2021 International Conference in Advances in Power, Signal, and Information Technology (APSIT 2021)

Bhubaneswar, India
8 – 10 October 2021

IEEE Catalog Number: CFP21AJ6-POD
ISBN: 978-1-6654-2507-0

Copyright © 2021 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:	CFP21AJ6-POD
ISBN (Print-On-Demand):	978-1-6654-2507-0
ISBN (Online):	978-1-6654-2506-3

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

2021 International Conference in Advances in Power, Signal, and Information Technology (APSIT-2021)

Table of Contents

Investigations of Capacity Expansion Planning using LEAP Model.....1

N.K.Rayaguru; K.Karunanithi; S S Dash; P.Chandrasekar; Savita M Bani

A hybrid approach of Deep Learning Algorithms for Identification of COVID-19 disease using Chest X-Ray Images.....5

Nour Haj Hammadah; Nilima Das; Mamata Nayak; Tripti Swarnkar

A New Pi-based Chaotic Map for Image Encryption.....10

Ugur Erkan; Abdurrahim Toktas; Feyza Toktas

Image Encryption using Chaotic Techniques: A Survey Study.....15

Jenan Ayad, Fadhil Sahib, Alaa H. Ali, Zaid Khudhur, Hanan j., Mustafa A., Ghaidaa Ahmed, Ahmed Sadiq

Performance Evaluation of Photovoltaic Based Distributed Generation against Neural Network based Feedback Control.....21

Anshuman Satpathy; M. Mohamed Hamad Adam; Snehamoy Dhar; Tanmoy Parida; Niranjan Nayak; Naeem M. S. Hannoon

QoS Based Energy Efficiency Maximization for Uplink NOMA Networks.....28

Priya Gupta; D. Ghosh

Power Quality Improvement in Photovoltaic Microgrid System Using FOPID controller-based DVR.....33

Raseswari Pradhan; Minu Kumari

Power Quality Improvement in PV Grid System.....39

Miss. NiyaleeMoharana , Mr. Dipak Dash , Mr. Sumant Kumar Dalai

Variation in the Electronic and Microstructural Properties of Benzyl Viologen treated MoS2/Si Heterojunction.....44

Diana Pradhan; Anurag Gartia; Kiran Kumar Sahoo; Tanmoy Parida; Jyoti Prakash Kar

Solution to Economic Dispatch Problem Incorporating Micro Grid with Integration of Wind Energy Using Emperor Penguin Optimization Algorithm.....48

Jagannath Paramguru; Subrat Kumar Barik; Arun Kumar Sahoo; Tanmoy Parida

Stability Analysis of Fractional-Order Filters Realized with PMMA Coated Elements.....60

Kumar Biswal ;Sanjeeb Kumar Kar ; Madhab Chandra Tripathy

Review of Blockchain-based Energy Trading Models.....65
Priyansha Sharma, Rudranarayan Senapati and Aleena Swetapadma

Efficacy of UPQC in Grid linked PV-SOFC System at Constant Irradiance with Variable Load.....70
Rudranarayan Senapati, Priyansha Sharma, SthithaPranjan Mishra, Debani Prasad Mishra, Byomakesh Das, Jagat Jyoti Rath, and Rajendra Narayan Senapati

Real-time implementation of the MPPT algorithm based on fuzzy logic for solar PV system.....76
Debabrata Routray; Pravat Kumar Rout; Binod Kumar Sahu

A brief review and comparative analysis of two classical MPPT techniques.....83
Debabrata Routray; Pravat Kumar Rout; Binod Kumar Sahu

High-Speed MAC using Integrated Vedic-Mathematics.....89
Devika Jena; Satyaprakash N. Das;Taraprasanna Dash;Farida A. Ali

Breast Cancer Data Analysis using Machine Learning Approaches.....93
Sidhant Mallick, Rasmita Dash, Rajashree Dash, Rasmita Rautray

Thermally evaporated GaSb thin film grown from TVDS method for optical applications.....96
Farida Ashraf Ali, Jeevan Jyoti Mahakuda, Sushanta K. Kamilla

Diagnosis of PQ Disturbances using Local mean decomposition based SVD entropy and modified K-means clustering.....100
Lipsa Priyadarshini; Eluri N V D V Prasad; Pradipta Kishore Dash

Frequency Stability Study in Electrical Power System with SMES and TCSC units.....106
Amiya Kumar Naik; Narendra Kumar Jena; Subhadra Sahoo; Binod Kumar Sahu

Detection and classification of power quality disturbances by using discrete Teager energy operator in the PV based DC microgrid.....112
Kanche Anjaiah; P.K. Dash; Ranjeeta Bisoi

SOS Algorithm Based TID Controller for AGC of an Interconnected Power System.....118
Jugajyoti Sahu; Pradeep Kumar Mohanty; Amiya Kumar Naik; Binod Kumar Sahu

Advanced Reactive Power Control Technique for Wind Power Application.....122
Buddhadeva Sahoo; Sangram Keshari Routray; Pravat Kumar Rout; Mohammed M Alhaider

Structural, Electrical and Dielectric Behavior of Holmium Substituted $La_{0.67}Ca_{0.33}MnO_3$ ($La_{0.64}$ $Ho_{.03}Ca_{0.33}MnO_3$).....128
D.K. Subudhi; P. G.R. Achary; P. Pattnaik; D. K. Mishra

Performance of Ni-doped ZnO nanoparticles towards CH3-CO-CH3 sensing.....133
Nirlipta Kar; Sushanta Kumar Kamilla

Fabrication of Single Crystalline Zn(0.85)Cu(0.15)O Film Using CWD Coating Technique.....137
Arun Kumar Das; S. K. Kamilla; Priyabrata Pattanaik; Dilip Kumar Mishra; R. K. Das

Fabrication of Co doped or un-doped ZnO/Al on glass substrate for sensor Applications.....141
Harapriya Nayak, Sushanta Kumar Kamilla

Multi-Hop Communication in Wireless Underground Sensor Network.....145
Hitesh Panda; Manoranjan Das; Benudhar Sahu

Design of Dual-Core Trench Assisted Few Mode- Fiber with Flattened Differential Mode Delay for Mode Division Multiplexing.....150
Bhagyalaxmi Behera; Mihir Narayan Mohanty;

Functionally Responsible waste Plastic Material, its Impact on the Environment and Its Bioremediation.....N/A
Pratap Kumar Swain, Trinath Biswal and R B Panda

Advanced Control Technique based Neutral Clamped Inverter Operation.....N/A
Buddhadeva Sahoo, Sangram Keshari Routray and Pravat Kumar Rout

Self-Assembled Peptide Nanostructured Materials in Drug Delivery Application.....N/A
Deepti Rekha Sahoo and Trinath Biswal

Differential Protection of Microgrid using Signal Processing Approach.....156
Nityananda Giri; Ranjan Kumar Mallick; Tushar Kumar Patel; Sairam Mishra

Neutral Clamped Three-level Inverter based Fractional Order Filter Design for Power Quality Advancement.....161
Buddhadeva Sahoo; Sangram Keshari Routray; Pravat Kumar Rout; Mohammed M Alhaider

Improved Heuristic algorithm for short term hydrothermal including wind-solar generating power plant.....167
Sangita R.Kar; D.P.Dash; S.K.Sanyal

Network Forensics: An approach towards detecting Cyber Crime.....174
Amarnath Mishra; Chintan Singh ; Ayushi Dwivedi ; Debabrata Singh ; Anil Kumar Biswal

Islanding Detection with Empirical Mode Decomposition and Random Subspace Oriented Kth Nearest Neighbour.....180
Sairam Mishra; Prof. (Dr.) Ranjan Kumar Mallick; Dr. Debadatta Amaresh Gadanayak

Voltage stabilization of SEIG based Isolated Microgrid using Electric Spring.....186
Soumya Mohanty; Abhijeet Choudhury; Swagat Pati; Sanjeeb Kumar Kar

Optimum Transmission Power for Diversity Based Receiving System in Wireless Sensor Network with Nakagami Fading.....190
Manoranjan Das; Benudhar Sahu

Fractional PSS for low frequency oscillation damping of variable solar penetrated power system.....196
Samarjeet Satapathy, Narayan Nahak, Akshaya Patra, Ramachandra Agrawal, Alok Mishra

Enhancement of dynamic stability of power system by optimal STATCOM control action.....201
Samarjeet Satapathy, Narayan Nahak, Akshaya Patra

A Hybrid Fruit Fly ELM framework for Stock Index Price Movement Prediction.....206
Sidharth Samal; Rajashree Dash

Contactless Energization of Piezoelectric Components through dual directional Electric Field.....211
Tanaya Nayak; Dipti Patnaik; Praveen Priyaranjan Nayak; Biswaranjan Swain; Satyanarayan Bhuyan

Visual Comfort for a Green Office Building: An Overview.....215
Ali Q. Al-Shetwi; Majid A. Abdullah; Thanikanti Sudhakar Babu; Muhamad Bin Mansor; Priya Ranjan Satpathy; Khaled Alzaareer

Stability Assessment of a Multiple DG based Microgrid during Islanding Situation with Improved FA.....220
Shaktinarayana Mishra; Shibani Prasad Mohapatra; Prachitara Satapathy; Lokanath Tripathy; . Sabita Chaine; Chandra Sekhar Tripathy

An Adaptive Hybrid Particle Swarm Optimizer for Constrained Optimization Problem.....226
Tejna Khosla; Om Prakash Verma

Power Quality Conditioning due to Flickering Loads with Shunt Active Power Filter using Fuzzy-Granular Controller Method.....239
Dr. Naeem M S Hannoon; Dr. D. V. N. Ananth; Dr. Nabil Hiday; Dr. P.S.R. Chowdary; Dr. V.V.S.S.S. Chakravarthy;

Stress Enhanced Performance Analysis for Trigate FinFETs at 7nm Node.....246
J. Jena; T. P. Dash; S. Das; E. Mohapatra; C. K. Maiti

Optimal Placement of Piezoelectric Sensors and Actuators Pairs for Vibration Suppression.....252
Biswaranjan Swain; Nibedita Swain; Siddharth Sahany; Praveen Priyaranjan Nayak; Satyanarayan Bhuyan

Multi-kernel based Random Vector Functional Link Neural Network for Short-term Prediction of Wind Speed.....256

Snigdha Sarangi; Pradipta Kishore Dash; Badri Narayan Sahoo;Ranjeeta Bisoi

Capacitor based Metamaterial Absorber for obtaining wideband Absorptivity.....260

Prakash Kumar Panda, Hemanta Kumar Sahu, Arjun Muduli

Synthesis and characterization of lead-free sodium doped bismuth titanate.....264

R.K. Parida; B.N. Parida; S. Mishra; S.K. Parida

Morphometric Analysis of a Sub-Watershed of Lower Budhabalanga River Basin in Baleswar District, Odisha: A Remote Sensing and GIS Approach.....273

Satyaranjan Giri; Jagadish Kumar Tripathy; Prasanna Kumar; Pratyasha Singh; Debabrata Nandi; Kamal Lochan Mohanta

Geometry Dependent RF Performance of FinFETs.....278

Sanghamitra Das, Aradhana Raju, Tara prasanna Dash

Analysis of Operation of Sensorless Brushless DC motor using Zero Crossing Point Algorithm.....282

Manasi Patro

Frequency stability of an integrated power system using TLBO based TIDF controller.....288

Umesh Chandra Prusty; BishwaranjanPasayat; Pratap Chandra Nayak; Ramesh Chandra Prusty; Sidhartha Panda

Slime mould algorithm based fractional order cascaded controller for frequency control of 2-area AC microgrid.....294

Satyajeet Das; Sushil Kumar Bhoi; Pratap Chandra Nayak; Ramesh Chandra Prusty

A Flexible Auxiliary Damping Loop for the Islanded Microgrid.....300

Dr. Pritam Bhowmik; Mr. Priya Ranjan Satpathy; Dr. Krishna Sarker; Dr. Venkata Siva Brahmaiah Rama; Mr. Subhajit Roy; Dr. Subhashree Choudhury

Combined AGC and ELD analysis of a multi area power system with WCA based PID Controller.....305

Debashish Mishra; Srikanta Mohapatra; Prakash Chandra Sahu; Ramesh Chandra Prusty;Krushna Keshab Baral

Intelligent Frequency Control of an AC Microgrid with HSA designed Tilt Controller.....311

Prakash Chandra Sahu; Srikanta Mohapatra; Subhadra Sahoo; Binod Kumar Sahu;Manoj Kumar Debnath

Performance stability study of a hybrid power system under Levy flight CSA based fuzzy controller.....316

Srikanta Mohapatra; Prakash Chandra Sahu ; Krushna Keshab Baral; Sushil Kumar Bhoi; Ramesh Chandra Prusty

Analysis of Crossover Techniques in Modification of Grasshopper Optimization Algorithm.....322

Paulos Bekana; Archana Sarangi; Shubhendu Kumar Sarangi

Vehicle Suspension System based on PID Controller with JAYA Optimization Technique.....327

Akshaya Kumar Patra; Anuja Nanda; Bidyadhar Rout; Dillip Kumar Subudhi; Nayrayan Nahak; Saswata Pani

Resiliency Enhancement of Power Distribution System Using Distributed Generator.....333

Raj kapurkumar; Sunil Koudagani;Partha Kayal

Analytical Exploration of Stepped Asymmetric Work-function Modulated Trenched Stack Gate Silicon-on-Insulator MOSFET for Advancement of SCEs.....339

Sikha Mishra; Soumya S. Mohanty

Optimal Dispatch of a Hybrid Renewable Energy System Using Modified PSO Algorithm.....344

Subrat Bhol; Nakul Charan Sahu; Amar Bijay Nanda

Design and Kinematic Analysis of a 6-DOF Asymmetric Parallel Robot Manipulator with 4-SPS and 2-CPS Type Legs.....350

Metin Toz

VSC based HVDC Transmission System using Adaptive FPI Controller.....355

Sunita S. Biswal, Dipak Ranjan Swain, Pravat Kumar Rout

The MHD Plane Couette Flow in Porous Medium with Transpiration Cooling.....361

Sachidananda Sahoo; Paramananda Rout

Design and Simulation of In0.53Ga0.47As/InP Trench-Gate Power MOSFET to Improve the Device Performance.....366

Soumya S. Mohanty; Sikha Mishra

Automatic Attendance System using Face Recognition.....370

Susanta Kumar Sarangi; Arunesh Paul; Harshit Kishor; Kritath Pandey

Optimal Allocation of DSTATCOM Units in Electric Distribution Network Using Improved Symbiotic Organisms Search Algorithms.....375

Subrat Kumar Dash; Sivkumar Mishra; Usharani Raut; Almoataz Y Abdelaziz

An Improved Symbiotic Organisms Search Algorithm for Multi-objective Simultaneous Optimal Allocation of DSTATCOM and DG Units.....381

Subrat Kumar Dash; Sivkumar Mishra; Usharani Raut; Almoataz Y Abdelaziz

DCTSPA: A Proposed Model for Controlling Parking Spots.....387

Sashikanta Prusty; Srikanta Pattanaik; Sujit Kumar Dash

Covid-19 Data Analysis of India and Future Forecasting using Fb Prophet.....393

Biswarup Biswas; Subhra Debdas; Subhankar Samanta; Srijita Chakraborty; Anuridhi Chhangani; Sarbani Mohanty

Programmable-Logic-Controller based Robust Automatic Cleaning of Solar Panel for Efficiency Improvement.....400
Sayak Roy, Manali Mandal, Chitralekha Jena , Pampa Sinha , Tarakanta Jena

A Technical Review on Artificial Intelligence Optimization Techniques used for Micro Grid Planning.....404
Rajani Ahirwar; Priyanka Paliwal ; Tripta Thakur

Structural and optical properties investigation of the hybrid CZTS-MWCNT composite hole transporting material.....410

Jagatpati Raiguru; Priyadarshini Raiguru; Pitamber Mahanandia; Bidyadhar Subudhi

An Effective EMI Mitigation Technique Using Chaotic PWM for Interleaved Boost Converter.....415

Sudhakar Natarajan; Thanikanti Sudhakar Babu; Karthik Balasubramanian; Chiranjit Sain; Priya Ranjan Satpathy

Universal Motor with On-Off Controller for Washing Machine Application.....421

Sudhakar Natarajan; Karthik Balasubramanian; Priya Ranjan Satpathy; Thanikanti

Sudhakar Babu

Thermal Comfort for a Green Office Building: Current Status and Future Direction.....427

Ali Q. Al-Shetwi; Majid A. Abdullah; M A Hannan; Thanikanti Sudhakar Babu; Priya Ranjan Satpathy; Renu Sharma

Performance analysis of single-phase grid interactive voltage source inverter using different filter.....433

Satyaranjan Jena; Amiya Kumar Naik; Neha Singh; Samartha Senapati; Pradeep Kumar Sahu; Chinmoy Kumar Panigrahi

Study of Harmonics Contribution by Various Types of Loads in a Low Voltage Distribution System and Reduction of Harmonics.....438

Soma Biswas; Swapan Kumar Goswami

Solar PV Array Fed Fuzzy Logic Controlled PMSM Drive for Water Pumping System.....444

Biranchi Narayan Kar; Paulson Samuel; Amiya Naik

Machine Learning based approach in building QSAR models for the study of Asparagine Endopeptidase.....449

P.G.R. Achary; Nilima R. Das

Generating Power through Numerous Interconnection of Solar PV Modules with Incorporation of Thermoelectric Generator and Estimating Energy Rating.....455

Sunil Kumar Bhatta; Srikanta Mohapatra;Sarat Chandra Swain; Sasmita Jena

Sliding Mode Controlled IDBHCC for Single phase LC filter PWM Voltage Source Inverter.....461

Neha Singh; Satyaranjan Jena; Chinmoy Kumar Panigrahi

Ambipolarity suppression in SiGe/Si-TFET using hetero-dielectric BOX engineering.....466

Shwetapadma Panda; Guru Prasad Mishra; Sidhartha Dash

Effectiveness of Data Augmentation for classification of Melanoma using Deep Convolutional Neural Network.....470

Bhanja Kishor Swain; Susanta Kumar Rout; Mrutyunjaya Sahani; Pushti Kumari; Renu Sharma

Smart Shopping Trolley using Raspberry Pi.....475

Dipika D. Pradhan; Sabita Mali; Ashwini Ubale; M.M. Sardeshmukh; Swapnalini Pattnaik; Puja Bajirao Sindhe

Analysis of Type-2 Fuzzy Recurrent Wavelet Neural Network to Identify Non-linear dynamic System.....479

Debashisa Samal; Santosh Kumar Padhy; Laxmipriya Samal; Hemanta Kumar Palo; Badri Narayan Sahu

Emotional Speech Recognition using Particle Swarm Optimization Algorithm.....483

Surjyo Narayana Panigrahi; Dr. Hemant Kumar Palo

Speech Emotion Recognition using K-means Apriori Feature Selection Algorithm.....488

Biswajeet Sahu; Hemanta Kumar Palo;ShubhamShrotriya

ASSIE: Application of Squirrel Search Algorithm for Information Extraction Problem.....492

Rasmita Rautray, Rasmita Dash, Rajashree Dash, Rajendra Kumar Sahoo, Aswasana Pujari, Raunak Kumar Barik, J Amartya

A Comparative Study of Short Channel Effects in 3-D FinFET with High-K Gate Di-electric.....499

Rao Muhammad Asif; Saif Ur Rehman; Ateeq Ur Rehman; Mohit Bajaj; Subhashree Choudhury; T. P. Dash

Active Power Management in an AC Microgrid Using Artificial Neural Network and DSTATCOM.....504

Devi Prasad Acharya; Niranjan Nayak; Subhashree Choudhury

A Comprehensive Survey on Active Power Filters: Classifications, Issues and Future Trends.....510

Subhashree Choudhury; Devi Prasad Acharya; Niranjan Nayak

Tunable Q-Wavelet Transform based Entropy Measurement to detect and classify faults in CERTS Microgrid Test Bed.....516

S Ramana Kumar Joga; Pampa Sinha; Manoj Kumar Maharana; Chitralekha Jena

Application of Data Structure Algorithm For Sparse Matrix Computation in Power System.....528

Subhranshu Sekhar Puhan, Sobhit Panda, Saumya Ranjan Lenka, Dr. Renu Sharma

Passive Islanding Detection in Photovoltaic Based DC microgrid using Decision Parameters with Binary Tree.....533

Eluri N V D V Prasad; Lipsa Priyadarshini; Pradipta Kishore Dash

Harmonic Analysis of Fuzzy Controller Based Permanent Magnet Synchronous Generator with Reduced Switch Multilevel Inverter.....539

Debswarup Rath; Sanjeeb Kumar Kar; Satyaprasad Mohapatra; Akshaya Kumar Patra; Bidyadhar Rout; Dilip Kumar Subudhi

Modelling of Machine Learning Controller Based Reduced Switch Multi Level Inverter.....545

Debswarup Rath; Sanjeeb Kar; Akshaya Kumar Patra; Bidyadhar Rout

Grid Independent Operation of 200 hp DC Drive Using Solar-Wind-Battery Hybrid Power Source.....551

Debswarup Rath; Sanjeeb Kar; Akshaya Patra; Satyaprasad Mohapatra;

Face Recognition from Partial Face Data.....557

Safa Alfattama ; Priyadarshi Kanungo ; Sukant KishoroBisoy;

MAC Layer Protocol Selection Mechanism for the Energy Efficient Cross Layer Protocol Design of Wireless Sensor Network.....562

S. Arockiaraj; H. Hebbar; K. Makkithaya

Study on detection of breast cancer using Machine Learning.....568

Sunpreet Kour; Rakesh Kumar; Meenu Gupta

Hexagonal Spiral Photonic Crystal Fiber.....577

Arshiya Aggarwal; Rohan Gupta; Ankur Saharia; Manish Tiwari

IoT Based Fog and Cloud Analytics in Smart Dairy Farming.....581

Subhra Debdas; Sarbani Mohanty; Biswarup Biswas; Anuridhi Chhangani; Subhankar Samanta; Srijita Chakraborty

Comparison of Fault Detection Technique for AC Microgrid Protection.....586

Rudranarayan Pradhan; Premalata Jena

Additional Papers:

An Enhanced Dynamic Image Watermarking Framework based on Phase Congruency and Saliency.....54

Manas Ranjan Nayak; Dipak Kumar Sahoo; Jyoti Prakash Sahoo; Lalit Mohan Satapathy; Prabhu Prasad Dev

A Case Study on Data Classification Approach Using k-Nearest Neighbor.....233

Jogeswar Tripathy; Rasmita Dash; Binod Kumar Pattanayak

Robust State Vector Controller Design For Energy Management Scheme of a Hybrid Power System Based on More-Electric Aircraft.....522

Subhashree Choudhury; Sameekshsa Sahu