciences and Technologies and Ecole Centrale in Lille, France. In 1995, he joined the University of Franche Comté, Belfort, France, where he served as Associate Professor with the Department of Electrical Engineering and the Research Group about Systems and Transportations. Since 2001, he has been with University Le Havre Normandie, France as Professor. He is currently with the Research Group on Electrical Engineering and Automatic Control (GREAH) in Le Havre and was from 2007 to 2012 the head of the group. His current research interests include fault diagnosis and control design for dynamic systems, discrete event systems, learning processes and artificial intelligence, with applications to network security and safety in the domains of electrical engineering, robotics, transportations and logistics. He is the authors of more than 100 articles published in indexed journals and more than 200 communications in international conferences.

Performance evaluation and optimization for cyber-physical systems.

ABSTRACT: In recent years, the tremendous growth of computer technology has led to the proliferation of highly complex cyber-physical systems, in particular in Industry 4.0 and Internet of Things. Such systems exhibit behaviors determined by the asynchronous occurrence of certain events and are termed Discrete Event Systems (DES). Examples of DES are encountered in many traditional application domains, such as automated manufacturing, computer networks, transportation, as well as in emerging areas like healthcare, or management of technical, human and financial resources. A significant research effort has been devoted to DES in order to address a series of difficult problems that are often combinatorial in nature, and require advances in exploration and optimization methodologies. Such problems concern, on the one hand, information processing, and in the other hand, decision making and control design. The aim of this talk is first to give some basic modeling notions to represent DES in order to address a large variety of problems for cyber-physical systems. Then, some optimization, privacy, and safety issues are discussed. Resources allocation and scheduling are presented to improve performance of DES. Opacity is introduced to increase privacy and cyber-security. Fault diagnosis illustrates how it is possible to increase the safety of operations. Finally, a list of open questions and future challenges is proposed.

Mohamed DAOUDI
Computer Science Department at IMT Lille Douai-France

Mohamed Daoudi is Full Professor in the Computer Science Department at IMT Lille Douai. His main research areas developed at CRIStAL laboratory CNRS9189 where he leads Image group, concern Shape Analysis with application to face recognition, expression analysis and action recognition. Mohamed Daoudi has published over 150 papers in these areas. Mohamed Daoudi is serving on the program committees of major computer vision and AI conferences. He has organized several workshops in conjunction with top Computer Vision and Pattern Recognition conferences (ICCV, CVPR, ICPR, IEEE FG). He was the Co-General chair of the 14th IEEE International Conference on Automatic Face and Gesture Recognition (FG 2019). Mohamed Daoudi is an associate editor of Image, Vision and Computing Journal, IEEE Transactions On Multimedia, and Journal of Imaging. Mohamed Daoudi is a Fellow of International Association of Pattern Recognition since 2015.

Riemannian Geometry and Machine Learning for Human Behavior Understanding.

ABSTRACT: In this talk I will discuss some results involving learning on matrix manifolds, such at the cone of positive definite matrices, Grassman and Stiefel manifolds. Some new results will be presented about the statistical analysis of trajectories on such manifolds. We evaluate the proposed approaches in several applications such us facial expression recognition, action recognition and EEG-based emotion recognition.

Luciano TARRICONE
University of Salento, Italy

Luciano Tarricone is a Full Professor of Electromagnetic (EM) Fields at the Department of Innovation Engineering, University of Salento in Lecce, Italy. He received a Master Degree in Electronic Engineering at the University of Rome La Sapienza, Italy, in 1989, and his PhD from the same university in 1994. He was a research fellow at the National Institute of Health in Rome (1990), and with IBM Research (1990-94). He was a researcher of EM Fields at the University of Perugia, and a Professor of EM Compatibility at the same university (1994-2001). In 2001 he moved to the University of Salento in Lecce, where he now coordinates the EM research group and laboratory. His research areas: bioEM, numerical methods for EM, wireless power transmission, EM energy harvesting, RFID. In particular, Prof. Tarricone is active in the area of EM enabling technologies for the Internet of Things and smart systems. Prof. Tarricone is a reviewer for the most important international journals in EM fields and an associate editor for three international journals. He is a member of many TPCs of international conferences, and was the TPC General

Chair for the European Microwave Week 2014, and the General Chair for the Mediterranean Microwave Symposium 2015. He is a reviewer for the European Union in the Framework Programs, as well as for MIUR in CIVR, PON, and other initiatives. He is Chapter Chair for the MTT-APS Joint Italian Chapter of IEEE. He is the Italian representative in the European Microwave Association General Assembly. He is a member of the MTTS TC10, 24 and 26. He has authored/edited 5 books, more than 160 papers in international journals, and 350 papers in international conferences. In 1984 Prof. Tarricone was awarded as "Alfiere del Lavoro" by the President of Italian Republic (Presidente della Repubblica) Sandro Pertini.

Safe, Sustainable and Low-cost Electromagnetic Technologies for the Internet of Things

ABSTRACT: Research and industrial activities related to the Internet of Things (IoT) are growing up faster and faster, and the related enabling technologies play nowadays a very important role. Most of these technologies are electromagnetic (EM). In this talk, we focus on some of the most important EM enabling technologies for the IoT and smart systems, discussing more specifically about 1) energy autonomy 2) identification 3) sustainability in terms of costs and safety related to human exposure to EM fields. In the area of energy autonomy, two important issues are i) the design of systems and devices for Wireless Power Transmission (WPT) and ii) EM energy harvesting. The discussed research activities are related both to the design of low-power long-range links based on the use of rectennas (rectifying antennas) and to the design of high-power mid/low-range links based on the use of magnetically coupled resonant systems. A particular attention will be dedicated to the design of WPT links for wearable and implantable devices, especially in biomedical applications. As per WPT for wearable and portable devices, the focus is on the design of devices and systems fabricated by using non-conventional materials (conductive fabrics, textile materials, etc.). Further activities are related to the theoretical analysis of resonant energy links implemented by using either a capacitive or an inductive coupling. Useful design formulas will be proposed for links using multiple transmitters and/or multiple receivers and for multi-hop links.

As for identification, the reference enabling technology is of course RadioFrequency Identification (RFID). Design, prototyping and characterization of innovative tag and reader devices is addressed in a variety of applications. A dedicated attention is paid to the integration between RFID systems and sensors and, more in general, to the design of fully passive tags with augmented capabilities, such as sensing, reasoning, and alerting, capable to render "smart" the objects they are applied to. Some new and appealing perspectives opened by textile chipless tags will also be discussed.

As for the sustainability in terms of costs, safety and environmental issues, the proposed solutions are extremely effective. More specifically, for sustainability in terms of safety related to human exposure to EM fields, specific research is performed, and will be discussed in the talk, ranging from the use of microdosimetric bioelectromagnetic models at cell membrane levels (and even smaller scales), to the use of dosimetric numerical models (usually based on Finite-Difference Time-Domain -FDTD- methods) so to attack and solve the complex and critical issue of human interactions with EM fields generated by wireless systems.

Colin SNOOK
University of Southampton, UK.

Colin Snook is a Senior Research Fellow in the cyber-physical systems group at the University of Southampton, UK. He was involved in the development of the Rodin modelling tools, especially UML-B which is a UML-like diagrammatic front-end for the Event-B formal modelling language. He has spent the past 20 years collaborating with industry in the Aerospace and Railway domains to facilitate industrial use of formal methods. This has included consultancy on modelling and verification of systems as well as developing formal modelling tools and training various industrial partners in their use. Most recently he has been working on the Enable-S3 project developing formal modelling tools and techniques to support the verification of European railway systems. Before gaining his PhD in computer science at Southampton in 2001 he worked as a software engineer on safety-critical aircraft engine controls

Formal modelling processes for analysing cyber-physical systems

ABSTRACT: Formal modelling offers rigorous analysis of cyber-physical systems resulting in a precise and reliable specification. The potential benefits in terms of risk reduction and cost savings are understood. Initially, barriers to using such methods restricted their uptake but improvements in methodology and tool support have now made them more useable. However, some issues remain: Modellers need to understand the requirements in order to formulate the models, formal verification may focus on properties rather than useful behaviour, domain experts need to validate the final models to ensure they fit the needs of stakeholders, team based development may not be adequately supported. In this talk I will give an overview of the formal methods and tools that we use at the University of Southampton. I will outline the processes and tools that we have developed to overcome the barriers to adoption by industry and illustrate the talk with some examples taken from our industrial collaborations.

Chakib ACHOUR
Director of Marketing Strategy of Huawei Morocco

Chakib Achour is the Director of Marketing Business strategy of Huawei Morocco. He is specialised in corporate communication, with a strong client and inter personal communication experience incorporating Direct sales, Indirect sales, management and account management at international levels. He is specialised in ICTs : network infrastructure, Cloud computing and BigData. Chakib Achour obtained a Masters in computer science and telecommunication from the Centre National des Arts et Métiers in Paris, followed by a diploma in robotics and computer science from the Ecole Normale Supérieure de Cachan in 1993.

After starting his professional career as a consultant for Oracle, operating Oracle on different environments, including NetWare in 1994, he gained thorough ICT knowledge by working for Motive Communications/Alcatel Lucent Company as the Sales Director Middle East and Africa, for Accenture as the Head of Communication, Media and Technology North and West Africa, or for IBM Europe in charge of Telecommunication sector Business development, before being nominated Head of marketing and Business Strategy for Huawei in 2014. His many experiences in Europe, Middle-East and Africa region have allowed him to developing high level contacts and partnerships (IBM, Accenture, HP, Alcatel, PWC, KPMG and the main Northern Africain Telecom companies…)
In 2019, he has worked on the spread of the first B2B Cloud service partnerships with one of the key telecom operator, a sovereign Moroccan cloud allowing administrations and companies to host their data and applications in Morocco. He generally argues that there is a need to capitalize on public-private partnerships in Africa, and stresses that digitalization is an important means for governments to ensure the development and outreach of their countries.

Connectivity and ICT are the foundation of digital Smart Country

- ICT as foundation to build Digital innovation country,
- Innovation ICT and 5G Use Case (Mining, Agritech, smart Education, Smart transportation,
- Sharing Experiences on Telemedicine and How Huawei is fighting against Covid19.

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