2023 -2024

Conference detail

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Rajiv Gandhi College of Engineering & Technology
Pondy - Cuddalore Main Road,
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Kalapatti Road, Coimbatore - 641048.

DEPARTMENT OF BIOMEDICAL ENGINEERING

Council of Scientific and Industrial Research (CSIR)

Sponsored Two Day National Level Conference

Certificate of Participation

This is certify that Mr./~~Ms./Dr.~~ Aravindkumaran.S, RGCET, Pondicherry participated/presented a paper titled "PRE-DIAGNOSIS OF SKIN CANCER USING IMAGE PROCESSING" in the CSIR Sponsored National Conference Point of Care Technology: The Next Frontier in Personalized Medicine and Health on 21st & 22nd April 2022 at Dr. N.G.P. Institute of Technology, Coimbatore.

Coordinator	Convener	Principal
Mrs. M. Menagadevi	Dr. M. G. Sumithra	Dr. S. U. Prabha

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ICAIS

JCT College of Engineering and Technology

NAAC A

Certificate of Presentation

This is to certify that

Aravindkumaran S

has successfully presented the paper entitled

Rule-based Routing in the Cognitive Radio Network for the Data Routing

at the

3rd International Conference on

Artificial Intelligence and Smart Energy (ICAIS 2023)

organized by JCT College of Engineering and Technology, Coimbatore, India

on 2-4, February 2023.

Session Chair	Conference Chair Dr. K. Geetha	Principal Dr. S. Manoharan

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NCISA 2023

CERTIFICATE OF APPRECIATION

This is to certify that/Mr./Ms./Dr./ Mr. Sedhumadhavan from Rajiv Gandhi College of Engg and Technology

Stress Detection Through Eye Tracking Using Artificial Intelligence

has Presented a paper in the **"1st National Conference on Information Securityand Applications (NCISA 2023)"** Organized by Department of Information Security, SIMATS School of Engineering, Saveetha University, Chennai on 20th and 21st April 2023.

Principal
Dr. B. Ramesh

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PAPER ID: NCISA -102

TITLE: Deep Learning Machine Applied To Chest X-Ray Pulmonary Tuberculosis Detection

AUTHORS: Sedhumadhavan. S, Dinesh G, Praveenkumar K, Raguraman S, Satheesh Kumar D

ABSTRACT: To diagnose chest radiographs, doctors and radiologists continue to use manual and visual methods. As a result, there is a requirement for an intelligent and autonomous system that is capable of diagnosing the chest X-rays. This thesis seeks to classify chest X-ray images into normal and pathological images using a deep neural network called a region-based convolutional neural network. Chest radiographs from public databases that comprise both normal and pathological radiographs are used to train and test the region-based convolutional neural network. Two networks are compared on the basis of their performance; the first utilises input chest X-rays without any processing or enhancement, while the second uses input pictures that have been enhanced and processed using histogram equalisation. According to the results of an experiment, the Region based Convolutional Neural Network had a strong generalization capacity when determining whether an unseen chest X-ray was normal or abnormal. As a result of the increased accuracy attained when pictures are improved, it is also found that image improvement employing histogram equalization aids in enhancing the learning and performance of networks.

KEYWORDS: Radiographs; classification; generalization; intelligent deep network; region-based Convolutional Neural Network.

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Performance analysis of 8/6 Switched Reluctance Generator for Wind Energy System

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***Abstract*— In this paper presents performance analysis of 8/6 switched Reluctance Generator (SRG) based on non linear inductance model. The simulation model of 8/6 SRG system was developed in MATLAB/SIMULINK environment and its dynamic and static performances are analyzed under different load status with the help of PI and Current Chopping (CC) control strategies. Then this model is implemented in Stand Alone Wind Energy Conversion System (SAWECS) and its performances are studied.**

***Index Terms*— Switched Reluctance Generator, Non-Linear inductance, Finite Element Analysis, Stand Alone Wind Energy Conversion System.**

I. INTRODUCTION

There are several methods are presented to analyze the operating performance of SRG. In [1], describe the detailed manner in MATLAB and simulated for fixed speed of operation. The optimum efficiency [2] of turn-off angle is analyzed for conduction various experimental test but it is not applicable in simulation case.

Dynamic model of SRG [3] with P-SPICE has been carried out by Osamu-Ichinokura, without using its non-linear characteristics and it has certain limitations. Investigation and Practice for Basic Theory of SRG [4] various control schemes have been analyzed. In [5], the model is very adaptable, but it need entire mathematical model of the system. M-file and MATLAB have been introduced in some modules [6] to develop the SRG nonlinear model of SRG, but it take more time to simulate. Then for wind energy application case of SRG [7] is described SRG with wind energy conversion process but they are not model with MATLAB. In [8] helps to model of wind turbine and concepts of wind turbine equations.

In this paper, the 8/6 SRG model have each phase winding, wind turbine, controller and power inverter are modeled based on MATLAB/SIMULINK and embedded MATLAB functions. The modeled SRG is 1.8KW, 4ϕ, 8/6 pole and model of its power inverter is 4ϕ half bridge asymmetric network. Then 3KW wind turbine is modeled in M-file in MATLAB using its corresponding modeling equation.

II. NONLINEAR MATHEMATIC MODEL OF SRG

In this paper, the performances of SRG are studied and the various inductance profile model of SRG analyzed. From this profile model, non-linear inductance model is developed using FEA.

A. Construction and working of SRG

In Fig. 1 shows the construction of 8/6 SRG, here the stator is salient pole type and it carries windings in all poles of the stator. The rotor construction also project pole type and there is no windings present in it. The entire rotor is made up of permanent magnet to maximize the efficiency of motor. The stator winding are connected to switches S1 and S2 and then connect to source. In between these two switches, diodes D1 & D2 are connected anti-parallel direction.

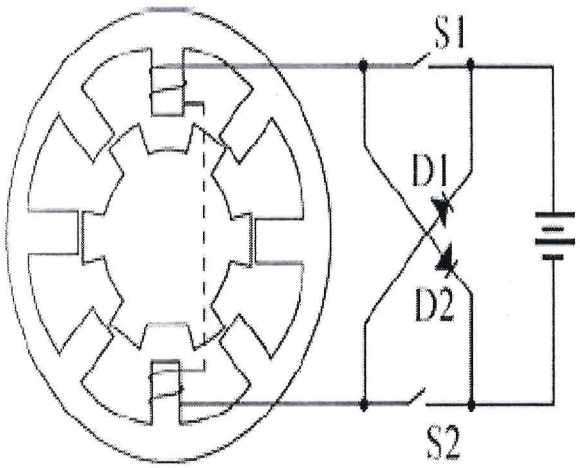

Fig.1 Simplified diagram of SRG's structure

The working operation of SRG consists of two modes such as excitation mode and generation mode. During the excitation mode, the switches S1 and S2 are turned ON, so that stator winding are excited by external source and result that motoring action takes place. Then the switches is in OFF state, diodes D1 & D2 are turned ON, generation action takes place. Due to prime mover which is connect to rotor, it generates electrical energy and send power back to source or load. Here wind turbine will act as a prime mover and the position of rotor is sensed by position sensors. The switches pulses given to power inverter is produced depend on the rotor position. The controller creates these pulse signals with the help of position sensor and drives the power inverter to implement excitation and electric power generation.

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This is to certify that ~~Dr/ Mr/ Ms~~ R. GOUTHAM GOVIND RAJU of RAJIV GANDHI COLLEGE OF ENGG & TECH, has presented a technical paper titled FUZZY LOGIC CONTROLLER BASED MPPT FOR PV SYSTEM IN ELECTRICAL DRIVE in the International Conference on "Advanced Concepts in Computational Engineering & Sciences" **ICACCES'19**, held on 15th March-2019.

ICACCES'19

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Z-Source Multilevel Inverter based AFLC PV System

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Abstract: **This paper expansion a Multilevel Inverter assembled on Adaptive fuzzy logic controlled Photo voltaic scheme. The Symmetrical Phase Shift Modulation (PSM) technique is used and the active device present in the Multilevel Inverter produces a power loss with shoot-through problem. The proposed system consists of PV system, Z-source, Multilevel Inverter, AFLC controller. Z-source is second-hand to protect the Multilevel Inverter from the shoot-through problem and to diminish the switching loss before switching strain of the scheme. A switched-capacitor based cascaded multilevel inverter with Symmetrical Phase Shift Modulation technique is used. The controller is used to evaluate the performance of the proposed system and the output of controllers is compared. The model study of the proposed converter is supported by using MATLAB/Simulink with proposed nine level inverter.**

Key words: **PSM, AFLC, THD, MLI**

I.INTRODUCTION

In modern centuries, manufacturing has begun to call sophisticated power kit, which requires megawatt level link like a solitary power semiconductor switch straight to intermediate- voltage [1]. In lieu of these causes, a different class of multilevel inverters has appeared as the resolution for employed with greater voltage points. The multilevel inverters have remained widely studied for various industrial applications such as huge motor drives with non-regenerative front ends, applications in power systems.

There are topologies for multilevel inverters: diode-clamped, capacitor clamped, and cascaded multi cell with separate dc sources. Among the various topologies, Cascaded Multilevel Inverters structures are probably the most popular [2-7]. Many modulation means to adjust the multilevel inverter, the general modulations are the space vector modulation, the Multicarrier PWM, and the particular harmonic rejection, sub harmonic pulse width modulation, etc. Though, utmost of them seriously rise the carrier frequency which dozen spells the frequency of reference. A symmetrical phase-shift modulation is acquainted to the planned multilevel inverter. The symmetrical PSM confirms the V_{out} of full bridge is symmetrical to the carrier, so voltage stages can be overlaid proportionally and carrier frequency to $2*f_{out}$

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II. LITERATURE REVIEW

The Z-source converter works on exceptional impedance system to link the converter main path to the power source, as long as unique features that cannot be obtained in the traditional voltage-source converter as well current-source converter. Primarily GA based selective harmonic reduction of a 11 level cascaded inverter PV arrays has been come up to for real time computation of switching angles by GA, then High performance PV power generation using z source inverter is used which takes Z-source. Which is monitored by Control and Modulation Scheme for a Cascaded H-Bridge Multi-Level Converter in large scale Photovoltaic System"definesa three-phase CHB converter provided with photovoltaic arrays is considered [11-12].

The paper is planned as follows. The system configurations and its simple process are discussed in Section III. The overall circuit diagram for the system and the simulation results were given in Section IV tracked by Section V, which accomplishes the paper.

III CIRCUIT DESCRIPTIONS AND OPERATION

The proposed AFLC controller based Z-source MLI for PV application is shown in Fig 3.1. In which the circuit is divided into four segments namely PV section, z-source section, Inverter section and load. The output from the proposed system is taken by changing the load form resistive to RL load and the obtained result are validates.

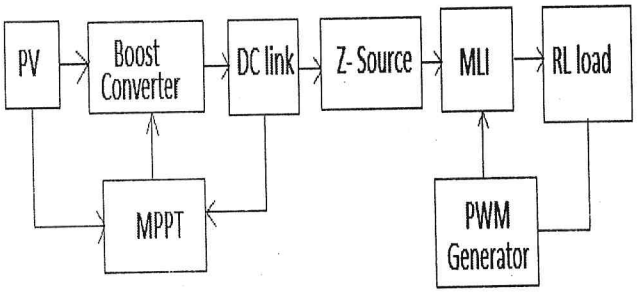

Fig..3.1: Block diagram of AFLC controller based Z-source MLI for PV application

Review of Load Frequency Control Techniques in Distributed Generation System

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Abstract: Load-frequency control (LFC) in interconnected power systems is undergoing many changes due to rapidly growing number of wind turbines, solar and other new types of power generation/consumption technologies. In this paper an extensive literature review of load–frequency control (LFC) problems in distributed generation based power system has been highlighted. The various control techniques/ strategies that concerning LFC issues have been addressed in distribution generation-based power systems.

Keywords: Artificial Intelligence techniques, Distributed Generation, Load Frequency control, Sliding mode controller.

Design of Optimal Linear Quadratic Regulator for the Stabilization of Continuous Stirred Tank Reactor (CSTR) Process

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Abstract: Continuous Stirred Tank Reactor (CSTR) is widely used in chemical industries. Chemical reactions in a reactor are either exothermic or endothermic and therefore require that energy either to be removed or added to the reactor to maintain constant temperature. This paper deals with the stabilization of CSTR using optimal linear quadratic regulator (LQR) method. Since the performance of the LQR controller mainly depends on the state and control weighting matrices (Q and R), it is necessary to select them optimally and are done based on trial and error method, which makes the controller design cumbersome also time consuming. Hence, to address the selection of weighting matrices problem of LQR, Bacterial Foraging Algorithm (BFA) method is proposed. The matrices Q and R are determined from the optimized algorithm. Performance indices like ISE (integral squared error) and IAE (integral absolute error) are considered to evaluate the optimally tuned values of controller parameters. The performance of the proposed method is compared with those of LQR method, Particle Swarm Optimization (PSO), Artificial Bee Colony (ABC) based LQR and conventional PID controller (tuned by Ziegler-Nichols method). Simulation results show that the proposed controller has better closed loop response in terms of ISE and IAE values.

Keyword: CSTR, Linear Quadratic Regulator (LQR), Particle Swarm Optimization (PSO), Artificial Bee Colony (ABC) and Bacterial Foraging Algorithm (BFA).