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008	H∞control of nonlinear fuzzy descriptor system via LMI Assil AYADI Amine TRABELSI Mohamed CHAABANE Driss MEHDI	This paper deals with the H∞ control of nonlinear fuzzy descriptor system described by Takagi-Sugeno fuzzy models. In the first step, we present a stability analysis of nonlinear fuzzy descriptor system. The stability conditions are given in LMI form. In the second step, we have developed H∞ PDC control law in order to reject the effects of external disturbances submitted to the system. Finally, a simulation example is presented to illustrate the mains results.	**042-047**
009	Optimal Control Design for VSCHVDC Systems Mohamed Ayari Mohamed Moez Belhaouane Naceur Benhadj Braiek Xavier Guillaud	This paper deals with modeling and optimal control design of VSC-HVDC transmission system in order to enhance system stability. The steady of the state mathematical model for GL (Generator-Load) VSC-HVDC system is developed and thedecoupled relationship between the controlling variables is proposed. Furthermore, this work focuses on the design of optimal PI (proportional-integral) controller which aims to maintain DC link voltage and control the reactive power. The effectiveness of the proposed optimal control scheme is proved through digital simulation studies on a VSC-HVDC power system, using MATLAB/Simulink software. The simulation results shows that the proposed optimal PI controller is effective to enhance power system stability.	**048-053**
010	Effect of defects on the efficiency of a SiCH pin based solar cells T. Azizi A. Torchani M. Ben Karoui R. Gharbi M. Fathallah E. Tresso	In amorphous hydrogenated silicon carbide (a-SiC:H) based p-i-n type solar cells, the device performance is limited by various factors. Most important of which is defects in the i-layer and particularly in the p/i interface. We performed I-V measurements on amorphous solar cells in the structure p(a-SiC :H)/i(a-SiC :H)/n(a-Si :H) at AM1.5. All parameters are determined such as efficiency and filling factor. In the dark, the static and dynamic parameters of diode are deduced. Defects in the intrinsic layer are evaluated by photothermal deflexion spectroscopy technique. All the measured parameters are used by the solar cell capacitance simulator (SCAPS 3.2). The structure of solar cells and the experimental conditions were introduced in simulator. The experimental I-V and spectral response characteristics were correlated to the simulated ones. The simulation shows that increase in defects density, reduces the electrical parameters of amorphous solar cells. The effect of the gap value is more important to define the efficiency of the solar cell made by a-SiC:H materials.	**054-058**
011	SOCENCLUSTER A New Rapid Clustering Technique Farouk Baccari Mounir Sayadi	In this paper, we present a novel clustering technique for unindexed, randomized, multidimensional, datasets. The main advantage of the proposed technique is the time and space complexity that were reduced to linear cardinality dependency. The algorithmic implementation shown in this paper uses some heuristics to enhance the overall execution time and space required making them fully scalable. This particularity makes it easier for ASICS / FPGA architects to implement such a technique in a constrained environment.	**059-064**
012	Increasing the Capacity of OMIMO Systems using MGDM Technique by Transfer Matrix Decomposition Faycal Baklouti Rabah Attia	Mode Group Diversity Multiplexing (MGDM) is an Optical Multiple-Input-Multiple-Output (O-MIMO) technique that provides larger robustness and capacity for data communication over MultiMode Fiber (MMF). The utility of a MGDM system in terms of capacity expansion gives a major interest in most applications of optical communication. In this paper, we propose a transfer matrix decompositioon of O-MIMO systems using MGDM technique in order to increase the capacity of the system. This treatment can be divided into 3 stages: noise whitening, channel diagonalization and dimension reduction. Numerical Matlab simulations results of a 3 MGDM link are given to support the efficiency of this study.	**065-070**
013	The first Tunisian fuel cell test station M. Barbouche F. Krout M. Chiha K. Charradi A. Zakarya R. Chtourou	In this study, a design and realization of a fuel cell test station is described. The control of the stack temperature and the optimization of some parameters, such as the acquisition and equilibrium time for each value of the current density are necessary steps for an objective and trustworthy comparison of the performance data. Our test bench comprises two major parts hardware and software. The hardware part comprises an electrical cabinet, a power supply, an acquisition chain, an electronic load, mass flow controllers, temperature controller, solenoid valves, and solid state relay. The assemblies of the different parts of the test station are made considering our project objectives, such as, security, size (Length: 1000mm, Width: 800mm, Height: 1900mm), accessibility and mobility etc. The software part includes not only the development of the pipelines and instrumentations diagrams but also the design of the rack using solid-works software. An interface was developed in the LABVIEW environment to enable mass flow controller and the solenoid valves control. It also allows the automatic data acquisition (fuel cell power, temperature and pressure). Preliminary measurements are made with a PEMFC (25 cm2) to make out the effect of temperature, relative humidity, back pressure and in the end the effect of cell number on the fuel cells power. The results may be used to find the best operating conditions.	**071-076**
014	Faults Detection and Isolation for energy management system in electric traction Bejaoui. Fatah Yahoui. Hamed Mechmeche. Chokri Hadjbraeik. Naceur Hammouri. Hassan	This paper deals with the problem of diagnosis of faults in energy management for electric traction system .In fact, a bilinear model for the DC-DC (Boost and Buck/Boost) power converters is proposed. The analytical approach of residual generation using the observers with unknown inputs is reviewed, the computation of a bank of residual generators is exploited for fault detection and isolation, in the presence of disturbance. To illustrate the effectiveness of this method, simulations using Matlab/simulink are carried out.	**077-082**
015	Miniaturized patch Antennas with complementry splitring Resonators and reactive impédance surface. S. BELDI A. FERCHICHI R. BEDIRA A. GHARSALLAH	The new design of patch antenna with complementary split-ring resonators (CSRRs) and reactive impedance surface (RIS) is presented in this paper. The meta-resonator (CSRRs) and the meta-surface are able to miniaturize the antenna size. This antenna is designed, including a circularly-polarized antenna. Key words: Microstrip antenna, split-ring resonator (SRR), miniaturized antenna reactive-impedance surface (RIS), circular polarization.	**083-086**

024	Speed Sensorless Indirect Field Oriented of Induction Motor Using Two Type of Adaptive Observer Chiheb Ben Regaya Abderrahmen Zaafour Abdelkader Chaari	In this paper, the indirect vector control speed sensorless is presented, two adaptive mechanisms have been proposed to estimate the rotor speed. The first adaptive observer based on sliding mode, a study was made to present the steps needed to design a sliding mode observer. The second has been developed from the backstepping technique to design an observer for the rotor speed. Finally, tests show the robust performance of the control law obtained by these two types of adaptive observers.	**135-139**
025	Induction motor mechanical fault identification using Park's vector approach Samira Ben Salem Walid Touti Khmais Bacha Abdelkader Chaari	In this work we have shown that the extended Park's vector spectrum is rich in harmonics characteristics of mechanical defects (air-gap eccentricity and outer raceway bearing fault). About the use of Park's Lissajou's curves to identify mechanical defects, we have demonstrated that this type of index can only detect the occurrence of a fault, but it cannot identify.	**140-145**
026	Design and Dynamic Modeling of a Fuel Cell/Ultra Capacitor Hybrid Power System Ben Slama Sami Ben Chaabene Abderrahmen Cherif Adnane	The aim of this paper is firstly to describe the design than to introduce a new approach of dynamic modeling and simulation results of a Fuel cell/Ultra capacitor (FC/ULC) hybrid power system. The developed model is represented in the state space, so it can be used to implement a suitable control strategy. The given design shows that the transient behavior, effect of the Fuel Cell, is eliminated by the use of the Ultra capacitor through the Flyback converter (FlBC). Thus, the output voltage from the source is maintained with a certain range and meets power demand of the load at high efficiency.	**146-152**
027	Dual Stator Induction Motor Operation from Two PWM Voltage Source Inverters Ben Slimene Marwa Khlifi Mohamed Larbi Ben Fredj Mouldi Rehaoulia Habib	This paper presents a d-q model of dual stator induction machine supplied by a two identical PWM voltage source inverters suitable for analysis the dynamic steady under balanced operating condition. In the analytical model, the effects of common mutual leakage inductance between the two threephase stator winding sets have been included. The model has been developed in general reference frame and it is suitable for analysis of the machine behavior with spatially shifted by 0, 30 and 60 electrical degrees between the two three-phase stator winding sets.	**153-156**
028	Unknown inputs observers for state and unknown inputs estimation in a class of discretetime Lipschitz nonlinear systems. Ben Warrad Seifeddine Dhahri Slim Ben Hmida Fayçal	In this paper, we propose a method for estimating of state and unknown inputs based in observers approach in a class of discrete-time Lipschitz nonlinear systems with unknown inputs both state and measurement. This method design is obtained using a particular Lyapunov function in order to guaranty the asymptotic stability of the error estimation. The observer gains are determined in terms of Linear Matrix inequalities (LMI). Performances of the proposed approach are illustrated through simulation results.	**157-161**
029	Animating signing avatar using descriptive sign language Nour Ben Yahia Mohamed Jemni	This paper proposes an interactive manipulation of signing avatar (complex human's figures) by means of a descriptive sign language. The objective is to improve the human–computer communication, to generate precise signs for Deaf community, to control and animate the virtual character. This approach has been developed to manipulate robots through several analytic and numerical resolution methods. These methods have been applied to the virtual character for better monitoring and to ensure a realistic animation in real time.	**162-166**
030	Robust Sliding mode observer for fault estimation of uncertain system Habib Ben Zina Slim Dhahri Fayçal Ben Hmida	This paper describes a method of actuator fault estimation for linear uncertain systems. In this work, the upper bound of the unknown input is not required. To remove this requirement a modified sliding mode observer is presented. The novelty in this method lies in the structure of the mechanism introduced to calculate the sliding mode observer gain responsible to counteract uncertainty and actuator fault. In order to guarantee robustness to uncertainty, the developed observer use the $H\infty$ principle. Then, based on Lyapunov method, asymptotic stability conditions are given to design the observer parameters. Also, the equivalent output error injection signal is used to estimate the fault. Finally, the validity of this approach is illustrated by a VTOL aircraft model.	**167-171**
031	Asymmetrical Cascaded Multilevel Converter Applied in Photovoltaîc Systems Oussama Bouaziz Imen Jaafar Faouzi Ben Ammar	The performance of photovoltaic system is affected by solar radiation, temperature, shading and cells configuration. This paper presents a suggested solution to cure the problems of the shade, by the use of the cascaded multilevel inverters adapted to the situation of non-identical continuous DC PV sources and commended by an appropriated PDPWM control.	**172-177**
032	Robust Stiffness Control for Constrained Robots Under Model Uncertainties. Haifa Mehdi Olfa Boubaker	In this paper, we present an improved proof of global asymptotic stability of constrained robotic systems under model uncertainties. The control objective is to make the robotic manipulator's end effector to track the reference trajectories in the task space. The proposed approach is an enough straightforward method without force and position control separation. It's based on the Lyapunov Hamiltonian method and the stiffness control strategy. The robustness of the suggested robust controller is proved via simulation results.	**178-182**
033	Toward a mobile service for hard of hearing people to make information accessible anywhere. Mehrez Boulares Mohamed Jemni	Deaf and hard of hearing people can find it difficult to follow the rapid pace of our daily life. This problem is due to the lack of services that increase access to information. Regarding hearing impairment there is no specific solutions to make information accessible anywhere. Although this community has very specific needs related to the learning and understanding process of any written language. However, hearing impairment is an invisible disability which is quite frequent: it is estimated that more than 8% of world's population suffers from hearing loss. According to many studies reading level of hearing impaired students is lower than reading level of hearing students. In fact many deaf people have difficulties with reading and writing; they cannot read and understand all the information found in a newspaper, in vending machine to take a conveyance, in instruction leaflet etc Mainly all visual textual information are	**183-187**

		not accessible for this category of people with disabilities. However, a number of obstacles still have to be removed to make the information really accessible for all and this is crucial for their personal development and their successful integration. In this paper we propose a solution to this problem by providing a mobile translation system using the great technological advances in smart phones to improve the information accessibility anywhere. We rely on text image processing, virtual reality 3D modeling and cloud computing to generate a real-time sign language interpretation by using high virtual character quality.	
034	A new Approach Combining speech Chaotic Encryption with fragile Image Watermarking For audio securing and intrusion detection Bouslehi Hamdi Seddik Hassene	Digital watermarks have been created to be a protection technique of copy rights on digital audio, image, and video. A watermarking can be fragile and robust according to our needs. An attack in watermarking technology is any process that can impact the detection of the watermark. In this paper we studied the evaluating of extracted signal quality before and after attack with the SNR value calculated between extracted signals. This evaluation serves to present the fragility of our watermarking whose the mark is an audio sequence encrypted by a chaotic encryption algorithm method and tested by using various types of attacks. The fragility of watermarking is used as a tool to control intrusion. .	**188-193**
035	New Condition of Stabilization for Continuous Takagi Sugeno Fuzzy System based on Fuzzy Lyapunov Function Ali bouyahya Yassine Manai Joseph haggège	This paper tries to give a new stabilization condition of continuous Takagi-Sugeno fuzzy models. Using nonquadratic Lyapunov function, the new condition of stabilization are used in terms of linear matrix inequalities LMIs. To verify the robustness of this new condition, a numeric example is used. Index Terms: Takagi-Sugeno fuzzy system, Fuzzy Lyapunov Function, Linear Matrix Inequalities LMIs, Parallel Distributed Controller PDC.	**194-200**
036	New Allied Fuzzy CMeans algorithm for Takagi Sugeno Fuzzy model Identification BOUZBIDA Mohamed TROUDI Ahmed HASSINE Lassad CHAARI Abdelkader	Takagi--Sugeno (TS) fuzzy model have received particular attention in the area of nonlinear identification due to their potentialities to approximate any nonlinear behavior [1]. In literature, several fuzzy clustering algorithms have been proposed to identify the parameters involved in the Takagi- Sugeno fuzzy model, as the Fuzzy C-Means algorithm (FCM) and the Allied Fuzzy C-Means algorithm (AFCM). This paper$ presents the New Allied Fuzzy C-Means algorithm (NAFCM) extension of the AFCM algorithm. Then an optimization method using the Particle Swarm Optimization method (PSO) combined with the NAFCM algorithm is presented in this paper (NAFCMPSO algorithm).The simulation's results on a nonlinear system shows that the New Allied Fuzzy C-Means algorithm combined with the PSO algorithm gives results more effective and robust than the Allied Fuzzy C-Means algorithm.	**201-207**
037	Neural Network Based Method for the Automatic Detection of the Stator Faults of the Induction Motor Monia Ben Khader Bouzid Gérard Champenois	This paper proposes a neural network based method to achieve an automatic detection of different stator faults of the induction motor. The concerned stator faults are the inter turns short circuit, phase to phase and phase to ground faults. The inputs of the feedforward multi-layer neural network are the indicators of the stator faults while its outputs are the corresponding faults. Therefore, the used indicators of faults are extracted from the symmetrical components of the stator currents which are the magnitude and the angle phase	**208-214**

		of the negative and zero sequence current. The neural network is trained by the back-propagation algorithm. A faulty simplified multiple coupled circuit model of a 1.1 kW induction motor is used to simulate the different operating conditions of the machine useful to built the data base for the training and the test procedures. The good training and test results show the efficiency of the proposed method.	
038	An Animated Avatar to Interpret SignWriting Transcription. Yosra Bouzid Mohamed Jemni	People with hearing disability often face multiple barriers when attempting to interact with hearing society. The lower proficiency in reading, writing and understanding the spoken language may be one of the most important reasons. Certainly, if there were a commonly accepted notation system for sign languages, signed information could be provided in written form, but such a system does not exist yet. SignWriting seems at present the best solution to the problem of SL representation as it was intended as a practical writing system for everyday communication, but requires mastery of a set of conventions different from those of the other transcriptions systems to become a proficient reader or writer. To provide additional support for deaf signers to learn and use such notation, we propose in this paper a new tool for displaying SW notation content, automatically, in visual-gestural modality by using a 3D signing avatar. The notation is provided as input in an XML based format called SWML (SignWriting Markup Language). Such tool can help the deaf to grasp and interact with the transcribing data through a more user-friendly environment.	**215-219**
039	Sliding Mode Control of Nonlinear Uncertain System Based on TakagiSugeno Fuzzy Model Lotfi Chaouech Oussama Saadaoui Abdelkader Chaari	This paper proposes an approach to design sliding mode control for a class of uncertain nonlinear systems, where the uncertainty is a norm bounded type. Firstly, we choose the sliding surface which gives a good behaviour during sliding mode. It is formulated as an assignment of the poles of uncertain nonlinear system in a convex optimization area. Secondly, we design a nonlinear control law leading the state trajectory on the sliding surface in a finite time. A numerical application of inverted pendulum is given to validate the theoretical results of our approach.	**220-225**
040	Energy Estimation on Large Scale Time of Stand Alone Wind Turbine. Habib Cherif Jamel Belhadj	In this paper, accurate energy production estimation of stand-alone wind turbine in southern Tunisia has been studied. Energy estimation by Weibull distribution and meteorological data is applied. The design of the wind turbine system architecture according to all the characteristics of the studied site was presented. Monthly average wind energy production is estimated with the integration of converters losses. Loss models of boost and rectifier converters are investigated. The obtained results show that the integration of converters losses and using the statistical distributions leads to a better energy estimation taking into account all the characteristics of the southern Tunisia site.	**226-231**
041	A Hybrid Method Based on Conjugate Gradient Trained Neural Network and Differential Evolution for Non Linear systems Identification	A hybrid method based on Differential Evolution and Neural Network training algorithms is presented in this paper for improving the performance of neural network in the non linear system identification. For this purpose, the local optimization algorithm of conjugate gradients (CG) is combined with the differential evolution algorithm (DE), which is a population-based stochastic global search method, to yield a computationally efficient algorithm for training	**232-236**

	Chiha Ibtissem Liouane Nouredine	multilayer perceptron networks for nonlinear system identification. After, a series of simulation studies of our method on the different nonlinear systems it has been confirmed that the proposed CG+DE algorithm has yielded better identification results in terms of time of convergence and less identification error.	
042	Incremental relaying effect on the outage probability of correlated sources Transmission. Zina Chkirbene Noureddine Hamdi	In this paper we investigate different relaying strategies for correlated source transmission in block Rayleigh fading channels. Outage probability close form expressions are derived for both the cases where incremental decode and forward and only simple decode and forward techniques are used in the relays. We show that when using incremental technique in the principal relay, not only we gain in terms of channel resource saving but we get also a significant outage performance improvement compared to simple decode and forward system. Another finding of this paper is that if incremental relaying technique is used in the principal relay, the system reaches a diversity order of 2 with a significant power gain compared to a two links maximum ratio combining system.	**237-242**
043	An Equilibrium Pricing Model for Large Scale Computational Markets Lilia Chourou Mohamed Jemni Ahmed Elleuch	Load balancing is one of the most challenging problems facing large-scale computational systems. This paper introduces a competitive pricing model to achieve a general equilibrium between the global supply and demand in large scale computational commodity markets. Prices are adjusted according to a tâtonnement like process. A fully distributed pricing model is proposed based on an existing partially distributed version. While in this last version, the price of each commodity is computed by only one auctioneer, in our algorithm, a scalable number of auctioneers is used to support a massive number of suppliers and consumers.	**243-248**
044	Voltage Control of a Single Distributed Generation Unite in Autonomous Mode Operation Under Unbalance and Nonlinear Load Conditions. Yacine DAILI Lazhar RAHMANI JeanPaul GAUBERT	This paper propose a voltage control of a single distributed generation (DG) unit powered local load.The DG system utilizes three phase four wire voltage source inverter VSI with split DC link as the medium interface and LC filter to attenuate the switching frequency harmonics, A dual loop scheme is employed. Dead beat current controller in inner loop, which achieve fast dynamic response. In the outer loop, Multigeneralized resonant filter with feedback state is employed to track reference voltage and eliminate the low order harmonics , and to make the dynamic of the system greatly adjustable via pole-placement strategy. The proposed controller provides a set balanced three phase voltage with low THD equal to 1.80% in worse case (non linear load) for a locale load, despite unbalanced and distorted current load, guarantee a robust stability, fast dynamic response to disturbance, zero study state error. Effectiveness of the proposed control strategy is evaluated based on time domain simulation studies in Matlab/ Simulink TM environment.	**249-254**
045	Photovoltaic properties of devices using fullerene and copper ph thalocyanine doped with polyhexylthiophène.. H. DEROUICHE A.B. MOHAMED	We have fabricated organic solar cells, with an active layer of fullerene (C60) and Copper-phthalocyanine (CuPc) doped with poly(3-hexylthiophène) (P3HT) deposited by spincoating. This layer is sandwiched between the anode, an indium tin oxide film and the C60 layer. We have studied the effect of CuPc doping using P3HT in order to improve the efficiency of the photovoltaic devices. The thin films have been characterized by infrared absorption measurements (I-R), Atomic force microscope (AFM) and ultraviolet/visible spectroscopy in order to study the influence of P3HT doping on the properties of the solar cells. We have also compared the I-V characteristics of two different structures: ITO/PEDOT:PSS/ C60-CuPc/Al and ITO/PEDOT:PSS/ C60-CuPc-P3HT/Al. Both structures show weak but significant photovoltaic behaviour. Indeed, doping CuPc with P3HT improves the efficiencies of the solar cells. We have also seen that the diffusion of species from the indium tin oxide (ITO) anode into the active layer causes a decrease in overall photovoltaic characteristics of C60-CuPc-P3HT based solar cell.	**255-257**
046	New LMI Formulation for Control Design of Discrete Linear Repetitive System. Jamel Dridi Selma Ben Attia Salah Salhi Mekki Ksouri	This paper addresses the stability analysis along the pass and the synthesis problem of linear 2D/repetitive systems (i.e. information propagation in two independent directions). A new sufficient condition for the synthesis problem in the case of MIMO is also given for both discrete repetitive linear. A necessary and sufficient condition for analysis and synthesis for discrete repetitive linear MISO systems is presented. These new results are expressed in term of LMI (linear matrix inequalities). Numerical examples are provided to illustrate the effectiveness of the proposed formulations.	**258-263**
047	Expansion of MIMO ARX model on Laguerre ortho normal bases. Amani El Anes Kais Bouzrara Tarek Garna Hassani Messaoud	In this paper, we propose a new dynamic linear MIMO system representation by using discrete-time MIMO AutoRegressive with eXogenous input (ARX) model. To provide a reduced complexity model, each polynomial function of the MIMO ARX model associated to the inputs and to the outputs is expanded on independent Laguerre orthonormal basis to develop a new black-box linear MIMO ARX-Laguerre model. This reduction is ensured once the poles characterising each Laguerre orthonormal basis are set to their optimal values. Simulation results show the effectiveness of the proposed modeling method.	**264-269**
048	Design of a Hybrid Linear Stepper Motor for Shunting the Railways Channels Barhoumi El Manâa Hajji Mansour Ben Salah Boujemâa	This paper concerns the optimal design of hybrid linear stepper motor by evaluating the developed propulsive force for each position of the used permanet magnet. The new linear actuator is proposed for shunting the railways channels in aim to replace the currently used system which consists of a rotary actuator coupled with system for movement transformation (Rotary to Linear). Hence, three different structures with permanent magnet are analysed by finite element method in aim to evaluate the propulsive force versus the mobile displacement. The magnetic flux distribution and the force profile of each hybrid structure are presented and discussed. The analysis of different actuator structures allows the selection of the proper structure for the specific requested application.	**270-273**
049	New approach for noise cleaning on real time videos based lowpass filtering and mathematical morphology Dhekra ESSAIDANI Hassene SEDDIK Ezzedine BEN BRAIEK	Video de-noising presents a necessary step in video processing. It improves its quality and permits a preview processing for other applications such as objects tracking, compression, feature extraction, edge detection, motion tracking etc. In this paper, we combined the mathematical morphology operations with low-pass filtering to improve real-time video de-noising corrupted by different noise types. Different kinds of morphologies and filters are proposed in order to define the best combination possible .This algorithm does not require any motion estimation. It isn't present a blur in de-noising video. Nevertheless, it can be a good reference for estimate motion in video.	**274-279**

	of a Weighing System of a Grain Silo. M.N LAKHOUA M. TOUMI M.TIBINI	process systems, we present the issues involved in the application of a Functional Analysis (FA) technique on a supervisory system of a weighing system of cereals. Our contribution consists on applying a FA technique SADT (Structured Analysis Design Technique). This technique allows a functional description of the weighing system of cereals. The paper briefly discusses the functionality of the weighing system and some advantages of the application of the FA for the design of a supervisory system. Then the basic principles of the application of the supervision of the weighing system are presented. Finally, the different results obtained from the application of supervision are discussed.	
085	Bar Faults Diagnosis of An Indirect Vector Control Squirrel Cage Induction Motor Souad Saadi Laribi Gérard Champenois Azzedine Bendiabdellah Samir Meradi	In this paper, the performance study of the vector control method applied to a three phase squirrel cage induction motor with rotor broken bars faults as well as with both faults simultaneously is being presented. The fault diagnosis technique used in this work is based on the spectral analysis of electrical and mechanical quantities such as currents (id, iq), speed error (ew), direct current error (eId), quadratic current error (elq) and voltage. Simulation as well as experimental results are being carried and presented to illustrate the influence of vector control on a faulty squirrel cage induction motor.	**473-478**
086	Unsupervised system for Lexical Disambiguation of Arabic Language using a vote procedure. Merhbene Laroussi Anis Zouaghi Mounir Zrigui	In this paper we propose an unsupervised method for Arabic word sense disambiguation. Using the corpus and the glosses of the ambiguous word, we define a method to generate automatically the context of use for each sense. Since that, we define a similarity measure based on collocation measures to find the most nearest context of use to the sentence containing the ambiguous word. The similarity measure may give more than one sense, for that we define a novel supervised approach called vote procedure. Our work was compared with other related works. We obtained a better rate of disambiguation in the average of 79%.	**479-484**
087	Dimensioning a hybrid electrification system PV / WT / DG + battery using a dynamic simulation Layadi. TM Mostefai .M	The aim of this paper is to demonstrate that a dynamic simulator, taking into account temporal data of renewable sources and using energy on one year, is able to sizing each element composing the electric generation system and the storage system. The electrical system includes photovoltaic panels (PV), a wind turbine (WT), a diesel generator (DG) and a storage battery. To illustrate the sizing capability of the dynamic simulator, we have fixed the surfaces of the PV and wind turbine as well as the battery. We are looking to obtain 100% supply by whole generation system. The study is limited to the power minimization of the diesel generator and to elaboration a strategy of starting and stopping the DG according to the SOC of the battery. I.e. with minimum power of DG, minimize the number of start-up and minimize the amount of excess energy. The simulation results for several sizing of DG illustrate the possibility to choose the power DG and the SOC thresholds of the battery to starting or stopping the DG.	**485-490**
088	Spatial shape variability analysis of T-waves in the ECG signal Rebh MABROUKI Balkine KHADDOUMI Mounir SAYADI	This work aims to study the shape variability of the T-waves using multi channel records. The classification between a group of subjects with Myocardial Infarction (MI) and a group of healthy subjects is obtained using a synthetic signal called Integral Shape Averaging (ISA). Our methodology is based on calculation of projection coefficients corresponding to each electrode for both groups of subjects. These coefficients represent a distance between each subject and one of the groups. This latter allows us to compare each subject to each population. These coefficients are obtained by a surface difference between the signal of each electrode in each column and the associated ISA signal. In addition, we seek for the electrode that represents the best separation between the two populations. In this study we improve previous studies and make a comparison with another approach which is a combination between the ISA technique and the calculation of shape difference.	**491-494**
089	Ant Colony Optimization algorithm for breast cancer cells classification Ahmed Nejmedine Machraoui Mohamed Ali Cherni Mounir Sayadi	Ant colony optimization (ACO) is a bio-inspired technique formalized into a meta-heuristic for combinatorial optimization problems. In this work, the ACO-Otsu segmentation method, based on ACO algorithm and Otsu's method as a fitness function, is applied in classification and detection of breast cancer cells. Subsequently, this method is compared with the Otsu's standard method. The experiments show the performance of this probabilistic search approach in such type of problems.	**495-500**
090	Active and reactive power compensation through a preventive defense strategy based on FACTS devices Sahbi Marrouchi Souad Chebbi	The excessive increase in the number of subscribers in the electrical grid requires a flexible control of this electrical network and a better reliability of the offered power quality. Thus, several defense plans are omnipresent to ensure stability, continuity of service and to overcome some disturbances which can affect the electrical grid. In this context, we present in this paper the development of a new control strategy used a compensator UPFC based on fuzzy controllers. We simulated this strategy in the IEEE test 14 buses network and the results were promising.	**501-505**
091	Nonlinear Control of Three Phase Active Rectifiers Based L and LCL Filters Amira Marzouki Mahmoud Hamouda Farhat Fnaiech	In this paper, a state-space modeling of three-phase voltage source type pwm rectifiers using L and LCL filters is proposed. Next, an input-output feedback linearization based control technique is developed with the aim to control the DC output voltage and the input displacement factor as well. The overall control strategy is tested using Matlab/simulink software wherein a two-level converter is modulated by comparing lowfrequency sine wave modulating signals to a 10 kHz triangular wave pulse. Finally, simulation results are investigated so as to make a comparative study between the performances of two topologies in terms of unity power factor operation capability, total harmonic distortion of line currents, and DC bus voltage regulation.	**506-510**
092	Optimal expansion of linear system using generalized orthogonal basis Abdelkader Mbarek Kais Bouzrara Hassani Messaoud	This paper proposes a new method for determining the optimal pole of generalized orthonormal basis (GOB) which leads to an optimal system model developed on such basis. This optimal pole is obtained by solving a set of non linear equations. The proposed procedure is formulated for single-input/singleoutput (SISO) systems. The proposed algorithm is tested on simulations and good performances in term of approximation and calculus time are obtained.	**511-516**

1011	A Novel Approach for D Head Segmentation and Facial Feature Points Extraction Achraf Othman Oussama El Ghoul	This work presents a novel approach for 3D head segmentation as well as for extraction of facial features vertices. These tasks are the preliminary task for retrieval, recognition, classification and tracking processes. 3D head regions are detected from a cloud of points using the ratio of geodesic to Euclidean distances between pairs of vertices that combine neighbor coordinates and position information of the point. In this paper, we propose a new algorithm to extract automatically feature points inside the facial region based on the topology of 3D face. Furthermore, in order to validate our approach, we have run experimentations on several types of full 3D head that differ in number of points and surfaces, gender and ethnic. Also, to approve its robustness, we apply our approach on a benchmark of scanned faces containing 67 models.	**564-569**
1022	A Rule Based Approach for Building an Artificial English ASL Corpus Zouhour Tmar Achraf Othman Mohamed Jemni	A serious problem facing the Community for researchers in the field of sign language is the absence of a large parallel corpus for signs language. The ASLG-PC12 project proposes a rule-based approach for building big parallel corpus between English written texts and American Sign Language Gloss. We present a novel algorithm which transforms an English part-of-speech sentence to ASL gloss. This project was started in the beginning of 2010, a part of the project WebSign, and it offers today a corpus containing more than one hundred million pairs of sentences between English and ASL gloss. It is available online for free in order to develop and design new algorithms and theories for American Sign Language processing, for example statistical machine translation and any related fields. In this paper, we present tasks for generating ASL sentences from the corpus Gutenberg Project that contains only English written texts.	**570-573**
103	Compensation of harmonic disturbances in the Tunisian sahel railway supply system Ouni Faten Faouzi Ben Ammar	The Tunisian SAHEL railway supply system of 68 km length track is fed by one electrical substation (ESS) 150kV/25kV. The overhead line is modeled as distributed circuit which presents parallel and series resonances. In the drive system, the DC motors are fed by half bridges which generate current harmonics in the line. The major supply system problems caused by harmonic current in the line are presented, as overvoltage and psophometric current in telecommunication cable. Moreover, the leakage current into the earth and the long distance from substation which produces electromagnetic interference are analyzed. To reduce the disturbances in railway supply system, several solutions are studied. Indeed, the problems presented previously may be reduced by changing of drive converter or by changing of the topology of the line or by using filters.	**574-578**
104	Adaptive Immersion and Invariance Control for a Class of Electromechanical Systems Tarek Rabaï Raoudha Ben Khaled	Abstract—This paper proposes a control approach for a class of electromechanical systems based on immersion and invariance method. Two cases are considered: full information system and unknown parameters existence. Thereafter, two controllers are, respectively, proposed: stabilization control and adaptive control. The effectiveness of the obtained control schemes is illustrated via simulation of an example.	**579-584**
105	Study of Photovoltaic Water Pumping System using Scalar DVC Based Control NAJET REBEI BELGACEM BENGHANEM ALI HMIDET OTHMAN HASNAOUI.	This paper aims to achieve a control of a photovoltaic water pumping system. The study consists of a photovoltaic generator, an inverter, an induction motor and a centrifugal pump as mechanical load. The model used for global simulation is a closed loop model: the voltage output of PVG model is coupled with the voltage input of the inverter-induction motor model; the current output of this latter is coupled with the current entry of the PVG. The strategy control proposed in this study consist to i) pumping water with Solar energy, ii) drives the machine in constant flux and variable voltage for this subject a closed loop scalar based control law via a direct voltage control (DVC) inverter is used . The MPPT is given by the theory of conservation of energy ensures the control speed. The induction motor model is based on the classic dynamic model in the dq orthogonal Park reference frame. Simulations results confirm the working of the complete model and the effectiveness, feasibility and limits of such approach.	**585-592**
106	A Feedforward Neural Network Wheelchair Driving Joystick. Yassine Rabhi Makrem Mrabet Farhat Fnaiech Philippe Gorce	People with disabilities such as those affected by IMC disease or Parkinson's disease have difficulties in operating standard joystick due to their different levels of tremors or difficulties encountered when moving their arms. The objective of this work is to design a new neural joystick suitable for each patient allowing overcoming these difficulties or incomplete or erroneous actions, in order to reach maximum security. The design of the neural network joystick system is based on training a neural network to model the inverse of the standard joystick. The trained resulting neural network is then connected to output of the joystick. The overall system is then used to control all the DC motors and devices of the wheelchair. Simulations and experimental real data recorded on disabled persons are then used to highlight the effectiveness of the designed system.	**593-598**
107	Input-Output Feedback Linearization Control of a Cascaded H-Bridge Multilevel Inverter Abir Rehaoulia Mahmoud Hamouda Farhat Fnaiech	This paper proposes a voltage controller for Cascaded H-bridge three-phase multilevel inverters operating in islanded mode with constant-amplitude constant-frequency output voltages. For this purpose, a non linear state-space model of the converter feeding a three-phase load via a second order LC filter is developed. Next, an input-output feedback linearization controller is designed so as to drive the output voltages to track the target references. Numerical simulations carried out on a 7 level inverter emphasize the effectiveness of the proposed model and control law. Based on feedback linearization strategy, the closed loop response of the system is stable even in case of disturbances. The transient state is extremely short and presents small overshoots.	**599-605**
108	A Sliding ModeMultimodel Control for Torque Evolution of a Double Feed Asynchronous Generator Ahmed RHIF Zohra KARDOUS Naceur BEN HADJ BRAIEK	This paper proposes a robust control of doublefed induction generator of wind turbine to optimize its production: that means the energy quality and efficiency. The proposed control reposes in the sliding mode control using a multimodel approach which contributes on the minimization of the static error and the chattering phenomenon. This new approach is called sliding mode multimodel control (SMMC). Simulation results show good performances of this control.	**606-611**

118	A Simple Method for the Steady State Performances of Self Excited Induction Generators M. SELMI H. REHAOULIA	Recently, the self-excited induction generators (SEIG) have been widely employed to operate as wind-turbine generators of an isolated power system. This paper proposes a simple method for the steady-state performance characteristics of a SEIG. Unlike the previous method, the proposed method avoids the tedious and erroneous manual work of segregating the real and imaginary components of the complex equation of the model. In this method, the model is formulated in a simple way and then solved using a numerical MATLAB function “fzero”. The effectiveness of this method has been confirmed by comparing on a 0.8- kW induction generator the computed results obtained by the proposed method to those obtained by classical methods.	**664-667**
119	Structural and electrical characterization of the HSiC based Junction Field Effect Transistor JFET K. Shili M. Ben Karoui R. Gharbi M. Fathallah	The main focus of our work is the characterization and structural study of 4H-silicon carbide (SiC) normally-off vertical junction field effect transistor (JFET). We will determine the experimental static Ids-Vds characteristics under temperature variation. In order to achieve a better description of SiC and metal interface properties, many interesting parameters related to the material and to the device performance have been obtained from these measurements. Simulation has been used to correlate obtained results to physical parameters. When the temperature increases to 300℃, the RDS (ON) increa se to 700 mΩ and the saturation drain source current decreases up to 14A.	**668-671**
120	Fuzzy cregression models based on Euclidean particle swarm optimization Moez Soltani Abdelkader Chaari	This paper proposes a modified fuzzy c-regression models clustering algorithm based on Euclidean particle swarm optimization. The Fuzzy C-Regression Models (FCRM) clustering algorithm has a considerable sensitive to initialization susceptible to converge to a local minimum of the objective function. In order to overcome this problem, Euclidean particle swarm optimization is employed to optimize the initial states of FCRM. The orthogonal least squares is used to identify the unknown parameters of local linear model. Finally, numerical example are given to verify the effectiveness of the proposed approach.	**672-675**
121	Comparative study of minimal value parameters and RKPCA in RKHS. Nadia souilem Ilyes Elaissi Hassani Messaoud	This paper aims to compare two RKHS models used for describing nonlinear process behaviour. The first model is issued from the estimation of the minimal value of the learning set cardinal and the second results from the complexity reduction of an RKHS model built using arbitrary learning set cardinal. Both models have been tested on non linear dynamic system used as a benchmark and the results were successful.	**676-681**
122	A Particle Swarm Optimization Approach for Optimum Design of PID Controller for nonlinear systems Taeib Adel Chaari Abdelkader	In this paper,a novel design method for determining the optimal proportional-integral-derivative (PID) controller parameters for Takagi-Sugeno fuzzy model using the particle swarm optimization (PSO) algorithm is presented. In order to assist estimating the performance of the proposed PSO-PID controller,a new timedomain performance criterion function has been used. The proposed approach yields better solution in term of rise time, settling time,maximum overshoot and steady state error condition of the system.the proposed method was indeed more efficient and robust in improving the step response.	**682-685**
123	Delaydependent stability criteria for neutral systems with a varying delay. Taleb Hamdi Issam AMRI Dhaou SOUDANI	In this paper, we consider the problem of delay dependent stability of neutral system with time varying delays. By using an augmented Lyapunov functional, a new delay dependent sufficient stability criterion is obtained in terms of Linear Matrix Inequalities LMIs. The proposed approach involves neither free weighting matrices, nor any model transformation, and it is shown that these criteria can provide less conservative results than some existing ones. Numerical examples are considered to show the efficiency of the proposed stability approach.	**686-690**
124	A new Online Kernel method identification on RKHS Space Okba Taouali Ines Zakraoui Ilyes Elaissi Hassani Messaoud	This paper proposes a new kernel method for online identification of nonlinear system. The proposed Support Vector Regression- Regularized Network (SVR-RN) method uses the technique SVR in an offline phase to reduce the parameters number of the RKHS. Then the RN method is used to update theses reduced parameters.	**691-696**
125	Adaptive observer approach for actuators multiplicative faults detection and isolation Raouaa TAYARI Fayçal BEN HMIDA	In this paper we interest in the problem of multiplicative faults detection and isolation for linear systems. To solve this problem we use a bank of adaptive observers. The proposed algorithm is applied on a numerical example to conclude that the correct and robust detection and isolation in respect to the actuators multiplicative faults.	**697-702**
126	Flatnessbased trajectory generation for induction machine control Hajer Thabe Mounir Ayadi	This article deals with the problem of trajectory gen- eration and tracking for nonlinear systems. The principal problem considered concerns the generation of desired trajectories for differentially flat systems. In this work, two methods of trajectory generation are applied in case of induction machine control to solve the problem of trajectory tracking with good efficiencies. The first one is based on the polynomial functions and the second rests on the B-splines functions. The combined methods of PI controllers and trajectory planning give an improvement results in terms of trajectory tracking in the case of field- oriented control strategy.	**703-708**
127	RGB image denoising Using New Low-pass filter with variable Gaussian core Real time optimized by Neural networks Tebini Sondes Seddik Hassene Mbarki Zouhair Ben Braiek Ezzedine	Filtering consists in applying a non linear transformation on the image intensities by convolution to modify its characteristics. Gaussian filter is widely used in literature as a low pass filter for signal de-noising. It has some advantages and many inconvenient. It presents a static shape that convolves uniformly the entire image zones. Its smoothing efficiency depends on the value of its standard deviation. More its smoothing efficiency is increased more the image is blurred and the details and borders are removed. All these inconvenient are related to the static nature of Gaussian core of the filter. In this paper we propose a new approach for RGB images filtering, based on a smart dynamic filter with variable Gaussian core based neural network. The parameters that intervene in the filtering process are real time computed and supervised by a neural network. The filter is continuously varied to detect and clean noisy zones and avoid clean zones in the image. The experimental results demonstrate the efficiency of the proposed technique. The image is well filtered and the details and borders are	**709-715**

		more conserved.	
128	A new Internal MultiModel controller for a linear process with an uncertain time delay Touzrl Mustapha Naceur Mongi Soudanl Dhaou	This document presents a new Internal Multi-Model Command controller design method for a linear system with a limited uncertain time delay. This design method is based on the use of a models collection to approximate the system functioning using Padé approximations; these models are inversed and multiplied by low pass filters in order to obtain a set of controllers to calculate the command value through a fusion procedure. These controllers are obtained by the multiplication of a low pass filters and Models inverses, in order to impose poles and zeros for the considered system and to control the robustness of the command through the filters parameters, which must confirm a compromise between stability and rapidity. In this paper the Multi-Model Command controller design method will be presented through five sections; the first one describes Internal Model Control concepts, the second one describes effects of presence of a time delay on systems dynamics, the third section describes briefly Multi-Model concepts, the fourth section presents the new Internal Multi-Model controller design Method and finally the fifth section presents the obtained results of the new controller design method application for a system with a limited uncertain time delay and the filters parameters variations effects.	**716-721**
129	Discrete time sliding mode control of PMSM Hassene Trabelsi Adel Chbeb Anis Sellami	In this paper a discrete-time model for Permanent Magnet Synchronous Motor (PMSM) based on the Explicit Euler method is presented. Thus, an advanced application of the discrete variable structure control theory using a discrete time varying sliding surface is designed for the tracking of the rotor velocity. First, modeling and simulation of the PMSM supplied by an inverter is presented. Then, closed loop simulations of the RST control and the discrete time sliding mode control (DSMC) are realized. The obtained results from the two approaches are finally compared in terms of good performances.	**722-727**
130	Skin Disease Analysis and Tracking based on Image Segmentation Olfa Trabelsi Lotfi Tlig Mounir Sayadi Farhat Fnaiech	Tracking of the skin disease is a necessary step of diagnostic as well the measure of the wound's surface is very useful in healing's document. To overcome the difficulties of the skin illness's estimation, encountered with the currently used measurement techniques, we propose a novel approach aiming to reduce the time-consuming and the error rate. The proposed method is based on two steps; the first step is a preprocessing one which consists in image segmentation to detect the edge of the infected skin region. In the second one, another proposed method is applied to measure the wound 'size' and control the illness evolution. In this work, a comparative study was realized to select the most suitable segmentation technique referred to a proposed criterion based on 'edge accuracy' EAC. The new criterion was compared with the 'surface accuracy' based on ROC1 space. The experiments show the performance of the proposed criterion and the efficacy of the measurement technique.	**728-734**
131	Phase AC Induction Motor Rotor Flux Oriented Control with Space Vector Modulation Technique. Hamdi Ben Echikhb Ramzi Trabelsia Mouhamed Faouzi Mimounib Faouzi M'sahlib	The paper deals with the analysis of the rotor flux oriented control with space vector modulation technique for a five phase induction motor drive. The speed control using the rotor flux oriented control (RFOC) with or without speed sensor uses proportional integral controlled technique which make it possible to achieve satisfactory goals on the torque dynamics and flux. Simulated results on a five phase induction motor drive are displayed to validate the feasibility and the effectiveness of the proposed strategy.	**735-746**
132	Comparative study of the saturated sliding mode and antiwindup controllers Chaker Zaafouri Anis Sellami Germain Garcia	The saturation problem is the one of the most common handicaps for applying linear control to real applications, especially the actuator saturation. This paper focus on a comparative study between the classical anti-windup regulator and robust saturated sliding mode control. In the first step, we present a design methodology of SMC of a class of linear saturated systems. We introduce the structure of the saturation, them we perform the design of the sliding surface as a problem of root clustering, which leads to the development of a smooth and non-linear control law that ensures to reach the sliding surface. The second step is devoted to present briefly the anti-windup controller technique. Finally, we use an example of a quarter of vehicle system to give simulation results.	**747-752**
133	Control of Linear Switched Reluctance Motor For biomedical application. Zaafrane Wajdi MahmouD Imed Fathalah Mourad Rehaoulia Habib	The work developed in this paper deals with control of a linear switched reluctance motor (LSRM). The studied actuator is used to motorize a syringe pump in biomedical systems. A model of the actuator is performed neglecting magnetic saturation. Different control and command modes using standard controllers are detailed and tested in this paper. In order to make a constant flow of the liquid in the syringe pump, this paper reports a study of sensor less force and closed loop control of the LSRM with a classical PID and hysteresis controller.	**753-759**
134	DSP Full Implementation of Second Order Sliding Mode Control to Drive a SPIM Noureddaher Zaidi Hechmi Ben Azza Mohamed Jemli Abdelkader Chaari	In this paper, the design and the real time implementation of a novel non linear control algorithm to drive a Single Phase Induction Motor (SPIM) are presented. The control schema is based on the field oriented control strategy and requires the development of three controllers. A super twisting algorithm (STA) associated with a partial feedback linearization is applied to control the currents of both main and auxiliary windings. The speed SPIM is driven via a first order proportional sliding mode controller. The stability is demonstrated using the Lyapunov approach and robustness is investigated under load conditions. To illustrate the effectiveness of the proposed controllers, experimental setup is developed and tests were carried out.	**760-765**
135	Identification of MIMO systems using MLP Networks Comparison between SVR and random initialization. Hajer Zardoum Nawel Mensia Moufida Ksouri	Neural network (NN) modelling approach is often used for non-linear system identification. Building a NN for some identification problem starts by choosing its structure and initial weights. There is no exact method to determine the optimal initialisation for a NN, but some authors have used support vector regression (SVR) to initialise a RBFNN which could be considered as a systematic way. This paper presents a SVR initialisation method for Multi-Layer Perceptron (MLP) NN. The proposed method is based on the analogy between NN and SVR to determine the necessary number of hidden neurons and the initial weights for a given modelling precision. Simulation results for multiinput multi-output (MIMO) system show the	**766-771**

		feasibility and accuracy of the proposed method.	
136	GPC Multivariable Control Applied to Temperature and Humidity Neonate Incubators M. A. Zermani E. Feki A. Mami	This paper presents a multivariable predictive control algorithm to resolve the coupling effect in closed loop systems. The desired decoupling is achieved by including an appropriate weighting factor on the objective function of predictive control. This weighting factor is tuned in synchronization to the error observation to eliminate the strong interaction. The proposed algorithm is applied to the control of humidity and temperature of a neonatal incubator. Simulation results are verified and compared with the others algorithm in the literature.	**772-777**
137	Implementation of Space Vector Modulation Using DSP Zoghlami Maha Bacha Faouzi	The progress of microelectronics allows the implementation of complex control algorithms while using embedded platforms such as FPGA cards and DSP cards. In this paper, we proposed to implement on a DSP digital control algorithms onboard a three-phase inverter voltage applications for variable speed electrical machines. This command is based on the use of the principle of Space Vector modulation technique PWM. The control platform is based on the DSP TMS320F240 from Texas Instruments Code Composer and Software. As further work, we developed the real time implementation of a Space Vector pulse Width Modulation (SVPWM) technique.	**778-784**
138	An Extended Sliding Mode Observer for a Class of Linear Uncertain Time Delay Systems Delay Dependent Design Method Boulaabi Iskander Sellami Anis Ben Hmida Fayçal	For uncertain systems an extended Sliding Mode Observer (SMO) delay-dependent design method is presented in this paper. The considered uncertainty is bounded and the time delay is constant and affects simultaneously the input and state system. The basic design idea consists to combine the SMO concept with an adequate choice of a Lyapunov- Krasovsk˝ý functional. This design method is numerically tractable via Linear Matrix Inequalities (LMI) optimization. Besides, the dynamic properties of the observer are also analyzed and the reachability condition is satisfied. An illustrative example is given to show the validity and the applicability of the proposed approach.	**785-789**
139	New Clustering Algorithm for Identification of a Nonlinear Stochastic Model TROUDI Ahmed HOUCINE Lassad BOUZBIDA Mohamed CHAARI Abdelkader	Many clustering algorithms have been proposed in literature to identify the premise and consequence parameters involved in the TS fuzzy model. In this paper this parameters are estimated at the same time and this from the minimization of four optimization criteria. The proposed algorithm constitutes an extension of the algorithm proposed by J.Q.Chen in 1998. However, in this paper we introduced some modification on the optimization criteria and especially the last two criteria, thus we replaced the Euclidean distance by another non-Euclidean distance when calculating the fuzzy partition matrix. The purpose of these modifications is to introduce more robustness with the algorithm especially for highly nonlinear systems and those operating in a stochastic environment. The efficiency of the algorithm is tested on an electro-hydraulic system.	**790-795**
140	Toward A Data Desktop Grid Computing Based On Bonjour Grid Meta Middleware Walid Saad Heithem Abbes Christophe Cérin Mohamed Jemni	Desktop Grid or Voluntary Computing systems forms one of the biggest computing platforms in using idles resources over Internet or over LAN's networks. Desktop Grids have been successfully used for solving scientific applications around the world at low cost. However,the data requirements of e-Science applications increase dramatically with the emergence of data-intensive applications. Hence data management becomes one of the major challenge of Desktop Grids. In this work, we describe important challenges that are needed to implementing scalable data-intensive solution in Desktop Grids systems. In addition, we explore the state-of-the art in tools and frameworks for Big Data handling. The proposal solution will be integrated in BonjourGrid Desktop Grid.	**796-800**
141	Direct Power Control of GridConnected Converters Using Sliding Mode Controller B.Bouaziz F.Bacha	This paper proposes a Direct Active and Reactive Power Regulation of Grid-Connected converters using Sliding Mode Control approach applied to three phase PWM converters. The DPC-SMC controller regulates the DC-link voltage, active and reactive power-flows of the grid-connected converter. The proposed DPC-SMC strategy scheme calculates directly the required converter's control voltage. So as to eliminate the instantaneous errors of active and reactive powers without involving any rotating coordinate transformations. Meanwhile, there are no extra current controls loops involved, which simplifies the system design and enhances the transient performance. Constant converter switching frequency is achieved by using space vector modulation, which eases the design of the ac harmonic filter. Simulation results of the improved direct power control (DPC-SMC) are compared to standard direct power control (DPC) strategies. The robustness of the proposed DPC to line inductance variations is also inspected during active and reactive power changes.	**801-806**
142	Simulation of a Tunisian Wind Farm of Sidi Daoud Using PSAT. F.Bacha R. Karoui	This paper deals with the analysis and simulation of a Tunisian Wind farms in Sidi-Daoud, the most important wind farm in Tunisia. In this farm constant speed wind turbines are used. The first section devoted to the presentation of the wind farm of Sidi-Doud. In the second part, we present the aerodynamic model of the wind turbine and the transient model of the induction generator used in this wind park. Finally, we simulate the electrical behavior of the wind farm under the turbulent wind upstream of each rotor turbine and identify the main features based on simulation software PSAT.	**807-813**
143	Overview of Hybrid Excitation Synchronous Machines Technology Sami Hlioui Yacine Amara Emmanuel Hoang Michel Lecrivai Mohamed Gabsi	This paper describes the state of the art of hybrid excitation synchronous machines. Different hybrid excited synchronous structures from scientific and technical literature are described and analysed. Advantages and drawbacks of the different structures are discussed. Different method of classification of these structures will also be discussed. The contribution of the hybrid excitation principle for motoring and generating mode is detailed and the different models for the design of these structures are presented.	**814-823**