



2023 IEEE International Conference on Artificial Intelligence & Green Energy

12-14 October, 2023, Sousse-Tunisia

Scientific Program

	Thursday, October 12, 2023	Friday, October 13, 2023	Saturday, October 14, 2023							
08:00	Welcome and Registration	Welcome and Registration	Welcome and Registration	08:00						
9:00		Plenary Session 2 Room1	Plenary Session 3 Room1	9:00						
9:10	Opening Ceremony				9:00					
09:45	Room1			Room1	9:45					
10:00	Plenary Session 1	Oral Session 10	Oral Session 11	Oral Session 16	Oral Session 17	Oral Session 18	10:00			
		TT: AIEA4	TT: RESG4	TT: ESAPD	SS: MLDLOT SD	SS: DASESS	10:15			
		Room 2	Room 3	Room1	Room 2	Room 3	10:30			
							10:45			
11:00							11:00			
	Coffee Break		Coffee Break		Coffee Break					
11:30	Oral Session 1	Oral Session 2	Oral Session 3	Session 12 Remotely	Oral Session 13	Oral Session 14	Oral Session 16+	Oral Session 17+	Oral Session 18+	11:30
11:45	TT: AIAES1	TT: AIEA1	TT: RESG 1		TT: AIEA5	TT: RESG 5	TT: ESAPD	SS: MLDLO TSD	SS: DASESS	11:45
12:00	Room 1	Room 2	Room 3	Room 1	Room 2	Room 3	Room 1	Room 2	Room 3	12:00
12:15										12:15
12:30							Closing ceremony			12:30
12:45							Room1			12:45
	Lunch		Lunch		Lunch					
14:30	Oral Session 4	Oral Session 5	Oral Session 6	Session 15 Remotely						
14:45	TT: AIEA2	SS: RFADS1	TT: RESG 2							
15:00	Room 1	Room 2	Room 3	Room 1						
15:15										
15:30										
	Coffee Break									
16:00	Oral Session 7		Oral Session 9							
16:15	TT: AIEA3		TT: RESG3							
16:30	Room 1		Room 3							
16:45										
17:00										

TT: Technical Track

SS: Special Session

AIAES: Artificial Intelligence for Automation of Energy Systems

AIEA: Artificial Intelligence for Engineering Applications AIEA

RESG: Renewable Energy and Smart Grids

RFADS: Reliability and Failure Analysis of Devices and Systems

ESAPD: Embedded Systems: Architecture, Programming and Design

DASESS: Data Analytics, Smart Energy and Storage Systems: Survey of Technologies, Techniques, and Applications

MLDLOTSD: Machine Learning, Deep Learning and Optimization Techniques for Sensor Devices

Day 1: Thursday, October 12, 2023

Plenary Session 1

Title: ICT social responsibility

Speaker: Khaled Ghdira

Thursday, October 12, 2023 (10h-11h)

Room 1

Chair: Nizar Rokbani

Oral Session 1

Technical Track: Artificial Intelligence for Automation of Energy Systems (AIAES 1)

Thursday, October 12, 2023 (11h30-12h45)

Room 1

Chairs: Abdelaziz Zaidi

Mohamed Ali Belaid

ID 116: An EMC Study for Renewable Energy Applications using AI algorithms

Bessem Zitouna, Mohamed Tlig, Sassia Hedia and Jaleleddine Ben Hadj Slama

ID 145: Genetic algorithms based optimal sizing of an off-grid solar Photovoltaic system

Maryem Mallat, Olfa Bel Hadj Brahim Kechiche, Mamhmoud Hamouda

ID 72: Modeling and Simulation of a Two-Phase Interleaved Boost Converter for Photovoltaic Applications

Yasmine Gaaloul, Olfa Bel Hadj Brahim Kechiche, Mahmoud Hamouda

ID 96: Modeling and Optimization of GAAFET Transistor using Taguchi approach and Artificial Neural Network (ANN)

Nuha Al Harbi, Maissa Belkhiria, F. Echouchene

ID 6: Bond Graphs and Bayesian Networks based fault diagnosis: Application to a photovoltaic power supply

Abdelaziz Zaidi, Zied Ben Ismail

Oral Session 2

Technical Track: Artificial Intelligence for Engineering Applications (AIEA 1)

Thursday, October 12, 2023 (11h30-12h45)

Room 2

Chairs: Nizar Rokbani

Samir Belaid

ID 38: Alzheimer's disease classification using deep learning.

Ftoutou Anouar, Nesrine Majdoub, Taoufik Ladhari

ID 115: Deep Real-Time Cardiac Diagnostic Decision Support System

Tiorna SORO, Samir BELAID, Jamel HATTAY, Housseem THABET

ID 36: Application of Machine Learning in Agriculture the Reference Evapotranspiration Model Prediction

Intissar Khoja, Basma Latrech, Asma Lasram, Taoufik Ladhari, Faouzi M'sahli, Anis Sakly

ID 62: Reinforcement Learning-Based Path Planning Approach for Unmanned Aerial Vehicles

Raja Jarray and Soufiene Bouallègue

ID 143: Artificial Intelligence for an Hour-ahead Photovoltaic Output Power Forecasting

Walid Mchara, Mohamed-Abdellatif Khalfa, Lotfi Khemissi

Oral Session 3

Technical Track: Renewable Energy and Smart Grids (RESG 1)

Thursday, October 12, 2023 (11h30-12h45)

Room 3

Chairs: Carlo Cecati

Concettina Buccella

ID 60: Review and Discussion of Recent Codes for Inverter-Based RESs and PPMs under Grid Voltage Sag Conditions

Fathia Letaief, Mahmoud Hamouda, Kamal Al-Haddad

ID 5: Improving energy quality of a hybrid renewable energy system wind-photovoltaic connected to the grid

Walid Saad, Nihel Khemiri, Adel Khedher

ID 98: Enhanced SVSF for SoC estimation of lithium-ion batteries

Meriem Ben Lazreg, Sabeur Jemmali, Bilal Manai, Mahmoud Hamouda

ID 105: Artificial Neural Network PI-based Compensator for DC-link Current Control in Grid-Connected Photovoltaic Current Source Inverter

Kawther Ezzeddine, Radhia Chibani, Mahmoud Hamouda, Hadi Y. Kanaan and Kamal Al-Haddad

ID 123: Analysis of the effect of segmentation on TEG's performance

Ghada Ben Abdallah, Sonia Besbes, Habib Ben Aissia

Oral Session 4

Technical Track: Artificial Intelligence for Engineering Applications (AIEA2)

Thursday, October 12, 2023 (14h30-15h30)

Room 1

Chairs: Samir Belaid

Nizar Rokbani

ID 107: 3D Path Planning of Autonomous Underwater Vehicles Using a Rapidly-exploring Random Trees Algorithm

Ali Arifi, Julien Lepagnet, Soufiene Bouallègue, Laetitia Jourdan

ID 82: Using Real-Time User Activity Fingerprinting for Smart Continuous Authentication

Charles R Barone IV, Mohamad Nassar, Mehdi Mekni

ID 108: Comparison of A* and D* Algorithms for 3D Path Planning of Unmanned Aerial Vehicles

Samah Chattaoui, Raja Jarray, Soufiene Bouallègue

ID 117: Simulated Annealing for the Green Share-A-Ride Problem

Elhem Elkout, Housseem Eddine Nouri, Olfa Belkahla

Oral Session 5

Special Session: Reliability and Failure Analysis of Devices and Systems (RFADS 1)

Thursday, October 12, 2023 (14h30-15h30)

Room 2

Chairs: Mohamed Ali Belaid
Abdelaziz Zaidi

ID 11: Nonlinear fault-tolerant control of an aerial four-rotor vehicle

Hajer Mlayeh, Atef Khedher

ID 32: Modeling of discrete event systems by hybrid Petri nets with the counter approach

Khouloud Soltani, Hajer Mlayeh, Atef Khedher

ID 91: Diagnosis and State Estimation of Discrete Events systems modeled by P-timed Petri net

Affi Sameh, Atef Khedher

ID 17: Accommodation of Nonlinear Systems Affected by Simultaneous and Successive Failures

Hajer Mlayeh, Atef Khedher

Oral Session 6

Technical Track: Renewable Energy and Smart Grids (RESG 2)

Thursday, October 12, 2023 (14h30-15h30)

Room 3

Chairs: Carlo Cecati
Concettina Buccella

ID 110: Novel MPPT technique for a Variable Speed Wind Turbine Generator based on Fuzzy Logic Control

Mouna BEN SMIDA, Anis SAKLY

ID 42: Wind Site Selection Using GIS and MCDM Approach under Fuzzy Environment: A Tunisian Case Study

Sassi Rekik, Souheil El Alimi

ID 23: Efficient Power Harvesting: Exploring MPPT Techniques for PV Systems

Sana Toumi, Mohamed Benbouzid, Mohamed Faouzi Mimouni

ID 24: ANN based control of MPPT in a PV system

Mohamed Ali Chemkhi, Wahid Souhail, Hedi Khammari

Oral Session 7

Technical Track: Artificial Intelligence for Engineering Applications (AIEA3)

Thursday, October 12, 2023 (16h-17h)

Room 1

Chairs: Nizar Rokbani
Abdelaziz Zaidi

ID 94: Land Suitability Mapping for Large-scale Solar PV Farms In Tunisia Using A GIS-Based MCDM Approach

Sassi Rekik, Souheil El Alimi

ID 40: Synthesis of observers for the three-tank system

Ahlem NASR, Intissar KHOJA, Taoufik LADHARI, Salim HADJ SAID

ID 43: Fuzzy Super-Twisting Observer for State Estimation of Induction Motor

Nada Haj Ammar, Intissar Khoja, Faouzi M'sahli

ID 56: Adaptive Sliding Mode Control of Constrained Quadruped Robot

Nacereddine Djelal, Abdelhak Ouanane, Isma Boudouane and Nadia Saadia

ID 90: Vision-Based Drone Recognition Using a YOLOv5-like Deep Learning Network

Raja Jarray and Soufiene Bouallègue

Oral Session 9

Technical Track: Renewable Energy and Smart Grids (RESG 3)

Thursday, October 12, 2023 (16h-17h)

Room 3

Chairs: Hadi Y. Kanaan

ID 3: Didactic bench for the characterization of photovoltaic cells

H Khaterchi, MA Zeddini, Y Trimech and M. Khaterch

ID 46: A Study of Magnetic Parameters in the Performance and Stability of a Blade-Installed Energy Harvester

Farouk Thaljaoui, Mohamed Trabelssi, Molka Hili Chiboub

ID 141: Principal Challenges for Designing an Efficient Wireless Power Transfer for Electric vehicles

Yosra Ben Fadhel, Kamal Al-Haddad

ID 142: Modeling and Control of a Grid-Connected Photovoltaic System

Olfa Bel Hadj Brahim Kechiche, Maryem Mallat

ID 124: Impact of renewable energies integration into the smart grid in Tunisia

Mejri A., Lamia B. and Cherif A

Day 2: Friday, October 13, 2023

Plenary Session 2

Title: Advanced Power Electronics for Grid-Connectivity Applications

Speaker: Hadi Y. Kanaan

Friday, October 13, 2023 (9h-9h45)

Room 1

Chair: Carlo Cecati

Oral Session 10

Technical Track: Artificial Intelligence for Engineering Applications (AIEA4)

Friday, October 13, 2023 (10h-11h)

Room 2

Chairs: Fares Bouriachi

Boudour Ammar

ID 109: Social Network Optimization for Electric Vehicles Charging Stations deployment

Francesco Grimaccia, Sonia Leva, Alessandro Niccolai, Babak Ranjgar, Silvia Trimarchi

ID 99: Performance Evaluation of Traffic Signal Control Methods in Algiers City, Algeria: A Real-World Study Utilizing RESCO Benchmark Algorithms

Fares BOURIACHI, Nacerddine DJELAL, Abdelhak OUANANE, Maria MESSADI, Imene MEHEZEM and NAIDJA Halima

ID 47: Improving Energy Consumption Efficiency and Environmental Sustainability through Smart Traffic Control Adaptation

Tarek Othmani, Samia Boubaker, Ferid Rehim, Souheil El Alimi

ID 144: Precise Deep Learning model for predicting the transport properties of nanofluids applied to enhancing performance of thermal energy system

Lotfi Snoussi, Olfa Fakhfakh, Mohamed Ibn Khedher

Oral Session 11

Technical Track: Renewable Energy and Smart Grids (RESG 4)

Friday, October 13, 2023 (10h-11h)

Room 3

Chairs: Abderrahmane Ziani

Boudour Ammar

ID 35: A GIS-Based MCDM Approach for Selecting Optimal Solar-Wind Locations In Southwestern Tunisia, Kebili Region

Sassi Rekik, Souheil El Alimi

ID 44: Machine Learning and Deep Learning for Wind Power Forecasting

Imed Khabbouchi, Imen Ben Salem, Mohamed Sadok Guellouz, Uwe Ritschel

ID 29: Prospect of Wind Power at the Saharan Agricultural Pole of El-Oued Region, Algeria

Brahim Taoussi, Fatima Zohra Ben Seghiér, Sidi Mohammed Boudia

ID 118: Deep CNN-LSTM autoencoder for Solar Irradiation Prediction

Ghizlene Cheikh, Naourez Ben Hadj, Boudour Ammar, Kamil Amine Bentounes, Hadj Adda Bentounes, Arezki Larbi

Oral Session 12: Remotely

Friday October 13, 2023 (11h30-12h45)

Room 1

Chairs: Nizar Rokbani
Ahlem Aboud
Kawther Ezzedine

ID 121: One sided GaN-based buck converter layout optimization by minimizing power loop parasitics and considering heat dissipation efficiency.

Mohamed BELGUIETH, Sonia ELOUED, Moncef KADI, Jaleddine BEN HADJ SLAMA

Technical Track: Electric Vehicles and Energy Storage Systems (EVES)

Remote presentation from: France

ID 139: Statistical Approach for fault Detection And Isolation In A Three Level NPC Inverter

Cheikhna Mahfoudh Ahmed Taleb, Jaleddine Ben Hadj Slama, Othman Nasri, Mamoudou Ndongo

Technical Track: Reliability and Failure Analysis of Devices and Systems (RFADS 2)

Remote presentation from: Mauritania

ID 61: Artificial neural network modeling for an optimization the high efficiency In_{0.2}Ga_{0.8}N/GaN MQW solar cell at high temperature

Bilel Chouchen, Intissar Khoja, Taoufik Ladhari

Technical Track: Track: Artificial Intelligence for Engineering Applications (AIEA6)

Remote presentation from: France

ID 49: Alzheimer's disease detection based on features level selection for CNN-SVM combination

Mohamed Amine Zayene, Hend Basly, Fatma Ezahra Sayadi

Technical Track: Artificial Intelligence for Engineering Applications (AIEA3)

Remote presentation from: France

Oral Session 13

Technical Track: Artificial Intelligence for Engineering Applications (AIEA5)

Friday, October 13, 2023 (11h30-12h45)

Room 2

Chairs: Boudour Ammar

Lamia Rzouga

ID 69: Comparative Study of Enhanced Methods for Intelligent Segmentation of Brain Tissue in 3D/2D MRI Brain Images through Multiple Thresholding

Wafa GTIFA, Marwa FRADI, Anis SAKLY, Mohsen Machhout

ID 10: Implementation of face detection Using OKAO Vision technology for NAO robot System

Gharbi Moataz, Chiha Ibtissem, Laadhari Taoufik

ID 133: End to End Neural Network Application for Ultrasonic Computed Tomography Image Recognition

M. Fradi, Wafa Gtifa, E. Zahzah, M. Machhout, Sakly Anis

ID 68: Real-Time YOLOv7 Based Smart Light Control System

dheeraj Bharti; Nitin Vedwal; Badal Singh; Avni Agarwal; K. S. Venkatesh

Oral Session 14

Technical Track: Renewable Energy and Smart Grids (RESG 5)

Friday, October 13, 2023 (11h30-12h45)

Room 3

Chairs: Hadi Y. Kanaan

ID 129: HIL-based Digital Twin of Grid-connected Prosumer of a LVAC Residential Microgrid

Sonia Moussa, Ilhem Slama-Belkhodja

ID 131: Power Quality Issues Investigation Based on Laboratory-Scale Microgrid Platform

Hiba Helali, Sonia Moussa, Ilhem Slama-Belkhodja

ID 45: Water characteristics influence on green hydrogen production

Selma Zenati, Hocine Moulai, Abderrahmane Ziani, Leia Hamlaoui

ID 37: MPPT Control of Photovoltaic Panel Based On Artificial Neural Network

Yakhlef Riheb, Bchir Riadh, Khoja Intissar and Taoufik Ladhari

ID 100: Electromagnetic Analysis and Electrical Signature Based Detection of Stator Asymmetries in Permanent Magnet Synchronous Generators

D. Kouchih , R. Hachelaf, M. Tadjine, M.S Boucherit

Oral Session 15: Remotely

Friday October 13, 2023 (14h30-15h30)

Room 1

Chairs: Nizar Rokbani
Hadi. Y. Kanaan
Kawther Ezzedine

ID 137: GA-NN and PSO-NN for medical images classification, a comparative analysis

Hussain K. Ibrahim, Nizar Rokbani, Ali Wali and Adel M. Alimi

Technical Track: Artificial Intelligence for Automation of Energy Systems (AIAES6)

Remote presentation from: Iraq

ID 18: Fault detection in a Photovoltaic plant using Park's vector approach

Ismail Nasri, Walid Touti, Samira Ben Salem, Mansour Hajji, Khmais Bacha

Technical Track: Renewable Energy and Smart Grids (RESG 6)

Remote presentation from: Canada

ID 130: Analysis of Hosting Capacity and Power Quality in a Distribution Line with a Photovoltaic Installation: A Case Study

Salma Bennai, Afef Bennani-Ben Abdelghani, Ilhem Slama-Belkhodja, Mahrane Khalfoun

Technical Track: Renewable Energy and Smart Grids (RESG6)

Remote presentation from: USA.

ID 87: An Intelligent RL-based Scheduler to Control Flooding in a Renewable Energy powered Automatic Water Dam control system

Prishita Ray, Geraldine Bessie Amali D.

Technical Track: Artificial Intelligence for Engineering Applications (AIEA6)

Remote presentation from: USA

ID 64: Improvement of the precision of a two-degree-of-freedom manipulator arm PID controller

Ousaadi Zahira, Akroum Hamza, Benousaad mourad, Nadia Saadia, Amar Ramdane-Chérif

Technical Track: Embedded Systems: Architecture, Programming and Design (ESAPD1)

Remote presentation from: Algeria

Day 3: Saturday, October 14, 2023

Plenary Session 3

Title: Energy Communities for the Energy Transition

Speaker: Pierluigi Sciano

Saturday, October 14, 2023 (9h-9h45)

Room 1

Chair: Hadi Youssef Kanaan

Oral Session 16

Technical Track: Embedded Systems: Architecture, Programming and Design (ESAPD)

Saturday, October 14, 2023 (10h-11h)

Room 1

Chairs: Imen Warda Swissi

Randa Khemiri

ID 21: Leveraging AIoT for Advanced Quality Control in Production Lines

Mohamed Yanis Hiou, Hamza Akroum

ID 14: Development of an Interactive Simulator for Cognitive Rehabilitation

Litissia Medgueb, Amel Smaili, Nouara Achour, Abdel Ghani Daoudi, M.Z Amrani, Selmane Derder

ID 55: Portable Fall Detection System Using a Triaxial Accelerometer Based on a Thresholds Algorithm

Isma Boudouane, Amina Makhlouf, Nacereddine Djelal, Nadia Saadia, Amar Ramdane-Chérif

ID 88: Co-Design of SIMON Lightweight Block Cipher Algorithm on an FPGA

Wajih El Hadj Youssef, Ali Abdelli, Fehmi Kharroubi, Mohsen Machhout

Oral Session 16+

Technical Track: Embedded Systems: Architecture, Programming and Design (ESAPD)

Saturday, October 14, 2023 (11h30-12h30)

Room 1

Chairs: Imen Warda Swissi

Randa Khemiri

ID 93: Experimental Results of Nonlinear Model-Based Predictive Controller for the Qbot2e Differential Drive Mobile Robot

Benchouche Welid, Mellah Rabah

ID 89: A New Chaotic Symetric Key Stream Cipher for Image Security in the Internet of Things

Wajih El Hadj Youssef, Ali Abdelli, Fehmi Kharroubi, Mohsen Machhout

ID 101: The impact of the threshold values on the CNN partition approach in the VVC standard

Bouthaina Abdallah, Fatma Belghith, Mohamed Ali Ben Ayed, Nouri Masmoudi

Oral Session 17

Special Session: Machine Learning, Deep Learning and Optimization Techniques for Sensor Devices
(MLDLOTSD)

Saturday, October 14, 2023 (10h-11h)

Room 2

Chairs: Fraj Echouchene

Houcine Barhoumi

Sameh Kaziz

ID 75: Taguchi method - Artificial Neural Network Approach for the Optimization of High-Efficiency Microfluidic Biosensor

I. Ben mariem, S. Kaziz, F. Echouchene

ID 81: A highly sensitive SPR biosensor assisted by Ag, BP and TiO₂ for hemoglobin detection

Imed Sassi, Mounir Ben El Hadj Rhouma

ID 104: Imprinted Dopamine Sensor Optimised by an Artificial Neural Network (ANN)

Chama MABROUK, Hassen Jallouli, Houcine Barhoumi

ID 136: Artificial Neural Network- -Enhanced SPR Sensor Utilizing Graphene for SARS-CoV-2 Detection

Saad Yosra, Emna Ammar Elhadjamor, Mohamed Hichem Gazzah

Oral Session 17+

Special Session: Machine Learning, Deep Learning and Optimization Techniques for Sensor Devices
(MLDLOTSD)

Saturday, October 14, 2023 (11h30-12h30)

Room 2

Chairs: Fraj Echouchene
Houcine Barhoumi
Sameh Kaziz

ID 127: A Hybrid GA-ANN Model to Predict the Response of Heavy Metal Ion Sensor

Kamel Landolsi, Wannassi Jacem, Kahri Hamza

ID 76: Optimization of Microfluidic Biosensor Enhanced by Electrothermal Effect Using Taguchi's Method Coupled with MLP-ANN Models

A.Jemmali, S. Kaziz, F. Echouchene

ID 147: Artificial Neural Network Modeling of High Efficiency Silicon based PIN Solar cell

Zouhour Rhaim, Bisma Ferjani, Sabra Habli, Mohamed Hichem Gazzah

ID 126: Enhancement of Energy Yield for Photovoltaic System by the Installation above a Water Body

Sami GHEDIRA, Said SAAD

Oral Session 18

Special Session: Data Analytics, Smart Energy and Storage Systems: Survey of Technologies, Techniques, and Applications (DASESS)

Saturday, October 14, 2023 (10h-11h)

Room 3

Chairs: Chokri Ben Salah
Ferdaws Ben Naceur

ID 77: An Artificial Intelligence Solution for Energy management in Smart Grid

Ferdaws Ben Naceur, Sana Toumi, Chokri Ben Salah, Mohamed Ali Mahjoub

ID 74: Optimal Sizing of an Off - Grid Hybrid Renewable Energy System: A Case Study in Tunisia

Mariem Mallat, Olfa BEL Hadj Brahim Kechiche, Mahmoud Hamouda

ID 132: Enhancing Efficiency in Wireless Solar Charging Stations through IoT Control and Optimization Strategy

Mohamed Haikel Chehab, Makram Khelil, Chokri ben Salah

ID 134: The performance of Sensors within Cloud and Cloudlet environments

Nawel KORTAS

Oral Session 18+

Special Session: Data Analytics, Smart Energy and Storage Systems: Survey of Technologies, Techniques, and Applications (DASESS)

Saturday, October 14, 2023 (11h30-12h30)

Room 3

Chairs: Chokri Ben Salah
Hadi. Y. Kanaan

ID 39: Optimization of a PV battery system in the case of load decrease in Tunisia

Gaith Baccouche, Abdelaziz Salah Saidi, Chokri Ben Salah

ID 33: Design and optimization of VHF class $\Phi 2$ inverter dedicated for wireless charging application

Mohamed Haikel Chehab, Makram Khelil, Chokri ben Salah

ID 9: Artificial neural network-based control of a switched reluctance motor for a high-precision positioning system

Imed MAHMOUD, Adel KHEDHER

ID 148: Application in Five-Phase Permanent Magnet Synchronous Motor of Smooth Second Order Integral Sliding Mode Control Technique

Ali Ajmi, Saber Krim, Anissa Hosseyni, Majdi Mansouri, Majdi Mansouri