2022 IEEE 2nd International Maghreb Meeting of the Conference on Sciences and Techniques of Automatic Control and Computer Engineering (MI-STA 2022)

Sabratha, Libya
23-25 May 2022

IEEE Catalog Number: CFP22AC0-POD
ISBN: 978-1-6654-7919-6

Copyright © 2022 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:	CFP22AC0-POD
ISBN (Print-On-Demand):	978-1-6654-7919-6
ISBN (Online):	978-1-6654-7918-9

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

Paper ID	Title	Page
15	Towards achieving an optimum speed performance for DC servo motors via Fuzzy logic controllers	1
42	Investigating the Applicability of Horizontal to Tilted Sky-Diffuse Solar Irradiation Transposition Models for Key Libyan Cities	9
57	Channel Propagation Modeling Utilizing Discrimination Analysis for Outdoor Environment	15
58	Multi-Start, Random Reselection of Algorithms or Both?	21
64	Semi-empirical models of electron beam control in radiation technologies	27
69	Performance Evaluation of Multimedia over MPLS VPN and IPSec Networks	32
76	A New algorithm for a novel physiotherapy robot for upper-lower limbs	38
88	Offline Writer Identification using Deep Convolution Neural Network	43
96	Assisting Blind People Using Object Detection with Vocal Feedback	48
113	Evaluating the Fast Rerouting with MPLS Networks as a Fault Tolerance Mechanism with OSPF and IS-IS routing protocols	53
123	Comparative analysis of Hydroplaning in Electric and ICE Vehicles	59
127	Amphibious Rover for Search and Rescue Applications	64
132	Fuzzy Logic Controlled Voltage Transfer Ratio of a Matrix Converter under Harmonic Distortion	70
144	Comparative Study Between a Novel Direct Torque Control and Indirect Field Oriented Control of Three-Phase Induction Motors	75
146	Comparison between harmonic identification techniques of active filter with experimental validation	81
155	Experimental investigation of damping performance for viscoelastic material as the core of three layers laminated plate	87
163	Predictive control of fractional Hammerstein models	93
165	Detection and diagnosis of induction motor’s broken rotor bars in Kalman filter-based drives	99
173	Survey of Various Graphical Password Techniques and Their Schemes	105

179	Development of Robotic 3D Printing System	111
183	Evaluation of Electric Vehicle Stability Using Fractional PID and Fuzzy PID Based Controllers	116
187	Using Power Flow Control Technology to Increase the Capability and flexibility of the Existing Electrical Transmission System of Libya	121
188	Smart metering and energy access programs: an approach to energy poverty reduction in sub–Saharan Africa	127
193	Detection of three-phase induction motor faults using deep network-based transfer learning techniques	133
197	A Low-Cost Rehabilitation System for Upper Limb Amputees	139
201	State Estimation of an Inverted Pendulum on Cart System by Kalman Filtering and Optimal Control (LQG)	144
203	Distributed Nonlinear State Estimation using SDRE Kalman Filter	149
205	Real Time Classification for Robotic Arm Control Based Electromyographic Signal	155
210	Modeling and simulation of a hybrid power system for Hospital in Sabratha, Libya via HOMER software	161
224	Control and Design 6-Pulse STATCOM Using Novel 2-Vector Closed Loop Control Algorithm	167
246	Position Feedback Control of Lagrangian Robotic Systems via an Affine PD-Based Control Law. Part 1: Design of LMI Conditions	171
247	Position Feedback Control of Lagrangian Robotic Systems via an Affine PD-Based Control Law. Part 2: Improved Results	177
257	Efficient Real-Time Executive for ARM-Based Microcontroller	183
267	Using of Neural Network-Based Controller to Obtain the Effect of Hub Motors Weight on Electric Vehicle Ride Comfort	189
271	A Biologically Inspired Adaptive Model Theory for Humanoid Robot Arm Control	193
6	Assessment of Healthcare Workers' Level of Knowledge and Practices of Using Robotics During Covid-19	199
18	Development of an Evolutionary Cost Sensitive Decision Tree Induction Algorithm	204
33	Channel Polarization Analysis Using BEC	210
45	Preprocessing Breast Cancer Dataset from Ultrasound Screening to Improve Data Quality for Diagnosis Modelling	216
46	Decision Tree Algorithms for Predictive Modeling in Breast Cancer Treatment	223

68	Biological and Tumor Markers in Early Prediction Phase of Breast Cancer Using Classification and Regression Tree: Sebha Oncology Center as a Case study	228
114	Private Tutoring During COVID in Jordan. Improving Academic Performance, or Chasing After an Illusion	234
115	Comparison Of Scheduling Schemes in Ipv4 and Ipv6 to Achieve High Qos	238
128	Assessing the Usability and Perceived Usefulness of a Moodle Platform Within Libyan Higher Education Institutions	242
142	Transfer Learning for Crowed Counting	248
145	SSwIoT: Smart Algorithm for IoT Swarm Tasks Allocation	254
147	Decision Support System: Analysis and Design Methodology	260
149	Improving Use Case Points Techniques to Support Size Estimation of Software Projects	267
156	A Comparative Study on Various Deep Learning Techniques for Arabic NLP Syntactic Tasks on Noisy Data	273
175	Compartment Models for Drug Diffusion in the Body	278
177	Wavelet Transform Based Image Fusion for Brain Tumor Detection	283
186	Green Machine Learning for Green Cloud Energy Efficiency	288
237	Iris Recognition Using Artificial Neural Network	295
250	Design and development Intelligent Medical Care Bed Using Voice Recognition	299
254	A Novel Method for Estimate the Structure Design complication of Multi-Agents Based Systems	305
258	Using a Multi-Agent System to Better Simultaneous Collaboration Software Systems	310
260	CKP-PHR app: Smart phone Application for Personal Health Records of Children with Kidney Disease	316
266	The single packet Low-rate DDoS attack detection and prevention in SDN	323
7	Analyzing the Social behavior of mobile Subscribers using CDR and Neo4j technology	329
9	Investigation and Study of the Performance of a DVB Over Satellite Link Using M-ary PSK	335
11	High Driven Sub-Harmonically Up-conversion Mixers based Schottky Diodes	340

12	Improving Network's Performance by Applying Different Quality of Service Mechanisms	345
14	Effect of Nonlinear Power Amplifier on 32- QAM Performance Using Different Communication Channels	350
17	Comparison of Genetic Algorithm Crossover Operators on WSN Lifetime	356
19	TCP Congestion Analysis of Wired and Wireless Links Using NS3	361
25	Studying of an Adaptive Unscented Kalman Filter as a Target Tracking Algorithm with Matlab Simulation	366
29	Investigation and Simulation the Effect of Nonlinear Amplifier on 16- PAM Modulation	372
31	Cryptography using Affine Hill Cipher Combining with Hybrid Edge Detection (Canny-LoG) and LSB for Data Hiding	379
32	A Secure MIMO Wireless Communication Systems Based on Hamiltonian Graphs and Artificial Noise	385
41	Multiband Option and Size Reduction of PIFA antenna by using Genetic Algorithm and Gridded Structure	390
51	16-ary Modulation based Uncoded Space-Time Labeling Diversity with Four Transmit Antenna for Future Wireless Communication Systems	395
59	Connectivity-Based Dissemination Protocol for VANET	401
72	Massive MIMO: On which Side Should It Be to Achieve the Highest Capacity?	407
75	Magnetic Field Shielding Behavior of Mesh Wire in Low Frequencies	411
80	Assessment of Image Quality Parameters for Computed Tomography in Tripoli, Libya	416
86	Vehicle Coverage Range and Vehicle Traffic Density effect on Contention level over VANET in Highway using OLSR Routing Protocol	422
98	Design and Analysis of Dipole Ultra-Wide Band Antenna for Wireless Applications	427
104	Enhancement the routing protocols in sensor networks	431
121	Influence of Spatial Correlation Over the Channel Estimation in 6G Cell-Free Massive MIMO Network	436
136	Designing and Analysis of Underwater Optical Wireless communication system	441
137	An Efficient Hybrid Pilot design for Channel Estimation in Massive MIMO Systems	447
139	Iris recognition system based on fuzzy local binary pattern histogram and multiple classifiers	452
140	Study of 5G Technology Effects on Public Health and Aviation Safety	458

141	Digital Image Watermarking Method Based on LSB and DWT Hybrid Technique	465
151	Authentication Protocol for Wireless Sensor Network in the Internet of Things	471
152	Single-Ended Voltage Controlled Ring Oscillators Comparisons in 65nm Process	479
154	Wideband Angled Dipole Array Antenna with a Suppressed Sidelobe Levels for Beamforming Applications	485
158	Performance Analysis of VoIP traffic over MANETs Under Different Routing Protocols	492
167	Improve the Detection and Segmentation of Lung Nodule X-ray Images	499
172	Multispectral palmprint recognition based on three descriptors: LBP, Shift LBP, and Multi Shift LBP with LDA classifier	506
174	Finger Knukle Print Recognition based on the Combination of the Multi Shift Local Binary Pattern Descriptor with Discrete Fourier Transform	511
185	Study of Radio Absorbing Properties of Layered Oxide and Carbon Containing Composite Materials	517
190	Green Machine Learning Approach for QoS Improvement in Cellular Communications	523
194	Performance Evaluation of High Gain 2×2 MIMO Microstrip Antenna Operating at 28 GHz	529
195	Facial Emotion Recognition Based on Deep Learning	534
199	Palm Print Recognition using Deep Convolutional Neural Networks	539
200	Performance Analysis of Brain Tumor Detection Based on Gradient Boosting Machine -CNN model	544
206	BER Performance Analysis using TCM Coding Over AWGN and Fading Channels	548
208	Assessment of Coriolis meters as instrumentation for gas void fraction measurement in air–liquid multiphase flow in a pipeline riser system	554
212	Mobile Edge Computing Issues and Proposed Solution	560
214	A Proposed Research Methodology to Improve the Effectiveness of Information Technology Projects	564
215	Impact of Thermal Noise on Communication System Performance	569
218	Enhancing the FSO link range under very clear air and thin fog conditions in Albayda - Libya	574
222	Ensemble machine learning model for classification of handwritten digit recognition	580
230	Optimization of Basic 25 Gb/s TDM-PON for New Era Application	586

233	Performance analysis and simulation design of a soft switching Cuk DC/DC converter with controllers	590
252	Theoretical and Practical Study on Attenuation in Optical Fibers	596
259	Design of a Vivaldi antenna using particle swarm optimization for 5G applications	603
261	Design of Wideband Metamaterial Absorber Using Multiple Ring Resonators For X-Band Applications	607
268	Classification of the Libyan International Internet Traffic using Deep Packet Inspection Tools	610
269	Performance Analysis of 80 Gb/s XGS-PON Configuration for Future Co-Existing Scenario	616
2	Solar Integration in Water Desalination Systems A Literature Review	620
10	Impact of Mechanical Storage System Technologies: A Powerful combination to Empowered the Electrical Grids Application	628
13	Microgrid For Saving Critical Loads	637
21	Reduction the Reflection Losses in Solar Cells by Analysis of Mixed and Different Nano-Grating Shapes	640
23	Power Management and Sizing Optimization for Hybrid Grid-Dependent System Considering Photovoltaic Wind Battery Electric Vehicle	645
43	Mechanical behavior study of PPCF material as solar photovoltaic back sheet	650
49	Voltage imbalance investigation in residential LV distribution networks with rooftop PV system	655
56	Practical Implementation of a Modified Hybrid Bridge Multi-Level Inverter	663
63	A novel passive cooling for photovoltaic module temperature reduction using truncated fins: simulation study	668
67	Comparison Between Global MPPT Techniques for PV Array Systems Subjected to Different Partially Shaded Conditions	673
77	Control And Power Management of DC Microgrid Based Wind/Battery/Supercapacitor	680
85	Performance of Pumping System Under Partial Shading	686
87	Modeling and experimental investigation for performance enhancement of a PV module using an air-cooling system in semi-arid region in Libya	692
92	Analysis the Effect of Fault Types on the Operation of Distance Relay including FACTs Controller for a part of Libyan Network	700
94	Investigate the Effect of Connecting Multiple FACTS Controller on Voltage Stability and Power Transfer Capabilities	705
103	Performance Comparison Study of Solid Oxide Fuel Cell with Direct Oxidation in Three Fuel Types	710

107	Enhancing Time Consuming Computation of Probabilistic Available Transfer Capability with Wind Resources using Probabilistic Collocation Method	716
118	Dynamic Behavior of Induction Generator Connected to Wind Turbine	722
122	Comparison of a Hybrid Power System with a Conventional Diesel System	727
124	Application of Voltage Control Techniques in South Western Libyan Network to Enhance Voltage Stability with Future Load Forecasting	733
126	Developing Novel SOFC Electrolyte for Advanced Clean Energy Generation during the Pandemic (COVID-19)	739
134	Investigation and a review of the solar installations	744
153	Voltage Control of Stand-alone Single Phase Self Excited Induction Generator for Variable Speed Wind Turbine Using Bang Bang-PWM Controller	749
157	The optimum location of capacitor to improve the voltage of 220/66 kV Substation Using ETAP Software	755
164	Modeling and Simulation of a Hybrid Gas Turbine Power Plant-Solar Photovoltaic Plant System used in Messla Oil Field	759
170	Evaluation of Nine Two-Parameter Probability Distributions for Modeling Wind Speed Data at Three Sits in Western Mountain- Libya	767
204	Performance Analysis of a Phase-Locked-Loop based Synchronization Technique for Grid Connected-Photovoltaic Systems	772
217	Improvement of Voltage Profile in Libyan Transmission Network Using Particle Swarm Optimization Technique	780
225	Study of a Meteorological Conditioning for Solar Driven Ejector Refrigeration Systems: Efficiency Enhancement	786
238	Power Quality Improvement in Grid Connected PV System using Fuzzy Logic Controller based Maximum Power Point Tracing (MPPT)	792
244	A Novel Approach for Catching the Flux Leakage in Induction Machines Using Wireless Power Transfer	798