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OF PARTICIPATION

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In recognition of his achievement and participation in The 1st International Conference on Advances in Electronics, Control and Computer Technologies
October 25th - 26th, 2023, Mascara, Algeria

Paper Title

A novel approach for wind farm layout optimization using QPSODM algorithm

Co-authors: MOURAD DAFRI

Samir GHOUALI
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والبحث العلمي والعلاقات الخارجية بالنيابة

Paper-ID: 13

A novel approach for wind farm layout optimization using QPSODM algorithm

Mourad Naidji [1*], Mourad Dafri [1]

1. Department of Electrical Engineering, Faculty of Engineering, Badji Mokthar University, BP 12 Sidi Amar, Annaba 23000, Algeria
mourad_naidji@yahoo.com

ABSTRACT

The optimal layout of the wind turbines is an important factor in the design of the wind farm, which can guarantee maximum output power. For that, several recent methodologies have been carried out for optimizing wind turbines in a wind farm using different optimization algorithms. This paper proposes a novel approach for the optimization of wind farm layout using Quantum-behaved particle swarm optimization differential mutation (QPSODM) algorithm. Three case studies are considered to express the presence/absence of wake impact. The MATLAB simulation results verify the proposed methodology. Moreover, the results are compared with those of existing research works, and it shows that the proposed optimization strategy can give best and logic results in terms of total power output and high efficiency of the wind farm.

KEY WORDS

Wind farm layout optimization; wake model; Quantum-behaved particle swarm optimization differential mutation (QPSODM) algorithm; wind turbine

I.   INTRODUCTION

Today renewable energy source (RES) has emerged to support conventional power production because of the reduction of fossil sources and the remarkable electricity increase. Impact analysis of the integration of renewable energy sources into power system are treated in [1-8]. Among the main objectives for optimizing the layout of a wind farm is to minimize the wake impact which reduces the output of the wind turbines. The wake produced by the wind turbines located upstream leads to a decrease in wind speed resulting in power losses in the wind turbines located downstream. The loss in wind speed caused by the wake impact is estimated using a wake model. But it is not so simple for optimizing the layout of the wind turbines by considering the wake impact which changes according to the direction of the wind. [9] designed and realized an acquisition system for the small wind turbine. In [10], the area rotation method and definite point selection technique were proposed to determine the optimal dimensions and position of the wind farm. The area rotation method enabled the maximum area of the wind farm to capture the freestream velocity to some extent. In addition to the aforementioned techniques, which had delayed solution convergence, several optimization scenarios were conceived for terrain and non-terrain locations to formulate the wake effect. In [11], minimizing the cost in unit power in the WFLO with multiple hub heights, a three-dimension greedy algorithm was applied. In [12], the authors proposed a wind farm layout optimization (WFLO) problem with a continuous selection of WTs and hub heights using Cartesian coordinates and a single-objective genetic algorithm (GA) to improve the total output power. The hub heights were also restrained within a predefined range. The first WFLO problem formulated to determine the required number and position of WTs in a given location was solved by [13]. The authors optimized the required number of WTs for a given parcel of land in

three different cases of wind speeds and directions. In these studies [14], the optimization parameter values were slightly modified using GA. In [15], the authors recommended an increase in the size of wind farm boundaries as that in [13, 14, 16] from 2 km × 2 km to 2 km × 2.2 km. In [17], a regular wind farm was optimized considering three aspects: placement direction of wind farm, spacing of each pair of WTs, and control strategy of wind farm. An adaptive particle swarm optimization (PSO) [18] was adopted for the optimization of WT layout to increase the possibility of finding the global optimum. The best tradeoff between energy yields and capital investments is obtained because of the appropriate positioning of the WTs. With all these achievements, the accuracy of the control strategy is only based on the accuracy of the wake model necessary to predict the wind speed at each WT. In [19], a multi-objective function was proposed to minimize the layout cost and maximize the power output using the PSO algorithm. Despite the successful implementation, the wake effect and discounted cost of the wind farm during the life cycle were not considered. To harvest additional maximum output power, a PSO with multiple adaptive methods was also proposed in [20]. Some restricted zones were used without sufficiently considering the spacing of the WTs.

II.   MATHEMATICAL FORMULATION

The purpose of WT layout is to minimize losses occurring due to wakes between turbines, and a wake model is necessary to calculate the wake losses. Many studies used the "Jensen" model [21], developed in 1983. The wind speed decreases when it hits the turbine blades and by increasing the intensity of the turbulence the wake will be created. The wake moves downstream and extends laterally. In the Jensen model, shown in Fig. 1, it is assumed that the wake diameter increases linearly with an increase in distance and the wind speed distribution in the radial direction of the wake is identical. In this paper, "Jensen" wake model is employed to calculate the wind velocity considering the wake. Fig. 1 describes the schematic of the "Jensen" wake model.
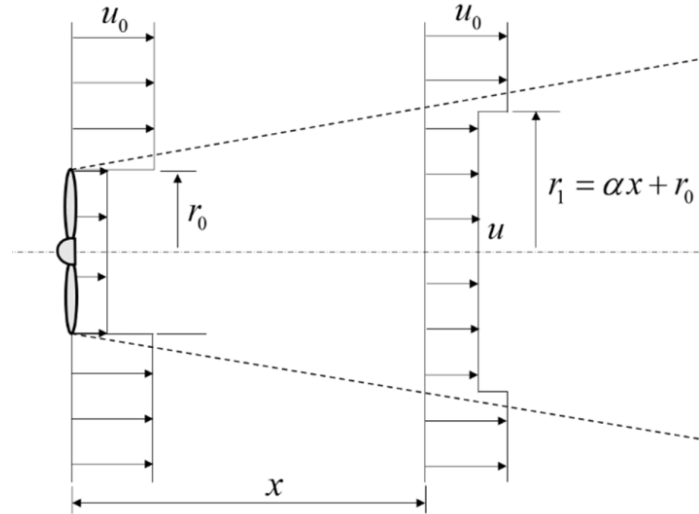

Fig. 1. Schematic diagram of the "Jensen" wake model.

Assuming that quantity of movement is preserved in the wake section, wind speed is given by:

$$u = u_0 \left[1 - \frac{2a}{\left(1 + \alpha \frac{x}{r_1}\right)} \right] \quad (1)$$

$$a = \frac{1 - \sqrt{1 - C_T}}{2} \quad (2)$$

$$r_1 = r\sqrt{\frac{1-a}{1-2a}} \tag{3}$$

$$\alpha = \frac{0.5}{\ln(\frac{h}{z_0})} \tag{4}$$

where u_0 is local wind speed at the turbine without considering any wake effect, x is the distance downstream of the turbine, r is the radius of turbine rotor, r_1 is the downstream rotor radius, h is the hub height of turbine, α is the entrainment constant, a is the axial induction factor, C_T is the thrust coefficient of the wind turbine rotor and z_0 is the surface roughness of the windfarm. We assume that the kinetic energy of the compound wake is equal to the sum of the kinetic energy deficits, when one turbine suffers several wakes at once. The resulting velocity of the turbine i downstream of N_T turbines is:

$$u_i = u_0\left[1 - \sqrt{\sum_{j=1}^{N_T}\left(1 - \frac{u_{ij}}{u_0}\right)^2}\right] \tag{5}$$

where u_{ij} is the wind velocity at turbine i with the impact of turbine j. The wake zone is in conical shape for the linear wake model. The radius of the wake zone is determined as the impact radius of the wake as follow:

$$r_w = \alpha x + r_1 \tag{6}$$

Ref. [13] proposed a model of simplified cost where the turbines number installed in a windfarm is the only variable. Non-dimensional cost/year of one turbine is assumed to be one with a max of a third cost decrease for each supplementary turbine if a large number of WTs are installed in the windfarm. Therefore, the total cost per year for a wind farm can be expressed as follows:

$$Cost = N\left(\frac{2}{3} + \frac{1}{3}e^{-0.00174N^2}\right) \tag{7}$$

The data relating to the turbine and the wind farm are taken out from [13, 14] and are tabulated in Table 1.

Table 1. Windfarm data

Parameter	Value
Rotor diameter (2R)	40 m
Thrust coefficient (C_T)	0.88
Hub height (H)	60 m
Rotor efficiency (C_P)	0.4
Air density (ρ)	1.2254 kg/m3
Surface roughness of the windfarm (z_0)	0.3 m

Power output from turbine i in kW is given by:

$$P_i = 0.5\,\rho\,\pi\,r^2\,u_i^3\,C_P/1000 \tag{8}$$

Where P_i is the total power output obtained considering the wake effect in a wind farm, which can be calculated according to Table I [13, 14], the approximation of equation (8) can give equation (9):

$$P_i = 0.3u_i^3 \tag{9}$$

In this paper, equation (9) is considered for power output calculations for comparing with prior results. For N turbine, the total power output is given as follows:

$$P_T = \sum_{k=0}^{360} \sum_{i=1}^{N} f_k P_i(u_i) \tag{10}$$

Where π_j is wind probability which relates to the wind speed with a certain direction and $\sum_{j=0}^{360} \pi_j = 1$. P_i is the actual power output from turbine i as a function of wind speed u_i. The objective function is calculated as:

$$minF = \frac{Cost_{Tot}}{P_{Tot}} \tag{11}$$

Where the objective function is the ratio of the total cost of installation to the total power. Windfarm efficiency η can be calculated as follow:

$$\eta = \frac{\sum_{k=0}^{360} \sum_{i=1}^{N} f_k P_i(u_i)}{\sum_{k=0}^{360} \sum_{i=1}^{N} f_k P_{i,max}(u_{i,max})} \tag{12}$$

Where, $P_{i,max}$ is the maximum power output from the turbine i as a function of maximum wind speed $u_{i,max}$ regardless of the effect of wake.

III.   OPTIMIZATION ALGORITHM

In this section, PSO and quantum-behaved PSO (QPSO) search algorithm is described first, followed by QPSODM algorithm, the constraints handling is also defined. The complete and detailed description of the algorithm can be found in [7, 22]. A QPSO which include differential mutation (QPSODM) algorithm for wind farm layout optimisation problem is proposed. The main purpose of including differential mutation part in the QPSO algorithm is for improving the global search capability. The differential mutation (DM) process is performed on each agent of the following vector,

$$x_{i,j}^t = x_{i,j}^t + f_m(x_{a,c}^t - x_{b,d}^t) ; \; i = 1,2,\dots,m \; \& \; j = 1,2,\dots,n. \tag{13}$$

Where f_m is called (mutation factor), this factor is utilized for adjusting the perturbation size in the mutation operation as well as improving the convergence of the algorithm. a and b are random integers uniformly chosen from the range $[1,2,\dots,m]$. c and d are randomly chosen with uniform distribution between the range $[1,2,\dots,n]$. In Eq. (13), the term $f_m(x_{a,c}^t - x_{b,d}^t)$ is called differential part. The description of the proposed algorithm is abstracted here below.

Step 1: *Create particles with random positions and set the P_{best} position of each particle as $P_{best,i}^0 = x_{best,i}^0$.*
Step 2: *Set the generation counter as $t = 1$.*
Step 3: *Compute the mean best position M for all particles.*
Step 4: *For each particle, compute the objective function $f(x_i^t)$, constraint function and constraint handling by using the Eqs. If $(x_i^t) < f(x_i^{t-1})$, then $P_{best,i}^t = x_i^t$ and $f(P_{best,i}^t) = f(x_i^t)$.*

Step 5: *Select the current G_{best} position G_{best}^t.*
Step 6: *For each particle, select the stochastic value $\Omega_{i,j}^t$.*
Step 7: *Update each agent of the current position $x_{i,j}^{t+1}$.*
Step 8: *For each agent of new position $x_{i,j}^{t+1}$, perform the DM operation with the mutation probability P_m, and then return to Step 2.*

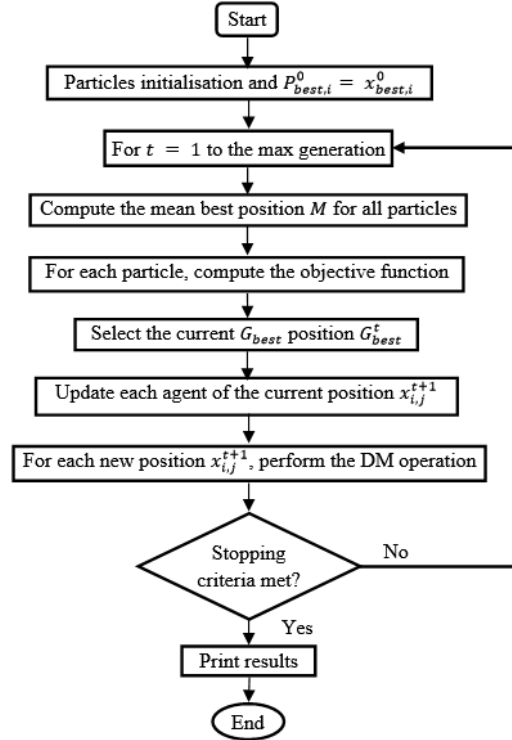The flowchart of the proposed algorithm is shown in Fig. 2.

Fig. 2. Flowchart of the proposed method.

IV.   CASE STUDIES, SIMULATION RESULTS AND DISCUSSION

The simulation is performed on Intel Core (TM) i7 CPU@3.6GHz and 24GB of RAM and run the algorithm on the MATLAB averment in about 14.08 seconds for case 1, 479.64 seconds for case 2 and 618.25 seconds for case 3. The execution time is relatively long following the discretization of the wind direction into 36 sectors, so the algorithm consists of performing a calculation for the 36 wind directions. Several case studies carried out in [13, 14] with a wind farm zone of 2kmx2km equally splitted to 100 squares with center of any cell able to lodge one turbine. This paper analyses three cases that are presented as follows:

A.   CASE 1: (CONSTANT WIND SPEED AND CONSTANT WIND DIRECTION)

This case studies an event where the wind can blow at a constant speed as well as a fixed direction. Ref. [14] found the optimal configuration analytically with considering one column of 10 cells along wind direction in the optimization process and the optimal configuration of a column has been extended in the same order with two other columns forming three columns, two at the extremity and one in the middle. This case follows a configuration almost similar to that reported in [14] and have further been validated by [23] as shown in Fig. 4(a).

B.   CASE 2: (CONSTANT WIND SPEED WITH VARIABLE WIND DIRECTION)

In this case: constant wind speed (u_0) of 12 m/s is considered blowing with the same probability from all directions. The direction is subdivided in 36 sectors of 10° each. In this case, the distance between two WTs is the essential

element that affects the wake loss and therefore the wind farm output. Ref. [24] used binary particle swarm optimization (BPSO-TVAC) algorithm with time varying acceleration coefficients and have better fitness function. Optimum layout resulted from QPSODM algorithm as shown in Fig. 4(b) represents the similarity with layout proposed by [14]. The objective function is lightly enhanced by the QPSODM algorithm. Total power output is also increased with more efficient turbine configuration.

C.   CASE 3: (VARIABLE WIND SPEED AND VARIABLE WIND DIRECTION)

This case reflects a much more advanced and complex scenario where both wind speed and wind direction are considered as variable. [14] adopted three wind speeds points: 8m/s, 12m/s and 17m/s, for comparison reasons, we followed the same methodology. As case 3, the direction is subdivided into 36 segments of 10° each. Wind from north direction is represented with angle 0° and incremental angle 10° is considered clockwise. Therefore, angle of 90° implies wind from east direction and 270° from west direction. Wind probability distribution for this case is mentioned in Fig. 3. Probability of occurrence of a particular wind speed from a specific direction is given in the wind distribution diagram knowing that the sum of all probabilities being equal to 1. Optimization with QPSODM algorithm resulted layout with same number of turbines as in [14] is shown in Fig. 4(c).
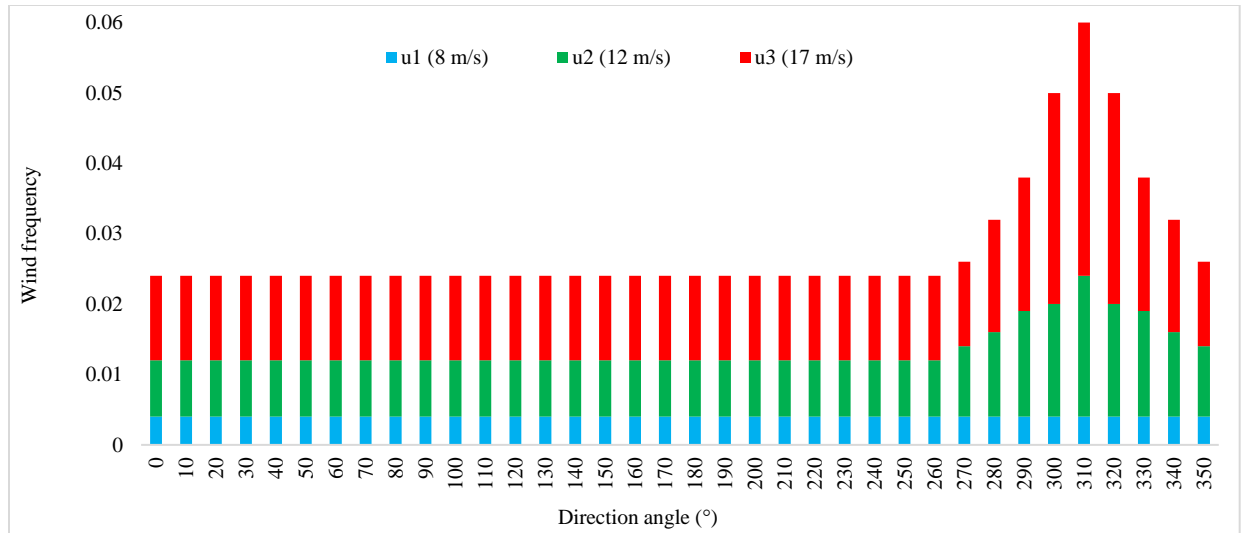
Fig. 3. Wind probability distribution - Case 3.
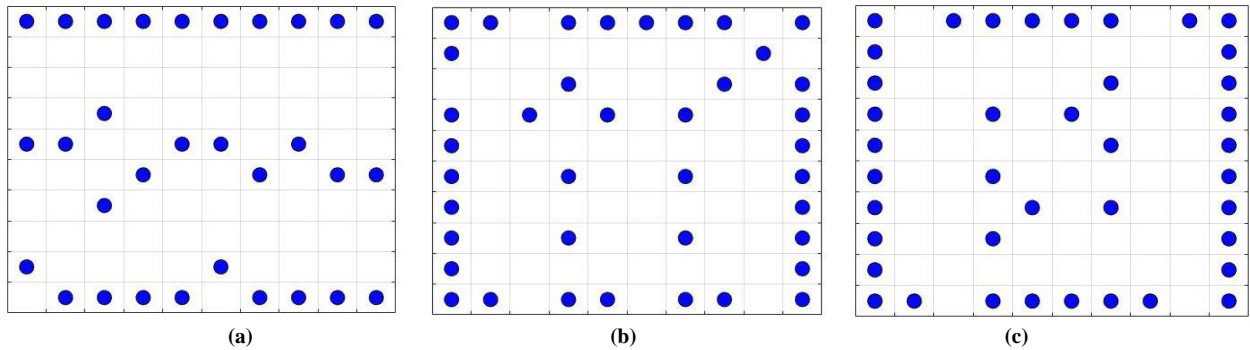
Fig. 4. Optimal windfarm configurations – (a) Case 1, (b) Case 2, (c) Case 3.

Objective function, power and efficiency are recalculated with analogous power model and wind probabilities for the layout arrangement as suggested in [14]. The obtained results are tabulated in Table 2. The resulting fitness function for the layout optimization is the lowest with best efficiency and highest output power than those claimed in [14].

Table 2. Results of different cases

| Case	Number of turbines	Power (kW)	Windfarm Efficiency (%)	Fitness function (X 10^{-4})
Case 1	30	14273.94	91.782	15.5147
Case 2	39	17585.67	86.982	15.4845
Case 3	39	32301.22	87.846	8.3345

V.   CONCLUSION

This paper has proposed a now methodology for the problem of windfarm layout optimization using QPSODM algorithm with several cases concerning both wind speed and wind direction. The optimum arrangements of WTs obtained using the proposed approach are more efficient, thereby producing high output power. Nonetheless, this paper does provide best and logical results and QPSODM can be much more performant than other algorithms applied to the problem of wind farm layout optimization. In addition, the cost model and the objective function adopted in this paper to obtain the optimal layout, have a tradeoff between efficiency and cost, and this problem should be addressed in future works. Finally, to prove the practical application of the optimal configuration, more practical wind uncertainty needs to be studied.

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ACCEPTANCE LETTER

Dear Pr. Mourad Naidji,

Paper ID: 13

We are pleased to inform you that your paper entitled:

"*A novel approach for wind farm layout optimization using QPSODM algorithm*"

has been accepted for **"Oral"** presentation in the 1st International Conference on Advances in Electronics, Control and Computer Technologies, ICAECCT'23, scheduled to be held from 25 -26 October 2023 in University Mustapha Stambouli of Mascara, Mascara, Algeria.

On behalf of the Organizing Committee, we would like to thank you for your submission and consideration and we look forward to your presentation at ICAECCT'23 conference.

Best regards,
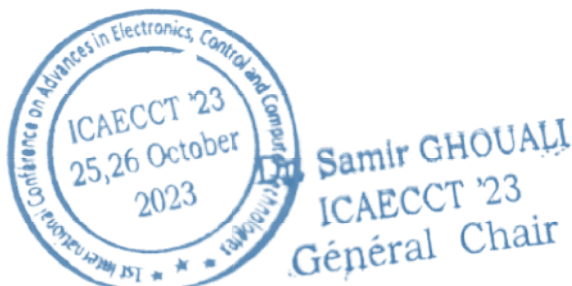
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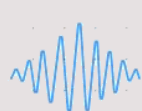
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09:00 – 09:20	NATIONAL ANTHEM النشيد الوطني RECITATION OF VERSES FROM THE HOLY QURAN تلاوة آيات من القرآن الكريم
09:20 – 10:00	**OPENING CEREMONY** *Mr. Farid Mohamedi* WALI de Mascara *Prof. Abed BOUADI* Rector of Mustapha Stambouli University, Mascara, Algeria Honorary Co-President *Prof. Rabah KHENATA* Vice Rector for External Relations, Cooperation, Animation, Communication and Scientific Events Honorary Co-President *Dr. Amaria BEKHTI-SIAD* Interim Dean of the Faculty of Sciences and Technology Conference Chair *Dr. Samir GHOUALI* Associate Professor, Faculty of Sciences and Technology, Mustapha Stambouli University Mascara Algeria

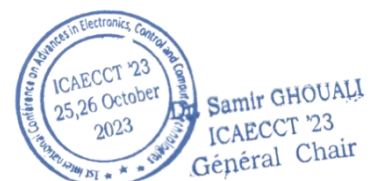|		
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10:40 – 11:00		Prof. Miloud Rezkallah Senior Researcher/Project Manager CR2IE | Energy Intelligence Research and Innovation Center Associate Professor; School of Higher Technology (ETS), Canada
		(PRESENTIAL) **CHALLENGES AND IMPLEMENTATION OF DECENTRALIZED SMART ENERGY SYSTEMS FOR REMOTE SITES IN CANADA**
11:00 – 11:20		Prof. Mustapha HATTI Research Director - UDES/EPST-CDER
		(PRESENTIAL) **SMART CITIES: CONCEPTS AND CONDITIONS OF SUCCESS**
11:20 – 11:40		Dr. Michael Onyema EDEH Head of Department, Mathematics and Computer Science at Coal City University, Nigeria
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11:40 – 12:00		Prof. Kamil Hussein EMAD Doctor of Engineering, Professor of Mechanical Engineering at Al-Furat Al-Awsat Technical University - Iraq
		(VIRTUAL)
12:00 – 14:00		

LUNCH TIME

FACE TO FACE CONFERENCE ORAL SESSION (Physical)

ROOM A: Control Systems, Robotics and Automation

Session Chairmen	**Prof. Miloud REZKALLAH** Senior Researcher/Project Manager at CR2IE | Energy Intelligence Research and Innovation Center Associate Professor; School of Higher Technology (ETS), Canada **Dr. Djamel Eddine CHAOUCH** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Ahmed LARBAOUI** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria	

	ID	
14:00– 14:15	55	Modeling a Hybrid Compensation System Using Robust GPC Control with a Recurrent Neural Network to Compensate for Powers in a Transmission Line
		Participant — Abdelkrim BOUANANE — *Dr. Moulay Taher University Saida*
		Co-authors — NERZIOU MADANI, RAOUTI DRISS, YAHIAOUI MERZOUG
14:15– 14:30	71	Study the Influence of Emotions on Language Identification from Speech
		Participant — Houari HORKOUS — *Ecole National Polytechnique*
		Co-authors —
14:30– 14:45	72	Passivity based control of a two-link flexible manipulator
		Participant — Adel BELHERAZEM — *University of sciences and technologies of Oran*
		Co-authors — Zakaria BELLAHCENE, Abdelmalek LAIDANI
14:45– 15:00	73	Robust Adaptive Control of Remotely Operated Underwater Vehicle (ROV) for Dam Inspection
		Participant — Zakaria BELLAHCENE — *University of sciences and technology of Oran*
		Co-authors — ADEL BELHERAZEM, Abdelmalek LAIDANI, Mohammed BOUHAMIDA
15:00– 15:15	75	Photovoltaic Generator Analysis based on Maximum Power Point Tracking with DC/DC Converter for Motor Pump Applications
		Participant — Fatima MOULAY — *University of Technology Djilali Liabes of Sidi bel abbes*
		Co-authors — HABBATI ASSIA, OUKLI MIMOUNA
15:15– 16:15		**Poster session 1 & coffee break**
16:15– 16:30	302	Telemetries forecasting: A preventive approach for satellite operations, diagnostic and monitoring
		Participant — Ali KADDOURI — *Algerian Space Agency*
		Co-authors — Saiah Bekkar, Djelloul Saiah
16:30– 16:45	78	Energy Management System Enhancement for Electric Vehicle Application
		Participant — Ibrahim Farouk BOUGUENNA — *University Mustapha Stambouli of Mascara*
		Co-authors — Abdelghani ZABEL, Ahmed TAHOUR, Mohammed Benmadani DEBBAT, Mohamed AMRI

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ROOM B: Electronics and its Applications

Session Chairmen		Prof. Mustapha HATTI Research Director - UDES/EPST-CDER Dr. Mourad HEBALI Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria Dr. Hocine Abdelhak AZZEDDINE Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria Dr. Abdelkader MAACHOU Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria
	ID	
14:00– 14:15	50	**Optimization of Technological Parameters Process of Mechanically Stacked Si/Ge Solar Cell for High Performance**
		Participant — Kheira AMEUR *University Djillali Liabes of Sidi Bel Abbes*
		Co-authors — Nadia BENSEDDIK, Halima MAZARI, Kheira OUARI, Zineb BENAMARA
14:15– 14:30	156	**Effective MPPT Technique for Wind Energy Conversion System**
		Participant — Mohamed KAOUANE *Faculty of technology - UMBB*
		Co-authors — Akkila BOUKHELIFA
14:30– 14:45	166	**Small Size, Big Impact: CubeSat Imaging with COTS Hardware**
		Participant — Mohammed amine ZAFRANE *University of Science and Technologies of Oran*
		Co-authors — AHMED RAMZI HOUALEF, AHMED TAHIR
14:45– 15:00	51	**Forest Firefighting Using Drone and Artificial Intelligence**
		Participant — Ibrahim Farouk BOUGUENNA *University Mustapha Stambouli of Mascara*
		Co-authors — Zolikha DAHNOUN
15:00– 15:15	161	**Closed Loop Ćuk Converter Modeling for Photovoltaic Conversion System**
		Participant — Mohamed Kaouane *Faculty of technology - UMBB*
		Co-authors — Akkila BOUKHELIFA
15:15– 16:15		**Poster session 1 & coffee break**
16:15– 16:30	123	**Spontaneous Electric Polarization and Photovoltaic Properties of Stephanite for Thin-Film Solar Celle: A First-Principles Investigation**
		Participant — Naouel CHELIL *University Mustapha Stambouli of Mascara*
		Co-authors — Mohammed SAHNOUN
16:30– 16:45	177	**Study and development of a pseudo-random number generator on FPGA**
		Participant — Omar Medjadj *University Mustapha Stambouli of Mascara*
		Co-authors — Benaoumeur IBARI, Mourad HEBALI, Rezali BAGHDADI, Mohammed El-Amine BEYOUR, Hocine Abdelhak AZZEDDINE
16:45– 17:00	196	**Study the Electrical Characteristics of a Schottky Diode Based Au/n-type InN/InP at Different Frequencies**
		Participant — Abdelkader BAGHDAD BEY *University Mustapha Stambouli of Mascara*
		Co-authors — A. TALBI, M. A. BENAMARA, Z. BENAMARA, F. DUCROQUET

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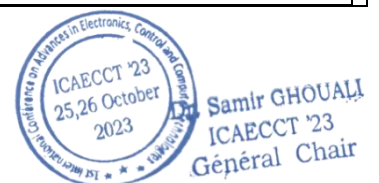Samir GHOUALI
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ROOM C: Telecommunications and its Applications

Session Chairmen	**Prof. Mohamed Benaoumeur Senouci** University of Southern Denmark **Dr. Mohamed Larbi TAYEBI TAYEBI** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Mokhtar BESSEGHIER** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Mouweffeq BOUREGAA** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Fouad KHERBOUCHE** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria

	ID	
14:00– 14:15	14	**Electromagnetic Optimization of Bandpass Cross-Coupled Filter for mobile Communications**
		Participant: Lamia SENASLI — Laboratory of Electronics, Advanced Signal Processing and Microwave
		Co-authors: MEHDI DAMOU, NOUR EL HOUDA SARA SENASLI, CHETIOUI MOHAMMED GOUNI SLIMANE, ABDELHAKIM BOUDKHIL
14:15– 14:30	256	**Preamble Design for Channel Estimation in FBMC/OQAM systems**
		Participant: Ahmed Bouzidi DJEBBAR — Djillali Liabes University, Sidi-Bel-Abbes
		Co-authors: DAHMANE REBOUH, MOKHTAR BESSEGHIER
14:30– 14:45	19	**Design of a Filter Based on Direct Coupled Resonators Using the Coupling Matrix Technique**
		Participant: Mehdi DAMOU — Laboratory of Electronics, Advanced Signal Processing and Microwave
		Co-authors: GOUNI SLIMANE, BOURAS MAROUA, CHETIOUI MOHAMMED, BOUDLHIL ANDELHAKIM, NOURI KELTOUMA
14:45– 15:00	108	**Optimization of Pedestrian Mobility Management in 5G NR Network based on Spectrum Sensing and NLMS Algorithm**
		Participant: Zineb ZIANI — USTO-MB University, Oran
		Co-authors: MOHAMMED HICHAM HACHEMI, MILOUD BENCHEHIMA, IKRAM SARI MOHAMMED, FARAH SABRI, BOUABDELLA RAHMANI
15:00– 15:15	143	**Miniaturization of a Low-Cost Dual Band Antenna for C Band Applications**
		Participant: Abdellatif BERKAT — Abou Bakr Belkaid University-Tlemcen
		Co-authors: Zeyneb BERKAT, Mohamed LATRACH

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15:15– 16:15		Poster session 1 & coffee break	
16:15– 16:30	169	Design and Analysis Frequency Reconfigurable Multiband Patch Antenna for 5G Networks and Beyond	
		Participant	REFSI Ismahane *USTO-MB University, Oran*
		Co-authors	MILOUD BENCHEHIMA, MOHAMMED HICHAM HACHEMI, BOUABDELLA RAHMANI
16:45– 17:00	167	Enhanced Mobility Management on Vehicular Communication System in 5G New Radio Wireless Networks	
		Participant	Bahmed BABA OU SMAIL *USTO-MB University, Oran*
		Co-authors	MOHAMMED HICHAM HACHEMI, MILOUD BENCHEHIMA, MOHAMMED EL-KHALLIL BELHADJ, MEHDI ABDELHAK AND BOUABDELLA RAHMANI

ROOM D: Biomedical Engineering

Session Chairmen	**Dr. Khadidja GOUIZI** *Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria* **Dr. Nabila HAMLIL** *Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria* **Dr. Abdelkader HORCH** *Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria* **Dr. MOHAMMED SEGHIR GUELLIL** *Faculty SEGC, University Mustapha Stambouli of Mascara, Algeria*	
	ID	
14:00– 14:15	151	Multimodal MRI-Based Alzheimer's disease Classification Using CNN
		Participant HOURIA Latifa *University of Blida 1*
		Co-authors LATIFA HOURIA, ASMAE MAMA ZAIR, ASSIA BOUZOUAD CHERFA, YAZID CHERFA, NOUREDDINE BELKHAMSA
14:15– 14:30	33	LSTM for epileptic disease recognition
		Participant Ghezala CHEKHMANE *University of Abou Bekr Belkaid Tlemcen*
		Co-authors RADHWANE BENALI
14:30– 14:45	65	Secure and Accurate Identity Verification through Retinal Biometrics: A Novel Approach with Isodata and Entropic Thresholding Techniques
		Participant Aicha MOKHTARI *University of Abou Bekr Belkaid Tlemcen*
		Co-authors HADJ SLIMANE ZINE EDDINE

Time	No.	Presentation		
14:45– 15:00	24	Blood Product Prediction using Supervised Machine Learning		
		Participant	Amel YKHLEF	
			National Polytechnic School of Oran	
		Co-authors	LABRI NADJLA SELMA, BRAHAMI MENAOUER	
15:00– 15:15	150	Advancing MRI-Based Tumor Detection and Classification in Brain Images: A Comprehensive Framework Utilizing Image Processing and Machine Learning with MATLAB GUI Integration		
		Participant	Abdallah OUMSALEM	
			Hassiba Ben Bouali University of Chlef, Algeria	
		Co-authors	Yamina BOUREZIG	
15:15– 16:15		**Poster session 1 & coffee break**		
16:15– 16:30	136	Medical Image Registration Using Local Feature Points & Genetic Search		
		Participant	Fatiha MESKINE	
			Djillali Liabes University of Sidi-Bel-Abbes	
		Co-authors	Oussama MEZOUAR	
16:30– 16:45	193	Machine Learning for Optimizing Diabetes Prediction: A Comparative Analysis		
		Participant	Mohamed AMMARA	
			University Mustapha Stambouli of Mascara	
		Co-authors	Mokhtar BESSEGHIER	
16:45– 17:00	142	Study and simulation of biosensors based AlGaN/GaN MOS-HEMTs for specific detection of biomolecules		
		Participant	Abdellah BOUGUENNA	
			University of Sciences & Technology of Oran (USTO-MB)	
		Co-authors	DRISS BOUGUENNA, AMINE BOUDGHENE STAMBOULI	
17:00– 17:15	38	New hybrid FCM-ABC algorithm for Brain MRI segmentation		
		Participant	Boumediene Ghaouti GHAZI	
			University Mustapha Stambouli of Mascara	
		Co-authors	BOUDJELAL MEFTAH	

CONFERENCE POSTER SESSION 1

Session Chairman	**Dr. Mokhtar BESSEGHIER**
	Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria
	Dr. Menouer BENNAOUM
	Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria
	Dr. Radia MADJIDI
	Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria

ID	
84	Design of a New Direct Vector Control Using Synergetic Theory for Five-Phase Induction Motor
	Participant — Fayçal MEHEDI — Hassiba Benbouali University, Chlef
	Co-authors — ISMAIL BOUYAKOUB, LEMYA DJAFER, NEZLI LAZHARI, DJAMEL BOUDANA
112	A competitive dual axis solar tracker system
	Participant — Ghalem Kamel Ghanem — Higher School of Energetic and Electrical Engineering, Oran
	Co-authors — BELAIDI IKHLAS, ANTAR KAWTHER, BENOUAR ALI, AHMED BACHA MOHAMED REDA
117	Optimal choice of weightings functions for synthesis a robust H∞ controller based on Loop –Shaping using Genetics Algorithms
	Participant — Djamel eddine GHOURAF — National Polytechnic School- Oran
	Co-authors — NACERI ABDELLATIF
126	Design of a robust nonlinear surface sliding mode controller for a quadrotor helicopter
	Participant — Naima BOUHABZA — Université Blida1
	Co-authors — KARA KAMEL
158	Algerian Database Under Development for Automatic Emotion Recognition
	Participant — Zineddine S. KAHHOUL — University of Mohamed Khider Biskra
	Co-authors — SELMA BOUTIBA, HABIBA DAHMANI, NADJIBA TERKI, MOHAMED L. TIAR, ABIR BETKA, ZAYED FERHAT, RIYAD BARKA
178	Real time control of a flight simulator
	Participant — Sadek NEKROUF — University Mustapha Stambouli of Mascara
	Co-authors — SOUFYANE CHEKROUN, KHATIR TABTI
175	Application of fuzzy logic to the control of an industrial 3D Crane
	Participant — Fatima AFFANE — University Mustapha Stambouli of Mascara
	Co-authors — M.ZAREB, A. KHEDIM, M. ALQUDAMI
183	Sliding Mode Controller with a Neuro-Fuzzy Optimized Network (STFIS) for Robotic Manipulator Trajectory Tracking
	Participant — Djamel Eddine CHAOUCH — University Mustapha Stambouli of Mascara
	Co-authors — AHMED LARBAOUI, HOCINE ABDELHAK AZZEDINE

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184	Application Of Direct and Indirect Adaptive Controller Neural Network Based on Rbf Nn for Temperature Control of Electric Resistance		
	Participant	Benyekhlef KADA	
			University Mustapha Stambouli of Mascara
	Co-authors	DJAMEL EDDINE CHAOUCH, ABDELKADER ELKEBIR	
250	Applied the different Direct Torque control on the IM		
	Participant	Moulay ldriss CHERGUI	
			University Mustapha Stambouli of Mascara
	Co-authors	ABDELHAQ LAOUFI, SOUFYANE CHEKROUN	
301	Real-time implementation of single-phase inverter for photovoltaic system based on DC/DC and DC/AC stages		
	Participant	Abdelkader EL KEBIR	
			University Mustapha Stambouli of Mascara
	Co-authors	HAFIDA BELHADJ	
400	Design of a Fly back converter using TL494 control circuit for a photovoltaic system		
	Participant	HAFIDA BELHADJ	
			University Mustapha Stambouli of Mascara
	Co-authors	Abdelkader EL KEBIR	
251	Morphology influence of the donor and acceptor molecules of the active layer on the response parameters of organic photovoltaic cells OPVCs		
	Participant	Mohamed Benamar SIAD	
			University Mustapha Stambouli of Mascara
	Co-authors	Y. MOUCHAAL, A. KHELIL, J.C. BERNEDE	
96	Image Transmission Through OFDM System		
	Participant	Fatiha MESKINE	
			Djillali Liabes University, Sidi Bel Abbes
	Co-authors	Amina DJIR, Brahim DEHRI	
190	Deforestation detection using NRCS features extracted from multi dates SAR images		
	Participant	Abdelkader Horch	
			University Mustapha Stambouli of Mascara
	Co-authors	IMANE MAHFOUF, MOKHTAR BESSEGHIER, HOCINE ABDELHAK AZZEDDINE, ABDERAHMANE LOUNI	
310	Detection of Sleep Apnea Using Machine Learning Algorithms Based on The ECG Signal		
	Participant	Leila RIZOUG	
			University Mustapha Stambouli of Mascara
	Co-authors	ISMAHENE BAADJA, NORA BELHAJ, ABDELKADER HORCH, ABDERRAHMANE LOUNI	
176	Application of Artificial Neural Network (ANN) to Predict the Electrical Properties of 4H-SiC Schottky Diodes		
	Participant	Mohammed El-Amine BEYOUR	
			University Mustapha Stambouli of Mascara
	Co-authors	MOURAD HEBALI, BENOUMEUR IBARI, OMAR MEDJADJ, REZALI BAGHDADI, ABDELKADER MAACHOU, HOCINE ABDELHAK AZZEDDINE, MENAOUER BENNAOUM	

186	Advances in Power Sources and Power Electronic Converters for Multi-Source Electric Vehicles	
	Participant	Khaled BOUHADEF University Mustapha Stambouli of Mascara
	Co-authors	DJAMEL EDDINE CHAOUCH, HOCINE ABDELHAK AZZEDINE

139	Dual-Band Planar Antenna Design with Complementary Metamaterial Resonators for 5G systems	
	Participant	Nour El Houda BOUKHLIF University Mustapha Stambouli of Mascara
	Co-authors	SAMIR GHOUALI, ABDELFETTAH MIRAOUI

187	Exploring the Security Landscape Internet of Things	
	Participant	Hadjer BOUKHLIF University Mustapha Stambouli of Mascara
	Co-authors	MOUWEFFEQ BOUREGAA, MOHAMMED MOULAY

194	Wireless Technology in Medical Applications: State of the Art, Challenges, and Opportunities	
	Participant	Abderrahmane BENHALIMA University Mustapha Stambouli of Mascara
	Co-authors	BENZERGA FELLAH, SAMIR GHOUALI

185	Revolutionizing Diabetic Retinopathy Detection: A Comprehensive Review of AI Approaches	
	Participant	Imane MAHFOUF University Mustapha Stambouli of Mascara
	Co-authors	ABDELKADER HORCH, BOUALEM MERABET

197	Optimizing Chromatic Dispersion in Fiber with Air-Silica Microstructured (FMAS) for Advanced Optical Telecommunications	
	Participant	Mohammed DEBBAL University Mustapha Stambouli of Mascara
	Co-authors	MOUWEFFEQ BOUREGAA, MOHAMMED CHAMSE EDDINE OUADAH, HICHAM CHIKH-BLED

405	The role of formants and subglottal resonance frequencies for emphatic feature identification in Arabic speech	
	Participant	Abderrahmane LOUNI University Mustapha Stambouli of Mascara
	Co-authors	LEILA RIZOUG, ABDELHAK ZOUGGARET, BOUALEM MERABET, ABDERRAHIM BELMADANI

303	Photo-electrochemical and Physical Properties of the Spinel $CuMn_2O_4$ Prepared by Chemical Route: Application to Photodegradation of carminic acid dye	
	Participant	Hafidha BOUCHAABA University Mustapha Stambouli of Mascara
	Co-authors	SARRA GOUDJILI, ZOHRA FERGOUG

17	Control of six-phase two-motor drive machine serie-connected fed by five-level six-phase inverter	
	Participant	Taieb BESSAAD Hassiba Benbouali University Chlef
	Co-authors	ABDERRAHMEN BENBOUALI

VIRTUAL CONFERENCE SESSION

ROOM E: Control Systems, Robotics and Automation (VIRTUAL)

Session Chairmen		**Dr. Soufyane CHEKROUN** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Omar DAHOU** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Benyekhlef KADA** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Boumediene BENABDALLAH SEREIR** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria
	ID	
14:00– 14:15	11	**Detecting Bearing Faults by Processing Vibration Signals**
		Participant — Karim BOUAOUICHE — Badji Mokhtar-Annaba University
		Co-authors — YAMINA MENASRIA, DALILA KHALFA
14:15– 14:30	20	**Enhancing Performance and Robustness of Vector Control for Three-Phase Synchronous Reluctance Machine Using Second-Order Sliding Mode**
		Participant — Belkacem SELMA — Hassiba Benbouali University of Chlef
		Co-authors — ELHADJ BOUNADJA, BACHIR BELMADANI, BOUMEDIENE SELMA
14:30– 14:45	23	**Second Order Sliding Mode Control of a Hybrid Excitation Synchronous Generator-based Wind Turbine supplying a DC Load**
		Participant — Walid Mohammed KACEMI — Hassiba Benbouali University of Chlef
		Co-authors — ELHADJ BOUNADJA, ABDELKADIR BELHADJ DJILALI
14:45– 15:00	21	**Modeling and Control of Variable Structure Scheme for Grid-Connected Wind Power Production System with Parallel-Connected Synchronous Reluctance Generators**
		Participant — Belkacem SELMA — Hassiba Benbouali University of Chlef
		Co-authors — ELHADJ BOUNADJA, BACHIR BELMADANI, BOUMEDIENE SELMA
15:00– 15:15	59	**Modeling and control of a twin-rotor drone**
		Participant — Aissa MEKSI — University of Sciences and Technology of Oran
		Co-authors — Laid ABDELALI
15:15– 16:15		**Poster session 1 & Coffee /Tea break**
16:15– 16:30	60	**Induction Machine Parameters Identification By Using Hybridation Between Genetic Algorithm And Hooke-Jeeves method**
		Participant — El-Ghalia BOUDISSA — Saad Dahlab University of Blida1
		Co-authors — F. HABBI, N. DIF, N.E.H. GABOUR, M. BOUNEKHLA

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16:30– 16:45	68	**Particle Swarm Optimization Algorithm-Based PID Controller for Output Voltage Regulation of Synchronous Generator**
		Participant: El-Ghalia BOUDISSA — Saad Dahlab University of Blida1
		Co-authors: FATIHA HABBI, NOUR EL HOUDA GABOUR, MOHAMED BOUNEKHLA AND DIF NAAS
16:45– 17:00	253	**Fuzzy Neuronal with Robust Control for Uncertain Nonlinear Systems**
		Participant: Fatima Zohra DAIKH — University Mustapha Stambouli of Mascara
		Co-authors: MOHAMMED SEGHIR GUELLIL, MOHAMMED AMINE HAMADOUCHE
17:00– 17:15	8	**Sliding Mode Control of a Five-Phase Series- Connected Two-Motor Drive**
		Participant: Omar ZOUAID — polytechnic national school of Algiers
		Co-authors: LAZHARI NEZLI
17:15– 17:30	25	**Simplified Control of PMSM Motors with Matrix Converter using SVM Strategy**
		Participant: Fayssal SAIDI — Hassiba Benbouali University Chlef
		Co-authors: ELHADJ BOUNADJA, ABDELKADER DJAHBAR
17:30– 17:45	85	**Speed Sliding Control of Squirrel Cage Motor combined NPC Five Level Inverter**
		Participant: Kheira MENDAZ — University Ain Temouchent
		Co-authors: BENHADDA YAMINA, YOUNES KHADIDJA

ROOM F: Telecommunications and its Applications (VIRTUAL)		
Session Chairmen	**Dr. Abdelhak ZOUGGARET** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Benzerga FELLAH** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Abderrahmane LOUNI** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Fatima Zohra BOUMEDIENE** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria	
	ID	
14:00– 14:15	18	Millimeter-wave transmission at 90 GHz in a hybrid fiber/FSO communication system using MIMO-FSO channel performance
		Participant / Samra DEROUICHE — UABT University, Tlemcen
		Co-authors / SAMIR KAMECHE, HAROUN ERRACHID ADARDOUR
14:15– 14:30	16	Performance Analysis of Hybrid Multiple Access OCDMA/OFDM System Using Spectral Cyclic Shift Code
		Participant / Mohamed RAHMANI — TAHRI Mohamed University of Bechar
		Co-authors / ABDELHAMID CHERIFI, GHOUTIA NAIMA SABRI
14:30– 14:45	5	Performance in Power-Domain of NOMA for fifth-generation mobile networks (5G)
		Participant / Yaakoub BERROUCHE — Université Ferhat Abbas Sétif 1
		Co-authors /
14:45– 15:00	28	High Cardinality Optical Multiple Access CDMA Networks Adopting a Novel Incoherent Spectral/Temporal/Spatial Encoding Block
		Participant / Mohamed RAHMANI — TAHRI Mohamed University of Bechar
		Co-authors / ABDELHAMID CHERIFI, GHOUTIA NAIMA SABRI
15:00– 15:15	29	Performance Optimization and Comparative Analysis of Reliable Multicast Protocols (AMRHy and DyRAM) in Wireless Mesh Networks
		Participant / Asma BENMOHAMMED — Université Abdelhamid Mehri Constantine 2
		Co-authors / MERNIZ SALAH
15:15– 16:15		Poster session 1 & Coffee /Tea break
16:15– 16:30	56	A hybrid medical images watermarking technique using DWT and DCT
		Participant / Rania HAMAMI — LASA laboratory, Badji Mokhtar Annaba university
		Co-authors / NARIMA ZERMI, LARBI BOUBCHIR, AMINE KHALDI
16:30– 16:45	141	Smart Solutions for Smartphone Repair: Connecting Users with Expert Technicians
		Participant / Rajaa BENHADI — University Mustapha Stambouli of Mascara
		Co-authors / SAMIR GHOUALI

		Implementation of MF - TDMA OTDM-WDM mapping for the DVB-RCS2 system: Functional approach	
16:45– 17:00	124	Participant	Meryem Romaissa DJELLOULI university Djillali Liabes Sidi Bel Abbes
		Co-authors	SID AHMED CHOUAKRI, ABDELKRIM GHAZ
		Spectro-Temporal Features for Robust AMR-NB Transcoded Speech Recognition Using Deep Neural Networks	
17:00– 17:15	180	Participant	Lallouani OUCHAKOUR USTHB
		Co-authors	MOHAMED DEBYECHE
		An overview on DNA-based cryptography	
17:15– 17:30	77	Participant	Djihad DJAA Djillali Liabes University, Sidi Bel Abbes
		Co-authors	KHEIREDDINE MEKKAOUI, SOFIANE BOUKLI-HACENE
		Modeling of Radar Sea Clutter Using the Mixture of Three Weibull Distributions	
17:30– 17:45	47	Participant	Sarah LEFAIDA University Des Frères Mentouri Constantine
		Co-authors	Faouzi SOLTANI, Amar MEZACHE

ROOM G: Telecommunications and its Applications (VIRTUAL)

Session Chairmen	Prof. Larbi SEKHRI Industrial Computing and Networks Research Laboratory (LIIR), University of Oran Prof. Amina BENDAOUDI Djillali Liabes University of Sidi Bel-Abbes, Algeria Dr. Abdelfettah MIRAOUI Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria Dr. Mokhtar BOUHALOUANE Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria		
	ID		
		Design and Performance Evaluation of X-Band Satellite Antenna with Frequency Reconfigurability Using Varactor Diode	
14:00– 14:15	34	Participant	Rahma Djaouda TALEB ABOU BEKR BELKAID University, Tlemcen
		Co-authors	MOHAMMED ZAKARYA BABA-AHMED, MOHAMMED AMIN RABAH, SIDAHMED BENABBOU, MERIEM IKRAM SOUFI
		A Log Periodic Dipole Antenna Array SIW Feeding For 5G Millimiter-Wave Applications	
14:15– 14:30	39	Participant	Hanane METAHRI ABOU BEKR BELKAID University, Tlemcen
		Co-authors	MEHADJI ABRI, MOHAMMED MOULAY, HANAA MOUSSAOUI, NABIL CHERIF

		Inovation of a Miniaturized Antenna Array Based On A High Frequency Substrate And Metamaterial Cells	
14:30– 14:45	43	Participant	Fayza BOUSALAH ABOU BEKR BELKAID University, Tlemcen
		Co-authors	HAYAT BENOSMAN, AMIN MOHAMMED RABAH, ZAKARIYA MOHAMMED BABA AHMED
		Efficiency of 40 Gbps OTDM-FSO optical system under weather conditions	
14:45– 15:00	48	Participant	Haroun Errachid ADARDOUR UHBC University, Chelf
		Co-authors	SINGH MEHTAB, IKRAM KHELOUF, C. ABDELHAKIM FELLAGUE
		Design of a Miniature Circularly Polarized Microstrip Antenna for GNSSS Applications	
15:00– 15:15	49	Participant	Hayet BENOSMAN ABOU BEKR BELKAID University, Tlemcen
		Co-authors	FAYZA BOUSALAH, AMINE RABAH
15:15– 16:15		Poster session 1 & Coffee /Tea break	
		Numerical Dynamics Analysis of a Chaotic Third-Order Phase-Locked Loop	
16:15– 16:30	63	Participant	Mohammed BENDAOUD ABOU BEKR BELKAID University, Tlemcen
		Co-authors	SAMIR KAMECHE, ACHOUR OUSLIMANI
		Blind Speech Enhancement Based on Adaptive Filtering and Improved Bat Algorithm	
16:30– 16:45	115	Participant	Sofiane FISLI 8 Mai 1945- Guelma University
		Co-authors	MOHAMED DJENDI
		Study of a dual polarized RoF OFDM system with WDM-PON structure for mobile broadband networks	
16:45– 17:00	121	Participant	chebra abdennour FELLAG ABOU BEKR BELKAID University, Tlemcen
		Co-authors	AHMED RIAD BORSALI, MEHDI ROUISSAT
		Design and Simulation of U-slotted Microstrip Patch Antenna for L, S, C and X Band	
17:00– 17:15	89	Participant	Riadh DEGACHI University of El-Oued
		Co-authors	GHENDIR SAID
		A Nano rectangular gold and graphene patch antenna for WBAN applications	
17:15– 17:30	31	Participant	Bouchra MOULFI University of Ain Temouchent
		Co-authors	SOUHEYLA FEROUANI, DJALAL ZIANI KERARTI AND FATIMA ZAHRA MOUSSA
		Design and Simulation of a Leaky Wave Antenna Based on Metamaterial Substrate Integrated Waveguide for Millimeter-wave Application	
17:30– 17:45	131	Participant	Chaabane SOUMALI University of Yahia Fares Medea
		Co-authors	MOUNIR BELATTAR

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FACE TO FACE CONFERENCE ORAL SESSION (Physical)

ROOM A: Control Systems, Robotics and Automation			
Session Chairmen	**Dr. Soufyane CHEKROUN** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Benaoumeur IBARI** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Mohammed El Amine SENOUSSAOUI** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Adel BENABBOUN** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria		
	ID		
09:00– 09:15	114	Enhancing Industrial Process Control using multi-layer perceptron (MLP)	
		Participant	Leila BENAISSA KADDAR University Mustapha Stambouli of Mascara
		Co-authors	Mohamed El Mehdi ZAREB
09:15– 09:30	171	Velocity observer-based computed torque control for trajectory tracking of uncertain robotic manipulators	
		Participant	Rezali BAGHDADI University Mustapha Stambouli of Mascara
		Co-authors	BENAOUMEUR IBARI, MOURAD HEBALI, OMAR MEDJADJ, MOHAMMED EL-AMINE BEYOUR, AHMED FOITIH ZOUBIR
09:30– 09:45	179	Electric Vehicle Wheel-Slip control Based on Sliding Mode Controller	
		Participant	Tabti KHATIR University Mustapha Stambouli of Mascara
		Co-authors	MOSTEFAI LOTFI, CHEKROUN SOUFYANE, NEKROUF SADEK, LARBAOUI AHMED
09:45– 10:45		Poster session 2 & coffee break	
10:45– 11:00	109	Intelligent control strategy of induction motor through Fuzzy Logic Direct Torque Control	
		Participant	Ameur Fethi AIMER University Dr. Tahar Moulay of Saida, Algeria
		Co-authors	AHMED HAMIDA BOUDINAR, MOHAMED EL-AMINE KHODJA, AZEDDINE BENDIABDELLAH
11:00– 11:15	257	Full State Feedback Control for Underactuated Nonlinear Mechanical Systems	
		Participant	Anis FEDDAOUI Badji Mokhtar University
		Co-authors	M.A. DJEHAF, Y.I. DJILLANI KOBIBI, O. FEZAZI

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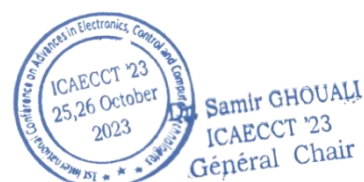| 11:15– 11:30	132	A comparative analysis of bioreactor system control with the high-order sliding controller and the classic sliding control	
		Participant	Mohamed MESSABIH
			University of Science and Technology of Oran, USTO
		Co-authors	BACHIR DAAOU, ABDERRAHMENE KACIMI, ABDERRAHMENE SNOUSSAOUI
11:30– 11:45	113	Identifying Spatial Risk of Road Accidents Based On Fuzzy Logic Approach	
		Participant	Miloud DRISS
			University Mustapha Stambouli of Mascara
		Co-authors	MOHAMED AMINE HAMADOUCHE, MUSTAPHA LALLAM, OUALID LARGUECHE, SOFIANE ADJLOUT

FACE TO FACE CONFERENCE ORAL SESSION (Physical)

ROOM B: Telecommunications and its Applications			
Session Chairmen	**Dr. Abdelfettah MIRAOUI** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Mohamed MOULAY** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Mokhtar BESSEGHIER** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Belhassane AHMEDBLAHA** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria		
	ID		
09:00– 09:15	122	Turbulence Effect on RGB Image Transmission over IM/DD Communication-Oriented Free-Space Optical Systems	
		Participant	Amina DJIR
			Djillali Liabes University, Sidi-Bel-Abbes
		Co-authors	Fatiha MESKINE, Mohamed Larbi TAYEBI
09:15– 09:30	119	Deep learning for Microwave Modeling and Design	
		Participant	Nour El Houda Sara SENASLI
			University Dr. Tahar Moulay of Saida, Algeria
		Co-authors	MOHAMMED CHETIOUI, LAMIA SENASLI, MEHDI DAMOU
09:30– 10:30		Poster session 2 *& coffee break*	
10:30– 10:45	252	Compressive Spectrum Sensing for Cognitive Radio: Recovery and Detection	
		Participant	Hadj Abdelkader BENZATER
			Ecole militaire polytechnique, Alger
		Co-authors	DJAMEL TEGUIG, NACERREDINE LASSAMI
10:45– 11:00	95	Design and Performance Analysis of a High-Gain Coaxial Probe-Fed Fractal Antenna for Multiband Applications Using Sierpinski Triangle Geometry	
		Participant	ABDELBASSET AZZOUZ
			Dr. Moulay Taher University Saida
		Co-authors	RACHID BOUHMIDI, ABDELLATIF KHELIL
11:00– 11:15	67	Intelligent Recognition of Digital Modulation on Terahertz Channel	
		Participant	Asmâa OUESSAI
			University of Saida
		Co-authors	ABDELKADER TAMI, HACHEMI SOUMAYA, KOURAT IKRAM

FACE TO FACE CONFERENCE ORAL SESSION (Physical)

ROOM C: High Voltage Engineering and Applications

Session Chairmen	**Prof. Youcef BENMIMOUN** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Fouad KHERBOUCHE** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Toufik Ahmed HOUARI** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria	
	ID	
09:30– 09:45	138	**Analyzing Particles Trajectories in a Free-Fall Electrostatic Separator**
		Participant: Mohammed Fethi BEKKARA — University Mustapha Stambouli of Mascara
		Co-authors: A. BOUARGOUB, A. CHELIH, D. AZZEDDINE, H.A. AZZEDDINE, Y. BENMIMOUN
09:45– 10:00	81	**Experimental Study of Current Density and Electric Field at Various Temperatures in Electrostatic Precipitator**
		Participant: Hakim AIT SAID — University of Relizane
		Co-authors: ABDELKRIM LAIFAOUI, BOUZIANE MELIANI, MEZIANE KACI, NIHAD HEBBAR, MASSINISSA AISSOU, HAMOU NOURI
10:00– 10:15	64	**Multi objective particle swarm optimization with Selective harmonic elimination technique for neutral point clamped multilevel inverters**
		Participant: Nour El Houda GABOUR — University M'hamed Bougara Boumerdes
		Co-authors: EL GHALIA BOUDISSA, FATIHA HABBI, MOHAMED BOUNEKHLA

CLOSING CEREMONY

CONFERENCE POSTER SESSION 2

Session Chairmen	**Dr. Abdelkader BESSAKRA** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Isma HATRAF** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria
ID	

35	Planar Micro-Inductor Design for Stand-Alone Photovoltaic DC-DC Converter	
	Participant	Mokhtaria DERKAOUI National Higher School of Telecommunications & ICT of Oran
	Co-authors	YAMINA BENHADDA, AZZEDINE HAMID

36	Monolithic Micro-Transformer Magneto-Thermal Behaviour for MEMS	
	Participant	Mokhtaria DERKAOUI National Higher School of Telecommunications & ICT of Oran
	Co-authors	YAMINA BENHADDA, AZZEDINE HAMID

42	Design and Realization of Power Divider Using Microstrip Stubs Line	
	Participant	Rahmouna EL BOUSLEMTI Ecole Nationale polytechnique d'oran, Maurice audin
	Co-authors	

41	Real-Time Hardware and Software System for Assistance in Daily-life Mobility of Visually Impaired Individuals	
	Participant	Rahmouna EL BOUSLEMTI Ecole Nationale polytechnique d'oran, Maurice audin
	Co-authors	N. BENTYAEB, W. KROUCHI

46	Implementation of GA based selective harmonic elimination pulse width modulation for two level three phase inverters using DSPACE DS1104	
	Participant	Lemya DJAFER Hassiba Benbouali University of Chlef
	Co-authors	Rachid TALEB, Fayçal MEHEDI, Aicha AISSA BOKHTACHE

58	U-Net vs. TransUNet for Weed Segmentation: A Comparative Study	
	Participant	Mohamed El Amine BOUHADJER Djillali Liabes University Sidi Bel Abbes
	Co-authors	SARAH MAZARI, MILOUD CHIKRELMEZOUAR

66	Design of an All-Optical Half Adder Around 1.31 µm Based on Nonlinear 2DPhCRRs	
	Participant	Abdallah IKHLEF Abou Bakr Belkaid University of Tlemcen
	Co-authors	HADJIRA BADAOUI, MEHADJI ABRI

173	Study of the MWT (Metal Wrap Through) heterojunction solar cell with numerical simulation	
	Participant	Nadjet BENADLA Abou Bakr Belkaid University of Tlemcen
	Co-authors	

129	A Comprehensive Analysis of 433MHz Image Telemetry in Educational CubeSat Context
	Participant — Mohammed amine ZAFRANE University of Science and Technologies of Oran
	Co-authors — MILOUD BECHEHIMA, AHMED RAMZI HOUALEF
133	Simulation of Harmonic Perturbation for AC Impedance Measurement in a SOFC Cathode
	Participant — Ismail BENCHEBIBA University of Chlef
	Co-authors — MOHAMED MOSTEFAOUI, NEDJAR YAHIA MOUHAMED AMINE
26	Water Treatment Using a Kit Consisting of Two Identical Series Ozone Generators Powered by a Pv (Photovoltaic) System, Designed for Isolated Areas
	Participant — Souhila BOUDJELLA university Mustapha Stambouli of Mascara
	Co-authors — M NADJIB BRAHAMI, FATIMA Z BOUDJELLA, SAID NEMMICH, AMAR TILMATINE, MOSTEFA BRAHAMI
70	Investigating the impact of the receiver in protecting two wind turbines with different settings from lightning
	Participant — Younes ABDELBARI University of Tiaret
	Co-authors — MIMOUNI ABDENBI
116	Modeling and Optimization of an Industrial Roll-type Separator Using the Response Surface Methodology
	Participant — Djillali AZZEDDINE university Mustapha Stambouli of Mascara
	Co-authors — MOHAMMED FETHI BEKKARA, YOUCEF BENMIMOUN, HOCINE ABDELHAK AZZEDDINE
130	Analyzing Ozone Generation: An Experimental Study of Volume Dielectric Barrier Discharge Generators
	Participant — Ibrahim NEDJAR university Mustapha Stambouli of Mascara
	Co-authors — A. BENABBOUN, A. MOUFFAK, S. NEMMICH
144	Two-dimensional simulation of dielectric barrier discharge in argon gas at atmospheric pressure
	Participant — Nedjar Yahia Mohamed Amine Hassiba Ben bouali University of Chlef
	Co-authors — MOHAMED MOSTEFAOUI, ISMAIL BENCHEBIBA, DJILALI BENYOUCEF
147	Automatic Voltage Regulator of a Synchronous Generator by Using Fuzzy Logic
	Participant — Yassine ADJISSI Saad Dahlab University, Blida
	Co-authors — BOUDISSA EL-GHALIA, BOUNEKHLA M'HAMED
153	Efficiency and Sustainability in Public Transit: The Sidi Bel Abbès Tramway Line Extension and Energy Recovery System
	Participant — Houaria BELAHCENE university Mustapha Stambouli of Mascara
	Co-authors — O. DAHOU, A. MOUFFAK AND Y.I. DJILANI KOBIBI

192	Current Control for an Electrostatic Separator	
	Participant	Hocine Abdelhak AZZEDDINE university Mustapha Stambouli of Mascara
	Co-authors	MOHAMMED FATHI BEKKARA, DJILLALI AZZEDINE, YOUCEF BENMIMOUN, ABDELKADER HORCH, MOURAD HEBALI, BENAOUMEUR IBARI, DJAMEL EDDINE CHAOUCH, AHMED ARBAOUI

ROOM D: Control Systems, Robotics and Automation (VIRTUAL)

Session Chairmen	**Dr. Djamel Eddine CHAOUCH** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Adnane MOUFFAK** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Khatir TABTI** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Djillali AZZEDDINE** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria

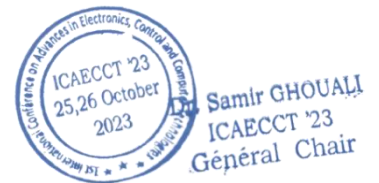|	ID	
09:00– 09:15	93	Neural Input Output Linearization Control of Induction Motor
		Participant: kheira MENDAZ — university Ain Temouchent
		Co-authors: YAMINA BENHADDA, NARIMENE KHADRAOUA
09:15– 09:30	146	Electronic Differential with Sliding Mode Backstepping Control for Vehicle Propulsion System
		Participant: Ahmed LARBAOUI — University Mustapha Stambouli of Mascara
		Co-authors: A.BENABBOUN, H. AZZEDINE, K. TABTI, A. ZOGGARET, D. CHAOUCH, Y.I. DJILANI KOBIBI, A. BERROUDJI, K. BOUHADEF
09:30– 09:45	99	Exploiting the Open-Source ROS Framework for Self-Governing Drone Flight Empowered by Artificial Intelligence
		Participant: Marwa GAIDI — University Mustapha Stambouli of Mascara
		Co-authors: SOUFYANE CHEKROUN, MOKHTAR ZERIKAT, MOHAMED EL MEHDI ZAREB
09:45– 10:45		**Poster session 2 & coffee break**
10:45– 11:00	106	Signal Processing-based Fault Detection
		Participant: Chaima TAMRABET — Badji Mokhtar University, Annaba
		Co-authors: ELIAS HADJADJ AOUL, MOHAMED TAHAR DEKHMOUCHE
11:00– 11:15	125	Integration and modeling thermal effect in Preisach model associated with the student distribution function using the finite element method
		Participant: Mourad DAFRI — Badji Mokthar University, Annaba
		Co-authors: MOURAD NAIDJI, ABDELAZIZ LADJIMI

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11:15– 11:30	135	**Hybrid GA-ANN model for the prediction of EV Wheel speeds**
		Participant	Medjdoub KHESSAM
			Center univ Naama
		Co-authors	HAZZAB ABDELDJEBAR, MOUNA HADJADJ, REZKALLAH MILOUD, AMBRISH CHANDRA
11:30– 11:45	168	**Simulation and control of energy storage systems in the hybrid renewable energies DC-Microgrid: a comparative study**
		Participant	Oussama HAFSI
			Ahmed Draia University, Adrar
		Co-authors	MOHAMED AMINE SOUMEUR, MOHAMED AMINE HARTANI, ABDESELEM CHAKAR, AISSA BENHAMOU, OTHMANE ABDELKHALEK
11:45– 12:00	174	**State Estimation for Nonlinear System Using Line Integral Lyapunov Function: A Polytopic Approach with Unmeasurable Premises**
		Participant	Khalida MIMOUNE
			university of Biskra
		Co-authors	KHALIDA MIMOUNE, MOHAMED YACINE HAMMOUDI, SOURI MOHAMED MIMOUNE
12:00– 12:15	202	**Fractional Order Adaptive MRAC Controller Design**
		Participant	Souad ANTEUR
			University Mustapha Stambouli of Mascara
		Co-authors	BACHIR BOUIADJRA ROCHDI, MOHAMMED BENMADANI DEBBAT
12:15– 12:30	62	**Ear recognition system based on multi-scale feature extraction technique**
		Participant	Lebed Toufik
			University of May 08, 1945 Guelma
		Co-authors	ABDELHAK BOUKHAROUBA

ROOM E: Electronics and its Applications (VIRTUAL)

Session Chairmen	**Prof. Abdelkader EL KEBIR** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Mourad HEBALI** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Menouer BENNAOUM** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Abdelkader BAGHDAD BEY** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria	
	ID	
09:00– 09:15	12	**Optimal Power Flow Solution using QPSODM Algorithm**
		Participant	Mourad NAIDJI
			Badji Mokthar University, Annaba
		Co-authors	MOURAD DAFRI, ABDELBASET LAIB
09:15– 09:30	13	**A novel approach for wind farm layout optimization using QPSODM algorithm**
		Participant	Mourad NAIDJI
			Badji Mokthar University, Annaba
		Co-authors	MOURAD DAFRI

09:30– 09:45	30	**Thermal Analysis and Heat Sink Optimization for Power Transistor Cooling**
		Participant	Yamina BENHADDA USTO, Oran
		Co-authors	K. MENDAZ, M. DERKAOUI, H. KHARBOUCH

09:45– 10:45		**Poster session 2 & coffee break**

10:45– 11:00	52	**High Transmission Dielectric Grating at the Littrow Angle Using Antireflection Coating in the Visible Spectral Range**
		Participant	Mounira ZOUTAT University of Sciences and Technology Houari Boumediene
		Co-authors	BERBAR TARIK BOUZIAN

11:00– 11:15	137	**Contribution to the Study of the Electrical Behavior of an 1T- 1C-DRAM Memory Cell in 250nm CMOS (3C-SiC) Technology**
		Participant	Jilali BERBARA Tissemsilt University
		Co-authors	MOURAD HEBALI, MOHAMMED EL-AMIN BEYOUR, MILOUD ABBOUN ABID, DJILALI CHALABI

11:15– 11:30	188	**A New Design of Non-Causal Recursive Digital Filters with a backward-forward realization for both Standard and Non-standard Magnitude Specifications**
		Participant	Adnane MOUFFAK University Mustapha Stambouli of Mascara
		Co-authors	HAZZAB ABDELDJEBAR, MOUNA HADJADJ, REZKALLAH MILOUD, AMBRISH CHANDRA

11:30– 11:45	200	**Compact modeling of I-V characteristics in AlxGa1- xN/GaN HEMTs**
		Participant	Nawel KERMAS Tiaret university
		Co-authors	Driss BOUGUENNA

11:45– 12:00	220	**Device Performance of AlGaN/AlN/GaN MIS HEMTs with La2O3 high κ as Gate Dielectric Insulator Layer**
		Participant	Khaled HEBALI University Mustapha Stambouli of Mascara
		Co-authors	DRISS BOUGUENNA, ABBES BELOUFA

12:00– 12:15	3	**Study of the Energy Levels in The Structure of The Laser Diode GAINP/ALGAINP**
		Participant	Abdelali LAID Sidi Bel Abbes University
		Co-authors	ABID HAMZA

12:15– 12:30	118	**Modeling and numerical simulation of a of Eco-Friendly CH3NH3SnI3-based Perovskite Solar Cell by the SCAPS1-D simulator**
		Participant	Selma RABHI University of Medea
		Co-authors	ABDLEHADI SLAMI, FATIMA ZAHRA SAIDOUNE, KARIMA DADDA

12:30– 12:45	402	**PANI/ZnO for Optical Applications: Synthesis and Characterization**
		Participant	Faiza CHOULI University Mustapha Stambouli of Mascara
		Co-authors	ABDELGHANI BENYOUCEF, SAMIA DAIKH, AMINA BEKHOUKH

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ROOM F: Biomedical Engineering (VIRTUAL)		
Session Chairmen	**Dr. Ibrahim Farouk BOUGUENNA** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Khadidja GOUIZI** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Ahmed BOUDAA** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Abderrahmane LOUNI** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria	
	ID	
09:00– 09:15	57	ECG-Based Biometric System using TinyML: Implementation and Performance Evaluation on ESP32
		Participant — Hatem ZEHIR *Badji Mokthar University, Annaba*
		Co-authors — TOUFIK HAFS, SARA DAAS
09:15– 09:30	102	Gender, Age, and Anthropometric Influences on Rotatory Angles in Load Lifting
		Participant — Ali Khan MOAZZAM *Ziauddin University, Pakistan*
		Co-authors — MYRA ASLAM QURESHI
09:30– 09:45	104	Deep Learning System for Automatic Skull Stripping of Human Brain MRI
		Participant — Abdelhai LATI *University of Kasdi Merbah Ouargla (UKMO)*
		Co-authors — ZAKARIA MOKADEM, DJALILA BELEKBIR, DJIHENE NECIB AND RAYANE DJABOUREBBI
09:45– 10:45		**Poster session 2 & coffee break**
10:45– 11:00	134	A new MRI Brain Tumor Detection and Segmentation approach based on a combination of Thresholding and Generalized Gaussian Mixture Model-EM algorithm
		Participant — Khalil Ibrahim LAIREDJ *University of DJillali Liabes, Sidi Belabes*
		Co-authors — AMINA BAGDAOUI, SID AHMED BOUCENNA, ZOUAOUI CHAMA
11:00– 11:15	148	Cancerous Regions Extraction by Segmentation of Medical Images
		Participant — Abdellatif BOUZID-DAHO *University of TIZI OUZOU*
		Co-authors — Patrick SIARRY
11:15– 11:30	152	Voice pathology detection along feature distribution and normal distribution Study case: Parkinson disease
		Participant — Djamila MEGHRAOUI *University of Science and Technology Houari Boumediene*
		Co-authors —
11:30– 11:45	163	Efficient Statistical Approach for Combining Multimodal Images Using Wavelet Transform
		Participant — Abdallah BENGUEDDOUDJ *University of bordj bou arreridj*
		Co-authors — MERWAN SAAD SAOUD, TAREK BENSIDHOUM

Time	ID	Title / Details
11:45– 12:00	170	**Internet of Things based Approach for Detecting Diabetes using Deep Learning Models**
		Participant Messaoud HAMEURLAINE — Tissemsilt Univesrsity
		Co-authors
12:00– 12:15	6	**Facial kinship Verification using Siamese Neural Network**
		Participant Abdelhakim CHERGUI — Ouargla University
		Co-authors NOUR EL HOUDA BOUAKAL, BRAHIM MELLAH, MESSAOUD HETTIRI, SALIM OUCHTATI
12:15– 12:30	40	**Muscle movement detection**
		Participant Fatima Ezahraa BARKAT — Oran1 Ahmed Ben Bella University
		Co-authors DJAMILA BOUBEKEUR, MOHAMMED EL AMINE CHERIET
12:30– 12:45	300	**Development of GaN MOS-HEMTs transistors-based biosensors for the detection of a novel SARS-Cov-19 Virus**
		Participant Faiza MOUFFOKI — University Mustapha Stambouli of Mascara
		Co-authors Driss BOUGUENNA
12:45– 13:00	157	**Detection of Spasmodic Dysphonia Voice Pathology using Deep Learning**
		Participant Nardjes MERZOUGUI — University Badji Mokhtar Annaba
		Co-authors MOHAMED CHERIF AMARA KORBA, FETHI AMARA

ROOM G: HIGH VOLTAGE ENGINEERING AND APPLICATIONS (VIRTUAL)

Session Chairmen	**Dr. Youcef Islam DJILANI KOBIBI** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Moulay Idriss CHERGUI** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Mohammed Fethi BEKKARA** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Maamar YAHIAOUI** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Hocine BOUCHEKARA** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria

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09:15– 09:30	61	Utilizing Convex Optimization for State and Unknown Input Estimation in Polytopic Models
		Participant — Khalida MIMOUNE — *University of Biskra*
		Co-authors — MOHAMED YACINE HAMMOUDI, SOURI MOHAMED MIMOUNE
09:30– 09:45	83	Dual-Stage Grid Connected Boost-Modular Multilevel Converter with MPPT Fuzzy Logic Controller for Solar System
		Participant — Imane ALIA — *Ziane Achour University, Djelfa*
		Co-authors — IMAD MERZOUK
09:45– 10:45		**Poster session 2 & coffee break**
10:45– 11:00	86	Application of Deep Learning and Markov Chains Approachs for ICS security in Smart Grids based zero trust model
		Participant — Nousseiba GUERGOURI — *University of Constantine 2 Abdelhamid Mehri*
		Co-authors — NABIL SAHLI, MOHAMED BENMOHAMMED, LYES KHOUKHI
11:00– 11:15	100	Fuzzy Logic and Neural Network Control of Unified Power Flow Controller Systems (UPFC)
		Participant — Benyekhlef LAROUCI — *University Kasdi Merbah Ouargla*
		Co-authors — AYAD AHMED NOUR ISLEM
11:15– 11:30	110	Enhancing the Potential of PEMFC EVs with Cutting-Edge FOPI Control based PDO Algorithm for a Three-Phase Interleaved Boost Converter
		Participant — Salah OKBA — *University of Biskra*
		Co-authors — RAMZI SAADI, MOHAMED YACINE HAMMOUDI, WAIL HAMDI AND ABIR BETKA
11:30– 11:45	155	Influence of the ADALINE extraction method with the fuzzy hysteresis band technique applied to the UPQC filter under DC bus fuzzy control
		Participant — Noureddine KHENFAR — *Djillali Liabes University, Sidi Bel-Abbes*
		Co-authors — ABEDLHAFID SEMMAH, SIHAM KHELIFA
11:45– 12:00	204	Analysis of Grid-tied Fuel Cell System with Synchronous Reference Frame Control
		Participant — Yahia FOUGHALI — *University of Saida*
		Co-authors — Mohamed MANKOUR, Mhamed SEKOUR

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Samir GHOUALI
ICAECCT '23
Général Chair

12:00– 12:15	7	Finite Element Modelling of Electric Field Distribution in Point- Barrier-Plane Air Gaps under Positive Lightning Impulse Voltage: Based on Experimental Tests	
		Participant	Mohamed Abdelghani BENZIADA Ecole Nationale Polytechnique d'Alger
		Co-authors	AHMED BOUBAKEUR, ABDELOUAHAB MEKHALDI

ROOM H: E-poster Session (VIRTUAL)

Session Chairmen	**Dr. Hocine Abdelhak AZZEDDINE** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Benameur AFIF** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Attaouia BENTAHAR** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria **Dr. Isma HATRAF** Faculty of Sciences and Technology University Mustapha Stambouli of Mascara, Algeria

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Topic 1: Control Systems, Robotics and Automation

09:00– 09:10	69	Chaotic Blended Biogeography-Based Optimization for Parameter Estimation of Induction Machine	
		Participant	Naas DIF University of Djelfa
		Co-authors	EL-GHALIA BOUDISSA, FATIHA HABBI, MOHAMED BOUNEKHLA

09:10– 09:20	79	Enhancing the Power Quality of Grid-Connected Wind Systems through Multicell Converters	
		Participant	Karim BELALIA University of Relizane
		Co-authors	ABDELKADER MOSTEFA, SOFIANE MIHOUBI, HOUARI MERABET BOULOUIHA

09:20– 09:30	160	Backstepping Control of a Direct Driven PMSG wind Turbine	
		Participant	Hamid AOUDJEREGBA University Mustapha Stambouli of Mascara
		Co-authors	AHMED TAHOUR

09:30– 09:40	254	Employ the Adaptive Neuro-Fuzzy inference system ANFIS for Improve the Direct Torque Control	
		Participant	Abdelhaq LAOUFI University Mustapha Stambouli of Mascara
		Co-authors	MOULAY-IDRISS CHERGUI, SOUFYANE CHEKROUN

09:45– 10:45	Poster session 2 & coffee break

Topic 2: Electronics and its Applications

10:45– 10:55	27	Thermal Simulation in Intertwined Planar Micro-Transformer	
		Participant	Yamina BENHADDA USTO, Oran
		Co-authors	M. DERKAOUI, K. MENDAZ, H. KHARBOUCH

11:05– 11:15	35	Integrated Octagonal On-Chip Inductor in DC-DC Buck Converter for Photovoltaic Applications	
		Participant	Mokhtaria DERKAOUI National Higher School of Telecommunications & ICT of Oran
		Co-authors	YAMINA BENHADDA, AZZEDINE HAMID
11:15– 11:25	36	Monolithic Micro-Transformer Magneto-Thermal Behaviour for MEMS	
		Participant	Mokhtaria DERKAOUI National Higher School of Telecommunications & ICT of Oran
		Co-authors	YAMINA BENHADDA, AZZEDINE HAMID
11:25– 11:35	37	Using spectroscopic ellipsometry to extract the electrical properties of AZO thin films deposited by DC reactive sputtering in various temperature	
		Participant	Toufik DIB University of Jijel
		Co-authors	BOUBEKEUR BIROUK

Topic 3: Telecommunications and its Applications

11:35– 11:45	92	Localization of Mobile Robots with Global Position System Sensor	
		Participant	Wahiba MENASRI University of Yahia Farès Médéa
		Co-authors	AMINA YAHIA, ABDELKADER MORSLI, MOHAMED LAMINE MOUHOUBI, AKIL BATTACHE, ABDEREZZAK GACEMI
11:45– 11:55	154	An Ultrathin Metamaterial Absorber for Conformal Applications at Ka Frequency Band	
		Participant	Ghada MEBARKI University of Tlemcen
		Co-authors	NAIMA BENMOSTEFA
11:55– 12:05	87	An IoT-based System to Control the Greenhouse's Microclimate	
		Participant	Noureddine SEDDIKI University of tahri Mohamed Bechar
		Co-authors	KAMAL ABDELMADJID MOKEDDEM

Topic 4: Biomedical Engineering

12:05– 12:15	98	Application Crow Search Algorithm (CSA) with the Empirical Mode Decomposition (EMD) method on Phonocardiogram (PCG) signals for Efficient Noise Suppression	
		Participant	Mohamed ROUIS University of Djilali Bounaama-Khemis Miliana
		Co-authors	SALIM SBAA, AYOUB TAALLAH, BOUNIF AOUDA
12:25– 12:35	165	ANN for Medical Image Denoising	
		Participant	Nail ALAOUI University ZIANE Achour de Djelfa
		Co-authors	SOFIAN KIRECH, RANIA IBTISSEM BENMLOUKA, SOUAD KSENNA, LAKHDAR BOUHAMLA, ABDALLAH AZZOUZ

Topic 5: High Voltage Engineering and Applications

| 12:35– 12:45	259	Multiphysics Simulation of Submicron Particle Behaviour Inside a Novel Multicylinder Electrostatic Precipitator (MCESP)	
		Participant	Fouad Kherbouche University Mustapha Stambouli of Mascara
		Co-authors	

The Venue

MASCARA, ALGERIA

ABOUT

Mascara (Arabic: معسكر, romanized: Muʿaskar) is the capital city of Mascara Province. It has 150,000 inhabitants (2008 estimate). It was founded in the 10th century by the Banu Ifran, a Berber tribe and was the capital city of Emir Abd al-Qadir, a leader of the Algerian resistance to early French colonial rule. Mascara is an administrative, commercial and a market centre. Its trade is mostly centered on leather goods, grains, and olive oil, but it is especially famous for its good wine. It has good road and rail connections with other urban centres of Algeria. Relizane is 65 kilometres (40 miles) northeast, Sidi Bel Abbes 90 km (56 mi) southwest, Oran 105 kkm northwest and Saïda 80 km (50 mi) south.
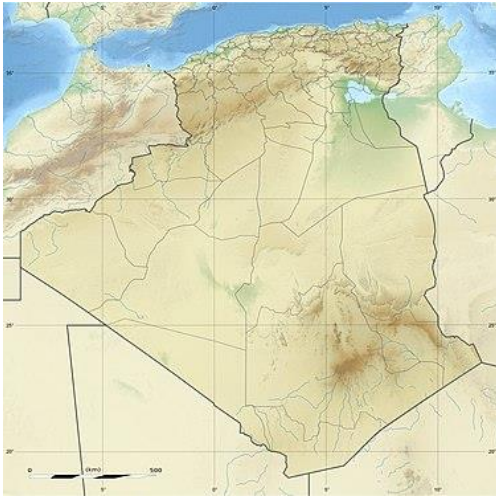
EMIR ABDELKADER

Abdelkader ibn Muhieddine (6 September 1808 – 26 May 1883; Arabic: عبد القادر ابن محي الدين ʿAbd al-Qādir ibn Muḥy al-dīn), known as the Emir Abdelkader or Abdelkader El Hassani El Djazairi, was an Algerian religious and military leader who led a struggle against the French colonial invasion of Algiers in the early 19th century. As an Islamic scholar and Sufi who unexpectedly found himself leading a military campaign, he built up a collection of Algerian tribesmen that for many years successfully held out against one of the most advanced armies in Europe.

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