

2023 IEEE International Conference on Advanced Systems and Emergent Technologies (IC_ASET 2023)

**Hammamet, Tunisia
29 April - 1 May 2023**



**IEEE Catalog Number: CFP23J92-POD
ISBN: 979-8-3503-2103-6**

**Copyright © 2023 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***** *This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP23J92-POD
ISBN (Print-On-Demand):	979-8-3503-2103-6
ISBN (Online):	979-8-3503-2102-9

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

Table of Contents

FFT Tool For Stator Winding Fault Detection: Application To a Permanent Magnet Synchronous Motor	1
<i>Fatima Zohra Hamdi Pacha, Abdessattar Ben Amor, Abdelghafour Herizi and Nadia Fezai</i>	
Design and Modeling of an Exoskeleton Robotic System for the Rehabilitation of Lower Limbs.....	7
<i>Oumayma Ben Hammouda and Hassène Gritli</i>	
Performance Analysis and Capacity Evaluation of MIMO Propagation channels: Appication to 5G Radio Mobile Networks	15
<i>Mohamed Ouwais Kabaou, Nesrine Zoghlami and Intidhar Hafidhi</i>	
Thelxinoë for Emotion Recognition and Touch Processing	21
<i>Darlene Barker and Haim Levkowitz</i>	
Improving the Voltage Response of Grid Connected Three Inter-Connected Microgrids Using Artificial Intelligence Based Controllers	27
<i>H. K. Shaker, H. E. Keshta, Magdi A. Mosa and A. A. Ali</i>	
TeraHertz Path-Loss Prediction Indoor using Machine Learning	33
<i>Nagma Elburki and Sofiene Affes</i>	
Parkinson Detection using VOT-MFCC Combination and Fully-Connected Deep Neural Network (FC-DNN) Classifier	39
<i>Karim Dabbabi, Ahlem Kehili and Adnen Cherif</i>	
Review of Recent Systems for Detecting and Diagnosing Pronunciation Errors	45
<i>Karim Dabbabi and Abdelkarim Mars</i>	
Analysis of Current-Mode Logic D-Type Flip-Flop 1:2 Frequency Dividers	52
<i>Yahya Ben Jaoued, Lazhar Fekih-Ahmed and Faouzi Bouani</i>	
Early Detection of Alzheimer's Disease Using VOT_Mean Measure in New Tunisian Arabic Database	58
<i>Karim Dabbabi, Ahlem Kehili and Adnen Cherif</i>	
Integration of Different Optimization Approaches for the Classification of different Arabic and English Voice Commands	64
<i>Karim Dabbabi and Abdelkarim Mars</i>	
QR-code Traffic signs recognition for ADAS smart driving system	70
<i>Anis Jouini, Adnen Cherif and Salem Hasnaoui</i>	
State feedback control of interval-valued fuzzy descriptor system subject to random occurred actuator failures	75
<i>Mourad Kchaou and Badr Alshammari</i>	
ANN-SMC Control of A Hybrid Energy Storage System For Single-Phase Application ...	81
<i>Achraf Nouri, Aymen Lachheb and Lilia El Amraoui</i>	

A robust Model Free Adaptive Terminal Sliding Mode with Gravity Compensation controller development	87
<i>Sana Bembli, Nahla Khraief and Safya Belghith</i>	
Fuzzy T-S Model Based Fault Tolerant Control Using Immeasurable Decision Variables...	93
<i>Hassen Hichri and Mounir Ayadi</i>	
Fraud Detection of Electricity Consumption Using Robust Exponential and Holt-Winters Smoothing Method	99
<i>Dalila Azzouguer, Abderrazak Sebaa, Dalil Hadjout and Martínez-Álvarez Francisco</i>	
Non-linearities Study and EVM Characterization of a Sub-6 frequency Testbed for 5G Communication.....	105
<i>Mamadou Bagayogo, Soumaya Hamouda and Rim Barrak</i>	
Non-invasive IoT-Based Embedded Device for Testing of Diabetes Mellitus Type 2 for early detection and Prediction.....	111
<i>Godfrey Kipngetich, Ignace Gatare and Gerard Rushingabigwi</i>	
An IoT Fuzzy Logic-Based Driven Model for Realtime Detection and Prediction of Diabetes Mellitus Type 2.....	116
<i>Godfrey Kipngetich, Ignace Gatare, Gerard Rushingabigwi and Ayalew Belay</i>	
A novel SVM based CFS for intrusion detection in IoT Network	121
<i>Noura Ben Henda, Amina Msolli, Imen Haggui, Abdelhamid Helali, Hassen Maaref and Ridha Mghaieth</i>	
Hybrid authentification system of Face Mask Detection using CNN-based on Lightweight cryptography and blockchain technology	126
<i>Imen Hagui, Amina Msolli, Noura Ben Henda, Abdelhamid Helali, Fredj Hassen, Mghaieth Ridha and Nguyen Thanh Phuong</i>	
Robust Interval State Observer Method for Linear Switched Systems	132
<i>Wissal Khemiri and Ali Sghaier Thili</i>	
Humidity Control Inside Smart Greenhouse Using a Raspberry Pi Card by Applying FLC Technique	138
<i>Anouar Belkadi, Nizar Sghaier, Islem Ben Hassine, Dhafer Mezghani and Abdelkader Mami</i>	
Enhancement of Z-Source Inverter Controller for Improvement of Grid-Tied PV systems .	144
<i>Salah Anis Krim, Hamza Afghoul, Fateh Krim, Feriel Abdelmalek, Djallaleddine Zabia and Taha Lamdjed Belahcene</i>	
On the Synthesis of an Integrated Active FTC Scheme for Continuous-Time Switched Systems with Actuator Faults.....	149
<i>Mohamed Elouni, Habib Hamdi, Bouali Rabaoui, Mickael Rodrigues and Naceur Benhadj Braiek</i>	
Electrical Motor Fault Detection System using Artificial Intelligence.....	156
<i>Raziq Yaqub, Hassan Ali and Mohd Helmy Bin Abd Wahab</i>	
Long Short-Term Memory Networks for Forecasting Demand in the Case of Automotive Manufacturing Industry	161
<i>Hédir Oukassi, Marwa Hasni and Safa Bhar Layeb</i>	

Millimeter-Wave Sparse Channel Estimator Based-on Twin Support Vector Regression in Deep Multipath Environments	167
<i>Anis Charrada</i>	
FEM and New Diffusive Representation Technique application for DSIM thermal transition analysis.....	173
<i>Thouraya Guenenna, Khaled Ben Smida and Adel Khedher</i>	
Performance Investigation of Three-Stage Modular Smart Transformer With Sliding Mode Control	179
<i>Hiba Helali and Adel Khedher</i>	
Design of a Sensorless Rotor Flux Oriented Vector Control Technique Based on MRAS Speed Observer for an Induction Machine	185
<i>Rakia Tarkhani, Saber Krim and Mohamed Faouzi Mimouni</i>	
Lower Limb Exoskeletons for Pediatric Gait Rehabilitation: A Brief Review of Design, Actuation, and Control Schemes	191
<i>Jyotindra Narayan and Santosh K Dwivedy</i>	
An Investigation of acoustic Chamber design for recording AMG signal.....	197
<i>Slim Yacoub, Alih Al-Timemy, Youssef Serrestou, Kosai Raof and Matthieu Milharo</i>	
Energy Modeling of a Hydroponic Greenhouse Powered by a Grid-Connected Photovoltaic System	202
<i>Islem Ben Hassine, Dhafer Mezghani, Anouar Belkadi, Nizar Sghaier and Abdelkader Mami</i>	
Detection and recognition of objects in real time using an intelligent camera by a Delta robot	207
<i>Naji Guedri, Boulbaba Guedri and Rached Gharbi</i>	
SHCSP Heuristic for a Single Hoist Scheduling Problem	212
<i>Aymen Elamraoui and Mohamed Benrejeb</i>	
Rectangular patch antenna using microstrip feed line for UHF band applications-concepts and design	217
<i>Hamza Ben Krid, Ramon de la Rosa Steinz, Zied Houaneb and Hassen Zairi</i>	
Interval Observer Design for Actuator Fault Estimation of Linear Time-Invariant Discrete-Time Systems	222
<i>Rania Mbarak, Moez Boussada and Anis Messaoud</i>	
Data Augmentation for Convolutional Neural Network DeepFake image Detection	228
<i>Ameni Jellali, Ines Ben Fredj and Kaïs Ouni</i>	
Explainable machine learning approach with augmentation for mortality prediction	233
<i>Firas Ketata, Zeina Al Masry, Noureddine Zerhouni and Slim Yacoub</i>	
Optimal Decision Making for Hybrid Power Systems Selection with Smart Grid and Local Generator Using Wireless Sensor Networks	239
<i>Yousef Hamouda</i>	
Deep Sky Monitoring System for Mini-drone Detection and Tracking	245
<i>Tijeni Delleji, Feten Slimeni, Mohsen Lafi, Anis Ayadi and Zied Chtourou</i>	

DWT Denoising Signal Implementation Based on FPGA Target	251
<i>Abdelhakim Sahour, Farouk Boumehrez, Hanane Djellab and Fouzia Maamri</i>	
Lifting of the 9/7 Wavelet Filter Bank for ECG Signal Analysis Implementation Based on FPGA Target	257
<i>Farouk Boumehrez, Abdelhakim Sahour, Fouzia Maamri and Hanane Djellab</i>	
GPS-GPRS Control and Tracking system for Taxi Vehicle	262
<i>Elyes Feki, Cyrine Mlaouah, Cheddy Bouguezzi and Abdelkader Mami</i>	
Design and Realization of Pan-tilt Tracking System Based on Stepper Motor	268
<i>Ayadi Anis, Delleji Tijeni, Slimeni Feten and Lafi Mohsen</i>	
Survey on Video Streaming for UAV	273
<i>Donia Ammous, Fahmi Kammoun and Nouri Masmoudi</i>	
Supervisory Control and Simulation of Boiler DrumWater Level	279
<i>Ahmed Abougarair, Alhsayn Amhathib, Mohamed Elmezoughi and Ali Almaktoof</i>	
Predictive Direct Power Control Strategy for Grid-Connected VSI	285
<i>Ben Mahmoud Zouhaira and Khedher Adel</i>	
On Electronic Throttle Valve Control System Based Observers	290
<i>Raifa Gzam, Hajar Gharsallaoui and Mohamed Benrejeb</i>	
Privacy, Security, Trust and Applications In Internet of Things	296
<i>Sliman Yaklaf</i>	
Feature Extraction for Fault Diagnosis Based on Recursive Generalized Extended Least Squares Algorithm	302
<i>Nasar Aldian Shashoa, Ahmed Abougarair, Weiam Saheri and Munya Arwin</i>	
Sensorless Vector Control of Dual Star Induction Machine Using Sliding Mode Flux Observer	307
<i>Latrech Fatma Zohra, Ben Rhouma Asma and Khedher Adel</i>	
Dual Star Induction Machine Driven by Direct Torque Control Using Sliding Mode Speed Controller	312
<i>Latrech Fatma Zohra, Ben Rhouma Asma and Khedher Adel</i>	
Expert System to Improve and Development of Mathematic Teachers Skills	317
<i>Omer S.M. Jomah</i>	
On Bifurcation and Inputs Influence Studies of Buck Converters	323
<i>Salwa Ben Said, Kamel Ben Saad and Mohamed Benrejeb</i>	
A DDD Approach Towards Automatic Migration To Microservices	329
<i>Malak Saidi, Anis Tissaoui and Sami Faiz</i>	
UAV-Based Network Slicing: Background and State-of-the-Art	335
<i>Tarek Bouzid, Noureddine Chaib, Mohamed Lahcen Bensaad and Abdellah Kouzou</i>	
Framework for Smart Online 3D Bin Packing Using Augmented Reality	341
<i>Amel Jaoua, Elisa Negri, Safa Bhar Layeb and Zohra Ayed</i>	

An Approach of Fake videos Detection Based on Haar Cascades and Convolutional Neural Network	347
<i>Ameni Jellali, Ines Ben Fredj and Kais Ouni</i>	
Quantitative Evidences of Electrical Charges Creation at the Metal/Liquid Interface in Power Transformer Insulation Systems	353
<i>Beldjilali Abdeslem</i>	
Design of a System for the Improvement of Sales and Billing of a Peruvian Company	358
<i>Sadith Bruselas Sanchez Vasquez, Jesús Manuel Rojas Cárdenas, Miguel Angel Cano Lengua and Miguel Angel Chávez Herrera</i>	
Digital control of an Isolated Dual Half Bridge Converter.....	364
<i>Mehdi Allagui and Mohamed Abbes</i>	
Nonlinear Low level Controller Design for an Autonomous Surface Vehicle.....	370
<i>Helmi Abrougui, Samir Nejim and Habibe Dallagi</i>	
A Combined Heading Controller with Line Following Approach for Self-Steering an Autonomous Surface Vehicle	376
<i>Helmi Abrougui, Samir Nejim and Habib Dallagi</i>	
Design of a Web System to Improve the Process of Technical Supervision in the Incidents of the Hydrocarbons Regulatory Institution.....	382
<i>Cynthia Elvia Caceres Sanchez, Luis Alfredo Diburga Evangelista Diburga Evangelista and Miguel Angel Cano Lengua</i>	
Modified LMF Adaptive Control of Weak AC Grid with High Penetration of Solar Energy	387
<i>Kanchan Jha and Abdul Gafoor Shaik</i>	
Clustering and Routing in Cross-docking: A bi-step approach for capacitated vehicle routing problem with time windows	393
<i>Amina Altaf, Adnen El Amraoui, Francois Delmotte and Christophe Lecoutre</i>	
Nozzle Position Control for Vacuum Work Robots on a Slope.....	399
<i>Yota Oppata, Kousuke Tanaka, Hirokazu Matsui, Ken'Ich Yano, Shigeru Fukui and Toshihiko Arima</i>	
Voltage and Frequency Regulation in PV integrated Distribution System using Plugin Electric Vehicles with FL-SRF based V2G Technology	405
<i>Hemant Kumar and Abdul Gafoor Shaik</i>	
Lightweight Authentication for IoT devices based on Elliptic Curve ElGamal using ephemeral encoding parameters	411
<i>Sondes Baccouri, Hassene Farhat, Tarek Azzabi and Rabah Attia</i>	
Fuzzy Multi-Objective Evolutionary Approach for Home HealthCare Optimization Problem under Uncertainty	418
<i>Mariem Belhor, Adnen El-Amraoui, François Delmotte and Abderrazak Jemai</i>	
Comparison of SSSC and TCSC performance in steady state voltage stability improvement	424
<i>Taha Rachdi, Yahia Saoudi, Larbi Chrifi-Aloui and Ayachi Erracdi</i>	

A Reinforcement Learning (RL)-Based Hybrid Search Method for Hidden Object Discovery using GPR	429
<i>Mahmut Nedim Alpdemir and Mehmet Sezgin</i>	
Classification of buried objects using deep learning on GPR data	435
<i>Mehmet Sezgin and Mahmut Nedim Alpdemir</i>	
A GNSS measurement study based on RTK and PPK methods	440
<i>Mohamed Jemai, Mohamed Anis Loghmari and Mohamed Saber Naceur</i>	
Fair Epoch Scheduling of Linear Workflows with High Variability in Task Service Demand	446
<i>Helen Karatza</i>	
Open Rotor Phase Fault Detection in Wound-Rotor Induction Machines using Signal Texture and Shallow Neural Networks	452
<i>Rahul Kumar, Giansalvo Cirrincione, Mehdi Taherzadeh and Humberto Henao</i>	
LMI-Based Design of an Affine PD Controller for the Robust Stabilization of the Knee Joint of a Lower-Limb Rehabilitation Exoskeleton	458
<i>Sahar Jenhani and Hassène Gritli</i>	
Stator Inter-Turn Fault Severity Classification Using Neural Based Approaches	465
<i>Priyanka Sharma, Giansalvo Cirrincione, Rahul R Kumar, Ali Mohammadi and Maurizio Cirrincione</i>	
A Computer Vision-based Pothole and Road Distress Detection System for Extreme Weather and Natural Disaster-Prone Fiji	471
<i>Ali Arshaque, Salveen Deo and Rahul R Kumar</i>	
Deadbeat Internal Model Control for Temperature of Electric Furnace	476
<i>Imen Saidi and Nahla Touati</i>	
Robust Time-Delayed Control of Nonlinear Discrete-Time Systems	481
<i>Salvatore Pedone, Maja Trumić and Adriano Fagiolini</i>	
Violence detection in schools based on Multi fusion sensor and optimized Relief-F algorithm	487
<i>Narendhirakumar.A Appavu</i>	
Violence Detection Based on Multisource Deep CNN with Handcraft Features	493
<i>Narendhirakumar.A Appavu</i>	
An Xception Model Based Real-time Violence Detection	499
<i>Narendhirakumar.A Appavu</i>	
Modelling of an Optimized Polymer Electrolyte Membrane Fuel Cell (PEMFC) Using Fractional-Order	505
<i>Julie Tamani, Luke Radolo, Maurizio Cirrincione, Utkal Mehta and Ali Mohammadi</i>	
Adaptive Field-Oriented Control of Permanent Magnet Synchronous Motor Using Feedforward Actions	510
<i>Naithan Peter, Nitendran Maniam, Hiye Mudaliar, Maurizio Cirrincione, Ravneel Prasad, Shyamal Chand and Adriano Fagiolini</i>	

A Matlab/Simulink-Based Modeling for Industrial Hydraulic Vehicle Design – application to tunneling	516
<i>Mouna Samaali, El-Hassane Aglizim, Xavier Dessertenne and Patrick Dubreuil</i>	
Evaluation Of Edge Detection Algorithms Performance	521
<i>Touka Hafisia, Asma Belhaj, Hatem Tlijani and Khaled Nouri</i>	
Let's Predict Who Will Move to a New Job	526
<i>Rania Mkhinini Gahar, Adel Hidri and Minyar Sassi Hidri</i>	
Towards Big Data Modeling and Management Systems: From DBMS to BDMS	531
<i>Rania Mkhinini Gahar, Olfa Arfaoui and Minyar Sassi Hidri</i>	
Design and Implementation of Real-Time Monitoring System for Building-integrated photovoltaics System	537
<i>Atef Ftirich, Bechir Bouaziz and Faouzi Bacha</i>	
ISVM control and virtual DC bus voltage regulation for direct matrix converter for wind energy conversion system	543
<i>Abdessami Soyed, Abdelkarim Aouiti and Faouzi Bacha</i>	
Study and analysis of the 2-phase DAB DC-DC Converter for Fuel Cell Applications	549
<i>Abdelkarim Aouiti, Abdessami Soyed and Faouzi Bacha</i>	
ML Threat Detection with KDD Cup Data	555
<i>Mohamed Hechmi Jeridi, Tarek Azzabi, Nada Ben Amor and Emna Boudabous</i>	
Static Obstacles Avoidance of Autonomous Mobile Robots Based on Limit Cycle Approach	560
<i>Sara Abdallaoui, El-Hassane Aglizim, Ali Kribiche, Ahmed Chaibet and Halima Ikaouassen</i>	
A Comparative Study for the Detection of Stator Inter-turn Faults in Induction Motors using Shallow Neural Networks and Non-Neural based Techniques	565
<i>Priyanka Sharma, Giansalvo Cirrincione, Rahul R Kumar, Ali Mohammadi and Maurizio Cirrincione</i>	
Investigation of the Compass Biped Walker's Passive Dynamics and Trajectory Tracking Method for Chaos Control	571
<i>Essia Added, Hassène Gritli and Safya Belghith</i>	
A chance constrained stochastic programming model for designing two-tiered emergency medical service systems	579
<i>Sondes Hammami, Rania Boujemaa, Aida Jebali, Angel Ruiz and Hanen Bouchriha</i>	
PSO Optimized PID Controller and Generalized Inverted Decoupling Design for MIMO System	584
<i>Ahmed Zrigan, Ahmed Abougarair, Mohamed Elmezugh and Ali Almaktoof</i>	
Exploring the reactions of early users of ChatGPT to the tool using Twitter data: sentiment and topic analyses	590
<i>Achraf Tounsi, Safa Elkefi and Safa Bhar Layeb</i>	
Comparative Study of Control strategies for Three Phase Bidirectional AC/DC Converter	596
<i>Faouzi Tlili and Faouzi Bacha</i>	

DC/AC Conversion Efficiency of Grid-Connected Photovoltaic Inverters with Sensor-less MPPT	602
<i>Mokthar Abbassi, Abdelkarim Aouiti and Faouzi Bacha</i>	
Adaptive PID Controller of a Quadrotor	608
<i>Bassim Maaloul and Salwa Elloumi</i>	
Investigation of the Simulation Parameters Used for Electric Potential Calculation	614
<i>Haifa Nouir-Masmoudi, Slim Kaddeche and Nabila Dhahbi-Megriche</i>	
A New Hyperspectral Image Classification Method Based on Extended Wavelets Transform	619
<i>Amina Soltani, Hela Elmannai and Mohamed Naceur Sabeur</i>	
A Review on Implementation of AES Algorithm Using Parallelized Architecture on FPGA Platform.....	624
<i>Nada Qasim Muhammed, Amiza Amir, Jamal Kamil K. Abbas, Badlishah Ahmad, Qasim Mohammed Hussien, Hana Arrfou, Maki Mahdi Abdulhassan, Muataz Hammed Salih, Rema Matem and Nisrean Jaber A. Thalji</i>	
Wide Band Omni-Directional Bow-Tie Antenna for Wireless Communication Applications	629
<i>Taha Raad Al-Shaikhli, Jamal Kamil K. Abbas, Sura Khalil Ibrahim and Ahmed Raed Altameemi</i>	
Contribution to the improvement of a heat exchanger	634
<i>Maher Mkhinini and Ameni Dridi</i>	
Enhancing Traffic Sign Recognition Through Daubechies Discret Wavelet Transform and Convolutional Neural Networks	640
<i>Rim Trabelsi, Khaled Nouri and Imen Ammari</i>	
Neural state Observer andDisturbance Observer in a Sliding Mode Control loop of a Robust Unicycle Robot	646
<i>Nawress Barhoumi, Asma Najet Gharbi Lakhal and Naceur Benhadj Braïek</i>	
Fiber optic Incidents Detection and classification with YOLO method	652
<i>Abdou Diop, Ibrahima Ngom and Idy Diop</i>	
Lung Cancer Detection with Machine Learning and Deep Learning	658
<i>Omar Khouadja</i>	
An effective Method for Lung Tumor Screening âusing CT Dataset â	666
<i>Islem Daassi, Amine Ben Slama, Sabri Barbaria, Mounir Sayadi and Hedi Trabelsi</i>	
Skin Lesion Segmentation Based on Modified U-NET Architecture.....	671
<i>Hanene Sahli, Amine Ben Slama and Mounir Sayadi</i>	
Effects of the electrical polarizations on the thermal response of FinFET nanotransistors .	676
<i>Haifa Bahri, Faouzi Nasri and Nejeh Jaba</i>	
Electron and phonon transports in a 3D FinFET transistor.....	681
<i>Glaied Sirine, Nasri Faouzi and Machhout Mohsen</i>	
A review of non invasive methods of brain activity measurements via EEG signals analysis	686
<i>Turkia Dabbabi, Lamia Bouafif and Adnen Cherif</i>	

Robustness of Decentralized Optimal Control Strategy Applied On Two Interconnected Generators System With Uncertainties	692
<i>Ahmed Feydi, Salwa Elloumi and Naceur Benhadj Braiek</i>	
Data-Mining and Hashing to Prevent Application-Layer DDoS and SQL Injection Attacks	698
<i>Ahmed Abadulla Ashlam, Badii Atta and Frederic Stahl</i>	