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Abstract: One of the basic requirements in images representation was the feature extraction and its proper description and has many applications in the image processing and the machine vision. Many of the local feature detectors of image use the difference of Gaussian feature detector. This detector is too much invariant against the scale changes. In this paper, a procedure is presented to select a proper threshold for the standard deviation in Gaussian filter to improve the performance of difference of Gaussian detector. In this paper's method, based on the properties of co-occurrence matrixes, the spatial dependences between available points in the image are divided into three general classes: sharp points, middle points and unsharp points, and then, on the basis of this division, the appropriate position is determined for stopping the development of standard deviation in Gaussian filter in some way that it is prevented to destroy the sharp points in the image and also to select the noise points as the key points of image.

Keywords: Difference of Gaussian (DOG), Feature Detector, Interest Point, Key Point

References:

Authors: Jipsa Antony, Jyotirmoy Pathak
Paper Title: Design of Baugh Wooley Multiplier using HPM Reduction Tree Technique
Abstract: Baugh Wooley Multiplier is one of the different techniques for signed multiplication. It is not widely used. Here design and implementation of 8 bit Baugh Wooley multiplier using conventional method as well as using High Performance Multiplier Reduction tree (HPM) technique and the comparative analysis of both the design for power, delay and the area footprint has done using Cadence RTL compiler 180nm process technology.
Keywords: Multiplier, Baugh Wooley, HPM, Cadence RTL
References:

Authors: Talat S. EL-Danaf, K. R. Raslan, Khalid K. Ali
Paper Title: New Numerical Treatment for the Generalized Regularized Long Wave Equation Based on Finite Difference Scheme
Abstract: In this paper, the generalized regularized long wave (GRLW) equation is solved numerically using the finite difference method. Fourier stability analysis of the linearized scheme shows that it is unconditionally stable. Also, the local truncation error of the method is investigated. Three invariants of motion are evaluated to determine the conservation properties of the problem, and the numerical scheme leads to accurate and efficient results. Moreover, interaction of two and three solitary waves is shown. The development of the Maxwellian initial
condition into solitary waves is also shown and we show that the number of solitons which are generated from the Maxwellian initial condition can be determined. Numerical results show also that a tail of small amplitude appears after the interactions.

**Keywords:** Finite difference; generalized Regularized long wave equation; Solitary waves; Solitons.

**References:**

Authors: Maysam Behmanesh, Majid Mohammadi, Vahid Sattari Naein

**Paper Title:** Chaotic Time Series Prediction using Improved ANFIS with Imperialist Competitive Learning Algorithm

**Abstract:** This paper presents an improved adaptive Neuro-fuzzy inference system (ANFIS) for predicting chaotic time series. The previous learning algorithms of ANFIS emphasized on gradient based methods or least squares (LS) based methods, but gradient computations are very computationally and difficult in each stage, also gradient based algorithms may be trapped into local optimum. This paper introduces a new hybrid learning algorithm based on imperialist competitive algorithm (ICA) for training the antecedent part and least square estimation (LSE) method for optimizing the conclusion part of ANFIS. This hybrid method is free of derivation and solves the trouble of falling in a local optimum in the gradient based algorithm for training the antecedent part. The proposed approach is used in order to modeling and prediction of three benchmark chaotic time series. Analysis of the prediction results and comparisons with recent and old studies demonstrates the promising performance of the proposed approach for modeling and prediction of nonlinear and chaotic time series.

**Keywords:** chaotic time series, Gradient based, imperialist competitive algorithm, Fuzzy systems, ANFIS, least square estimation.

**References:**
Abstract: This paper investigates how to reduce error and increase speed of Back propagation ANN by certain defined Capacity factor. For the years from 1965 to 1980 the use of a variety of ANNs for problem solving was relented significantly because of limitations in one layer networks that weren’t good enough for enhancements of a specific issue, although there were low expectancies for even simple tasks and mathematical operations. Multi-layer networks have a serious covenant to improve this privation by more effective error reduction for example by least squares error method and a better learning factor like the one that is considered in MLP which is modified, enhanced version of Perception network that has provided a better chance of using these networks for intelligent signal processing. But the purpose of this paper is not showing capabilities of these networks alone but to consider error reduction while the weighting equations both satisfy ordinary task of algorithm and at the same time reduces presumptions of errors by a predetermined Capacitance factor that is not very anomalous to other bunch of clustering pedagogy styles anent the other types of ANNs. Unlike a single layer network with many limitations in learning, approximating and estimating a mapping function, multi-layer networks are well prepared for estimation of any uniformly continues subordination with tunable accuracy. Hidden layer in many applications does the job of enhancements which were envisaged in design process. And as a result understand how to use Capacity factor for BPANN algorithm, and error reduction in general that holds convergence, speed improvement and error smoothing at the same time.

Keywords: BPANN enhancement, Error smoothing, MLP, Intelligent signal processing.

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Abstract: In image processing, segmentation is an important technique which is based on the homogeneous features utilized to partition the image into various regions. In Medical field MR images are widely used, but due to its noise, intensity in homogeneity, Partial Volume Effect (PVE) through voluntary and involuntary movement of the patients and equipments the segmentation process is highly complex. White Matter (WM), Grey matter (GM) and Cerebrospinal Fluid (CSF) are the three main tissue segmentation of MR brain image segmentation. The accurate segmentation of brain tissues facilitates the estimation of tissue volume, tumor detection and estimation of volumes of tumor, which is done by making the image smoother and thus easier to measure. In addition this technique facilitates to estimate the Region of Interest (ROI) in an image. Segmentation is mainly classified as supervised and unsupervised and based on these two there have been various techniques developed for the image segmentation. In medical field, the supervised has less demand as it requires prior knowledge from the external

Authors: K. B. Vaishnavee, K. Amshakala

Paper Title: Study of Techniques used for Medical Image Segmentation Based on SOM
entity. On the other hand, unsupervised segmentation provides more accurate result where it does not need any prior knowledge at any time. The well known Self Organizing Map (SOM) segmentation technique is a type of unsupervised clustering technique utilized to make image quite simple and yields significant accurate segmentation results for the MRI images. This survey paper addresses the various existing methodologies for segmentation of MRI images and presents the issues and advantages related to those approaches.

Keywords: MRI Brain image, Segmentation, SOM - Self-organizing maps, Image Segmentation, unsupervised segmentation.

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Authors: Devikarani Patil, Varalakshmi B.D
Paper Title: Hand Gesture Recognition for MP3 Player using Image Processing Technique and PIC16F8779

Abstract: The scope of the project is to control MP3 player using gesture. Here, gesture image is taken from Web camera and image will be processed in remote interface using MATLAB controller. But, the challenging problem is that capturing the image from external device does not depend on unique only and Identification of the exact action from an unclear image is not an easy task. Hence, capturing action from the images is always puzzling task of separating different sources of images when its different or noisy. Finally, the images are forwarded to MATLAB to compare the images with our knowledge database via three dimension (x, y, and z) readings of a particular object. So if we move any object in any direction then the corresponding values are noted by the accelerometer. Most of the music players are controlled through the remote controls which contain buttons. But through embedding the PIC16F8779 controller, we can make music player be controlled by gesture performance in the air. The application of this three axis controller together with suitable interfacing with the PIC16F8779 micro
controller and the music player development through coding in software platform such as MPLab IDE which could recognize the terminal input instructions and perform functions like play, stop, play back and play forward of music player controlled by gesture. We need to move the accelerometer in a particular set of directions then it will recognize one of the directions like REWIND, FORWARD, PLAY and STOP and operate the songs present in the list of music system. Additionally, Karhunen–Loève (K-L) Transform is used to capture the image without any noise and accurate in result and Canny Edge Detection for image segmentation and edge detection using Principal component analysis (PCA) which add more value in expected result.

Keywords: Hand Gesture Recognition, Karhunen-Loève (K-L) Transform, Skin Filtering, Canny Edge Detection, Image Segmentation, Human Computer Interaction, matching algorithm; PIC16F8779

References:

Authors: Faris E. Mohammed, Eman M. ALdaidamony, A. M. Raid

Paper Title: Multi Model Biometric Identification System: Finger Vein and Iris

Abstract: Personal identification process is a very important process that resides a large portion of daily usages. Identification process is applicable in work place, private zones, banks …etc. Human is a rich subject having many features that can be used for identification purpose such as finger vein, iris, face …etc. In this paper, a personal identification system with multi model architecture have been proposed. The proposed system fuse personal finger vein and iris which utilizes a vein feature matcher for finger vein and Hamming Distance Matcher for iris with matching score level to provide higher accuracy of 92.4%, with FAR and FRR of 0% and 7.5%, respectively. It has been more secure than a framework used a single identification of personal feature.

General Terms: Multi-model System, Biometric, finger vein, Iris, Identification, Recognition.

Keywords: Biometric Computing, finger vein Recognition, IRIS Recognition, Minutiae Extraction, FAR, and FRR.

References:
RSA algorithm is an asymmetric key cryptography. It is a block cipher. RSA has stronger security than single key cryptography. RSA has a pair of key – a private key and a public key. Sender sends the message encrypting it with the public key of receiver. Receiver receives the message by decrypting it with its private key. RSA provides authentication and integrity. So it is used in SSL for key exchange. At present 512 bit is considered insecure after the implementation of General Field Sieve Number [1]. So in this paper, we propose a novel face recognition algorithm which exploits both local and global features for feature extraction. Local features are extracted by Gabor wavelets and for global feature extraction, contourlet transform is applied. Then statistical parameters for local and global features are calculated and both the features are combined. Finally face recognition is performed using distance classifier. This proposed algorithm is implemented using MATLAB. The experimental results on ORL face database demonstrate the efficiency of proposed method as 98.5% as against non-fusion face recognition schemes.

Keywords: Face recognition, contourlet transform, feature extraction, local features, global features.

References:

Authors: Ankita Nag, Vinay Kumar Jain
Paper Title: The Hardware Implementation of Improved RSA Algorithm
Abstract: RSA algorithm is an asymmetric key cryptography. It is a block cipher. RSA has stronger security than single key cryptography. RSA has a pair of key – a private key and a public key. Sender sends the message encrypting it with the public key of receiver. Receiver receives the message by decrypting it with its private key. RSA provides authentication and integrity. So it is used in SSL for key exchange. At present 512 bit is considered insecure after the implementation of General Field Sieve Number [1]. So in reference paper the idea of bit stuffing is introduced. RSA is bit stuffed after encryption that means a random number is appended to the cipher text and sent. At receiver, stuffed bit that is that random number is removed and then the cipher text is decrypted. Bit stuffing is suggested as a logic or measure to be used instead of increasing the number of bits in RSA. Since larger bit numbers will require more time and effort for calculation, bit stuffing will save time and effort. In this paper, this idea is implemented in hardware. Same security as with larger bit number say 1024 can be get in almost same time with lesser bit numbers say 512 bits with lesser bandwidth requirement. In this paper, improving the SSL using modified RSA algorithm, coding is done in MATLAB.

Keywords: RSA, Bit Stuffing, public key cryptography, public key, private key, prime number
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**Authors:** Hamideh Hajjabadi, Saeideh Kabiri Rad

**Paper Title:** Retrieving Frequent Item Sets from Distributed Data Base

**Abstract:** With fast growing of the network and the data storage, large scale data are rapidly expanded and collected on the physically distributed storage, consequently traditional data mining approaches are not appropriate for information retrieval purpose. Distributed data mining techniques are developed in order to examine distributed data by parallel algorithms. Distributed data mining algorithms based on finding frequent itemsets are widely used for this purpose. The itemsets retrieved are numerous. In this paper proposed a tree based mining approach contributing to user such that reducing number of retrieved itemsets. The algorithm is implemented and the results are demonstrated.

**Keywords:** Frequent itemsets, Non-Derivable itemsets, Distributed database

**References:**

**Authors:** Mohammed Ahmed, Eijke Chibuozo Anene, Hassan Sabo Miya, Saidu Kumo Mohammed

**Paper Title:** Control of a Continuously Variable Transmission System

**Abstract:** This paper proposed control strategies for the modern mechatronic Continuously Variable Transmission (CVT) System using three different techniques: The Ziegler-Nichols, Linear Quadratic and Pole-Placement methods. The results of the system responses of the designed control schemes were successfully simulated using MATLAB. Comparing the results showed that controller implemented using the Pole-Placement method was the best for the system which gave a rise time of 335milliseconds, peak time of 400milliseconds, settling time of 290 milliseconds and an overshoot of 0.72 percent.

**Keywords:** Controller, Continuously Variable Transmission (CVT) System, Ziegler-Nichols Method, Pole-Placement method, Linear Quadratic Regulator method.

**References:**
Abstract: Breast cancer is one of the leading cancers among women in developed countries including India. Early diagnosis of the cancer allows treatment which could lead to high survival rate or avoids further clinical evaluation or breast biopsy reducing the unnecessary expenditure. This paper aims to build Artificial Neural Network (ANN) model for detection of breast cancer based on Image Registration techniques. Gray Level Co-occurrence Matrix (GLCM) features are extracted and are used to train the ANN. The performance is analysed on the basis of Mean Square Error (MSE) for different number of neurons of ANN.

Keywords: Artificial Neural Network, Breast Cancer Detection, Mammogram.

References:

Authors: Satish Saini, Ritu Vijay

Paper Title: Performance Analysis of Artificial Neural Network Based Breast Cancer Detection System

Abstract: Breast cancer is one of the leading cancers among women in developed countries including India. Early diagnosis of the cancer allows treatment which could lead to high survival rate or avoids further clinical evaluation or breast biopsy reducing the unnecessary expenditure. This paper aims to build Artificial Neural Network (ANN) model for detection of breast cancer based on Image Registration techniques. Gray Level Co-occurrence Matrix (GLCM) features are extracted and are used to train the ANN. The performance is analysed on the basis of Mean Square Error (MSE) for different number of neurons of ANN.

Keywords: Artificial Neural Network, Breast Cancer Detection, Mammogram.

References:

Authors: A. K. M. Al-Shaikhli, Amanoeel Thomas Meka

Paper Title: Design and Implementation of Practical Induction Heating Cooker

Abstract: Induction heating is a famous technology and very usually used for cooking appliances because of its high-energy efficiency. This paper presents a practical design procedure for small induction heating devices. Also, we model the magneto thermal phenomena of the system by a finite element method (FEM) to determine the temperature evolution in the bottom of the pan, taking into account the nonlinearity of the system.

Keywords: Finite element method, magneto thermal devices, a.c. resistance, metallic object.

References:
ork models, where each model es the problem of power awareness routing to increase lifetime of overall network.


References

Recognition technology has tremendous potential as it is an integral part of future intelligent devices, in which

Paper Title: ADHOC Networks Improving Power Efficiency using Multicast Multi-Path Routing Technology

Abstract: The proposal of this paper presents a measurement-based routing algorithm to load balance intra

Keywords: Consumption, Lifetime, Perturbation, Stochastic

References:


Authors: Cini Kurian
Paper Title: A Review on Technological Development of Automatic Speech Recognition

Abstract: Speech recognition has been a challenging and multidisciplinary research area since decades. Speech Recognition technology has tremendous potential as it is an integral part of future intelligent devices, in which speech recognition and speech synthesis are used as the basic means for communicating with humans. In this paper, a survey of major landmarks in the research and development of automatic speech recognition is presented to provide a review of technological perspective and an appreciation of the fundamental progress that has been made in this area.

Keywords: Automatic Speech Recognition

References:


**Authors:** Tahereh Ghaifzahi, Rouollah Dianat, Bagher Babaali

**Paper Title:** A New Method to Improve Feature Detection Methods Based on Scale Space

**Abstract:** Scale-space theory provides a well-founded framework for modelling image structures at multiple scales, and the output from the scale-space representation can be used as input to a large variety of visual modules. Visual operations such as feature detection, feature classification, stereo matching, motion estimation, shape cues and image-based recognition can be expressed directly in terms of (possibly non-linear) combinations of Gaussian derivatives at multiple scales. In this sense, scale-space representation can serve as a basis for early vision. The Gaussian scale-space is widely used to model the human visual system. The main reason why Gaussian scale-space solely being used is that the Gaussian function is the unique kernels which satisfies the causality property i.e., it states that no new feature points are created as the scale increasing. The Gaussian filter are highly suitable for smoothing image. The amount of smoothing depends on the value of the standard deviation parameter of the Gaussian function. The problem of creating Gaussian scale-space is that if image smoothing does not stop in a proper point; it may lead to extreme destruction of local features of the image. In this paper, an approach has been presented to enhance a scale-space based on Gaussian function in order that a threshold is chosen for standard deviation in Gaussian filter with aim of preventing extreme destruction of image local features. Results of the presented method indicate that this method affects considerably prevention of extreme destruction of image features and it can be very effective on creation of scale-space with high accuracy.

**Keywords:** Destruction Rate, Feature Detection, Gaussian Scale Space, Scale-space representation

**References:**
Abstract: Sensor networks are used for applications in monitoring harsh environments including reconnaissance and surveillance of areas that may be inaccessible to humans. Such applications depend on reliable collection, distribution, and delivery of information to processing centers which may involve multi-hop wireless networks which experience disruptions in communication, data packet drops, connectivity loss, and congestion. Some of these faults are periodic, attributed to external, and recurring factors. In this paper, we study an effective way to forecast such repetitive conditions using time-series analysis. We further present an application-level, automatic routing service that adapts sensor readings routes to avoid areas in which failures or congestion are expected. A prototype system of the approach is developed based on an existing middleware solution for sensor network management. Simulation results on the performance of this approach are also presented.

Keywords: Monitoring, Surveillance, Communication, Middleware, Reconnaissance.

References: