

| NO | ABSTRACTS | IEEE YEAR |
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| 1. | <p>A High Efficiency Flyback Converter With New Active Clamp Technique</p> <p>This paper proposes a flyback converter with a new noncomplementary active clamp control method. With the proposed control method, the energy in the leakage inductance can be fully recycled. The soft switching can be achieved for the main switch and the absorbed leakage energy is transferred to the output and input side. Compared to the conventional active clamp technique, the proposed methods can achieve high efficiency both for heavy-load and light-load condition, and the efficiency is almost not affected by the leakage inductance. The detailed operation principle and design considerations are presented. Performance of the proposed circuit is validated by the experimental results from a 16 V/4 A prototype.</p> | 2010 |
| 2. | <p>A Hybrid Switching Scheme for LLC Series-Resonant Half-Bridge DC-DC Converter in a Wide Load Range</p> <p>This paper presents a hybrid switching scheme for LLC series-resonant half-bridge (SRHB) dc-dc converter. The concept of the proposed hybrid switching scheme is changing the switching mode to improve power efficiency in a wide load range. The SRHB converter operates in three different switching modes depending on the output load condition. Digital control of the system facilitates the implementation of the proposed hybrid switching scheme. High efficiency is achieved with a constant output voltage over wide load range. Experimental results on a 5 kW prototype are presented to evaluate the feasibility of the proposed switching scheme for the SRHB converter.</p> | 2010 |
| 3. | <p>A New Direct Peak DC-link Voltage Control Strategy of Z-source Inverters</p> <p>This paper proposes a new direct peak dc-link voltage control strategy of Z-source inverters. For Z-source inverters, the peak dc-link voltage is the actual voltage fed to the inversion stage. Controlling the peak dc-link voltage at the constant level can effectively decrease the voltage stress and simplify the design</p> | 2010 |

process of the inversion stage. A direct peak dc-link voltage detection method is developed with a simple sampling circuit, and then controlled directly. Therefore, the constant peak dc-link voltage can be achieved in different input and load conditions. The peak ac output is calculated in real-time by sampling the ac phase voltage, and it is controlled to the desired value without steady-state error. With the proposed direct peak dc-link voltage control and peak ac output control, both the peak dc-link voltage and ac output is controlled to a desired level under different input and load condition. Experimental results are presented to demonstrate the feasibility of the proposed control strategy.

4. Novel Switching Signals Generation Method for Hybrid Multilevel Inverters **2010**

Use of multilevel inverters is becoming more popular in the recent years. Various topologies and modulation methods have been reported for utility and drive applications in the recent literature. Hybrid multilevel structures are the new multilevel inverter topologies where the cascaded series inverters have different internal DC bus voltages and/or modulated quite differently. This paper introduces a novel switching signals generation (modulation) method for hybrid multilevel inverters. This method is new and based on reference signal tracking. The structure of modeled hybrid multilevel inverter and operating principles of the proposed method are presented. The proposed method is verified by computer simulations using PSCAD/EMTDC. The waveform and THD values are presented and analyzed, which prove the validity of the proposed method.

5. A ZCS Full-Bridge Converter Without Voltage Overstress on the Switches **2010**

A new current-driven soft-switched full-bridge converter is presented in this paper. By connecting a switched capacitor snubber in parallel with the primary winding of the coupling transformer, all main switches are zero-current-switched (ZCS) and the switches in the snubber are zero-voltage-switched (ZVS). The proposed converter has the following key features. First, the transformer leakage inductance is utilized as a part of the resonant circuit for the soft-switching actions. Second, the snubber capacitor voltage is adaptively controlled:

the capacitor is charged to the minimum necessary energy for switching the main switches at zero current, depending on the actual value of the input/load current. Thus, less resonant energy is circulated. Third, there is no extra voltage stress on the switches and the current through the switches is limited to the value of the input current. Consequently, the conduction losses are kept minimum. The cyclical switching operation and control of the converter are described. A tradeoff design of the snubber circuit is given: the requirement of reducing the duration of the resonant intervals for minimizing the dutycycle loss is superimposed on the requirement of getting ZCS for a very large range of the line voltage and load. A 530-V/15-kV, 5-kW prototype has been built and evaluated. The experimental results confirmed the theoretical predictions. A comparative study on the converter efficiency with and without the proposed snubber circuit is given, showing the superiority of the proposed solution.

6. An improved control method for inductive load of Z-source inverter 2010

In this paper, the operation principle of the Z-source inverter is analyzed in detail. According to the characteristics of allowed short-shrout zero state in the Z-source inverter, SPWM control method of the Z-source inverter is obtained by inserting fixed short-shrout zero state into zero state of SPWM. It is simple and easily implemented in practice. However, in inductive load condition the output voltage and current of Z-source inverter have serious distortion and affect the inverting quality. The cause of this distortion is analyzed in detail and an improved SPWM control method is proposed, which can better solve the output voltage and current distortion problem of the Z-source inverter under the condition of inductive load. Matlab simulation results verify that the improved SPWM control method not only eliminates distortion caused by inductive load, but also decreases the switch times and quantities in each cycle. Therefore, it decreases the THD of AC output effectively and improves the efficiency of the inverter, and its theoretical analysis is verified to be effective.

7. An Integrated Four-Port DC/DC Converter for Renewable Energy Applications 2010

This paper proposes a novel converter topology that interfaces four power ports: two sources, one bidirectional storage port, and one isolated load port. The proposed four-port dc/dc converter is derived by simply adding two switches and two diodes to the traditional half-bridge topology. Zero-voltage switching is realized for all four main switches. Three of the four ports can be tightly regulated by adjusting their independent duty-cycle values, while the fourth port is left unregulated to maintain the power balance for the system. Circuit analysis and design considerations are presented; the dynamic modeling and close-loop design guidance are given as well. Experimental results verify the proposed topology and confirm its ability to achieve tight independent control over three power-processing paths. This topology promises significant savings in component count and losses for renewable energy power-harvesting systems.

8. Embedded Control Z-Source Inverter Fed Induction Motor 2010

Traditionally Voltage Source Inverter (VSI) and Current Source Inverter (CSI) fed induction motor drives have a limited output voltage range. Conventional VSI and CSI support only current buck DC-AC power conversion and need a relatively complex modulator. The limitations of VSI and CSI are overcome by Z-source inverter. The Z-source inverter system employs a unique LC network in the DC link and a small capacitor on the AC side of the diode front end. By controlling the shoot-through duty cycle, the Z-source can produce any desired output AC voltage, even greater than the line voltage (i.e. 325V for 230V AC) regardless of the input voltage. The proposed Z-source inverter system provides ride-through capability during voltage sags, reduces line harmonics, improves power factor and reliability, and extends the output voltage range. Analysis, simulation, and experimental results were presented to demonstrate these features. This system reduces harmonics, electromagnetic interference noise and it has low common mode noise. Index Terms: current source inverter (CSI), voltage source inverter (VSI), Z-source inverter (ZSI), electromagnetic interference (EMI)

9. Flying-Capacitor-Based Chopper Circuit for DC Capacitor Voltage Balancing in Diode-Clamped Multilevel Inverter 2010

This paper proposes a flying-capacitor-based chopper circuit for dc capacitor voltage equalization in diode-clamped multilevel inverters. Its important features are reduced voltage stress across the chopper switches, possible reduction in the chopper switching frequency, improved reliability, and ride-through capability enhancement. This topology is analyzed using three and four-level flying-capacitor-based chopper circuit configurations. These configurations are different in capacitor and semiconductor device count and correspondingly reduce the device

voltage stresses by half and one-third, respectively. The detailed working principles and control schemes for these circuits are presented. It is shown that, by preferentially selecting the available chopper switch states, the dc-link capacitor voltages can be efficiently equalized in addition to having tightly regulated flying-capacitor voltages around their references. The various operating modes of the chopper are described along with their preferential selection logic to achieve the desired performances. The performance of the proposed chopper and corresponding control schemes are confirmed through both simulation and experimental investigations.

10. 9.5 kW Isolated Bi-directional DC-DC Converter with a Flyback Snubber 2010

An isolated bi-directional full-bridge DC-DC converter with high conversion ratio, high output power and soft start-up capability for battery charging/discharging is proposed in this paper. The use of a capacitor and a flyback converter can clamp the voltage spike caused by the current difference between the current-fed inductor and leakage inductance of the isolation transformer, and can reduce the current flowing through the active switches at the current-fed side. Operational principle of the proposed converter is first described, and the design equation is then derived. A 1.5 kW prototype with low-side voltage of 48V and high-side voltage of 360V has been implemented, from which experimental results have verified its feasibility.

11. Modified Z-Source Single-Phase Inverter for Single-Phase PM Synchronous Motor Drives 2010

The Z-Source network, as a DC-link energy storage sub-circuit, was proposed to be used in DC-AC power conversion circuits (inverters) due to its advantages compared to the traditional LC DC-link. In this paper a new modified Z-source (MZS) network is proposed in order to reduce the number of switches in a single-phase inverter, from four switches, in a full-bridge converter, to only two switches, as well as to maintain the desired average voltage level in the DC-link. This paper presents the novel topology and the operating principle of the new MZS single-phase inverter with two switches, and an application of this converter in a motor drive system to a single-phase PM synchronous motor. The proposed system topologies are validated by digital simulations of the circuits in PSIM and SIMULINK, with tests due soon.

12. Z – Source Inverter Based Permanent Magnet Brushless DC Motor Drive 2010

A novel permanent magnet brushless DC motor drive using Z – source inverter is proposed and analyzed in this paper. This drive system provides advantages both for PMBDC motor and Z – source inverter and can be used in light electric vehicles and any other adjustable drive applications. The operation principle, system configuration and control method are presented. The mathematical model of the drive system is established based on the equivalent circuit and state – space method. Simulation results prove the desired features and feasibility of the proposed drive system.

13. Zero-Voltage- and Zero-Current-Switching Full-Bridge Converter With Secondary Resonance 2010

A zero-voltage- and zero-current-switching fullbridge (FB) converter with secondary resonance is presented and analyzed. The primary side of the converter is composed of FB insulated-gate bipolar transistors, which are driven by phase-shift control. The secondary side is composed of a resonant tank and

a half-wave rectifier. Without an auxiliary circuit, zero-voltage switching (for leading-leg switches) and zero-current switching (for lagging-leg switches) are achieved in the entire operating range. To implement the converter without an additional inductor, the leakage inductance of the transformer is utilized as the resonant inductor. Due to its many advantages, including high efficiency, minimum number of devices, and low cost, this converter is attractive for high-voltage and high-power applications. The analysis and design considerations of the converter are presented. A prototype was implemented for an application requiring a 5-kW output power, an input-voltage range varying from 250 to 350 V, and a 350-V output voltage. The experimental results obtained from a prototype verify the analysis. The prototype's efficiency at full load is over 95.5%.

14. Steady-State Stability Of Current Mode Active Clamp ZVS DC-DC Converters

Active clamp DC-DC converters are pulse width modulated converters having two switches featuring zero voltage switching at frequencies beyond 100 KHz. Generalized equivalent circuits valid for steady state and dynamic performance have been proposed for the family of active clamp converters. The active clamp converter is analyzed for its dynamic behaviour under current control in this paper. The steady state stability analysis is presented. On account of the lossless damping inherent in the active clamp converters it appears that the stability region in the current controlled active clamp converters get extended for duty ratios, a little greater than 0.5 unlike in conventional hard switched converters. The conventional graphical approach fails to assess the stability of current controlled active clamp converters, due to the coupling between the filter inductor current and resonant inductor current. An analysis which takes into account the presence of the resonant elements is presented to establish the condition for stability. This method correctly predicts the stability of the current controlled active clamp converters. A simple expression for the maximum duty cycle for sub-harmonic free operation is obtained. The results are verified experimentally.

15. A FAST IMAGE COMPRESSION ALGORITHM BASED ON SPIHT 2009

The combination of integer lifting wavelet transform with set partitioning in hierarchical trees algorithm has been widely used in the field of image compression. Based on this algorithm, the paper presents a image coding algorithm with lower memory and higher speed. The algorithm further takes Human Visual System into consideration and modifies SPIHT algorithm is according to the characteristic of weighted wavelet coefficients. Experiment result shows that, under the situation of low bit-rate, the new algorithm can prove the visual effect of reconstructed image at a certain degree. In addition, because the new algorithm has low memory requirement, the coding speed accelerates a lot. It has a very broad appliance future in the occasion of high desire of memory and speed.

16. A NEAR LOSSLESS WAVELET-BASED COMPRESSION SCHEME FOR SATELLITE IMAGES 2009

In this paper, a near lossless image compression algorithm is presented for high quality satellite image compression. The proposed algorithm makes use of the recommendation for image data compression from the Consultative Committee for Space Data Systems (CCSDS) and specific residue image bit-plane compensation. Comparing with the recommendation for satellite image compression from CCSDS, the proposed algorithm can reconstruct near lossless images with less bit rate than the recommendation of CCSDS does. Benefited from run-length coding and specific residue image bit-plane compensation, the proposed algorithm can obtain higher quality satellite image at similar bit rate or lower bit rate at the similar image quality. These results are valuable for reducing transmission time of high quality satellite image data. This work can be further improved by combining other binary compression techniques and the extension of this work may offer a VLSI or a DSP implementation of the proposed algorithm. Satellite image transmission and storage system can benefit by the proposed algorithm

17. A NEW AND EFFICIENT ALGORITHM FOR THE REMOVAL OF HIGH DENSITY SALT AND PEPPER NOISE IN IMAGES AND VIDEOS 2010

A new and efficient algorithm for high-density salt and pepper noise removal in images and videos is proposed. The existing non-linear filter like Standard Median Filter (SMF), Adaptive Median Filter (AMF), Decision Based Algorithm (DBA) and Robust Estimation Algorithm (REA) shows better results at low and medium noise densities. At high noise densities, their performance is poor. A new algorithm to remove high-density salt and pepper noise using modified sheer sorting method is proposed. The new algorithm has lower computation time when compared to other standard algorithms. Results of the algorithm is compared with various existing algorithms and it is proved that the new method

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| | has better visual appearance and quantitative measures at higher noise densities as high as 90%. | |
| 18. | A ROBUST ALGORITHM FOR SHADOW REMOVAL OF FOREGROUND DETECTION IN VIDEO SURVEILLANCE We proposed an accurate algorithm to prevent moving shadows from being misclassified as part of moving objects in video target segmentation in this paper. Firstly, moving objects were achieved through background subtraction using adaptive Gaussian mixture models. Then, moving shadows were eliminated by a shadow detection algorithm. Finally, we performed a morphological reconstruction algorithm to recover the foreground distorted after shadow removal process. The experimental results proved its validity and accuracy in various fixed outdoor video scenes. | 2009 |
| 19. | A ROBUST IMAGE WATERMARKING USING TWO LEVEL DCT AND WAVELET PACKETS DENOISING In this paper we present a blind low frequency watermarking scheme on gray level images, which is based on DCT transform and spread spectrum communications technique. We compute the DCT of non overlapping 8x8 blocks of the host image, then using the DC coefficients of each block we construct a low-resolution approximation image. We apply block based DCT on this approximation image, then a pseudo random noise sequence is added into its high frequencies. For detection, we extract the approximation image from the watermarked image, then the same pseudo random noise sequence is generated, and its correlation is computed with high frequencies of the watermarked approximation image. In our method, higher robustness is obtained because of embedding the watermark in low frequency. In addition, higher imperceptibility is gained by scattering the watermark's bit in different blocks. We evaluated the robustness of the proposed technique against many common attacks such as JPEG compression, additive Gaussian noise and median filter. Compared with related works, our method proved to be highly resistant in cases of compression and additive noise, while preserving high PSNR for the watermarked images | 2009 |
| 20. | A STUDY OF COLOR HISTOGRAM BASED IMAGE RETRIEVAL <i>This paper describes a project that implements and tests a simple color histogram based search and retrieve algorithm for images. The study finds the technique to be effective as shown by analysis using the RankPower measurement. The testing also highlights the weaknesses and strengths of the model, concluding that the technique would have to be augmented and modified in order for practical use.</i> | 2009 |
| 21. | A ROBUST IMAGE WATERMARKING ALGORITHM AGAINST JPEG2000 <i>In this paper, a robust meaningful image watermarking algorithm against JPEG2000 standard which will be the most popular compression technique is proposed. The meaningful watermarking algorithm is based on discrete wavelet transform and linear</i> | 2009 |

interpolation. In order to improve the robustness of the algorithm, we select the important horizontally and vertically lowpass coefficients as the embedding points. Experiments showed that the algorithm had not only good information capacity but also good security, invisibility and undetectability. Furthermore, the robust algorithm can stand against JPEG2000 and JPEG lossy compression effectively, and realize watermark blind detecting.

22. AN ADAPTIVE STEGANOGRAPHIC TECHNIQUE BASED ON INTEGER WAVELET TRANSFORM 2009

Steganography gained importance in the past few years due to the increasing need for providing secrecy in an open environment like the internet. With almost anyone can observe the communicated data all around, steganography attempts to hide the very existence of the message and make communication undetectable. Many techniques are used to secure information such as cryptography that aims to scramble the information sent and make it unreadable while steganography is used to conceal the information so that no one can sense its existence. In most algorithms used to secure information both steganography and cryptography are used together to secure a part of information. Steganography has many technical challenges such as high hiding capacity and imperceptibility. In this paper, we try to optimize these two main requirements by proposing a novel technique for hiding data in digital images by combining the use of adaptive hiding capacity function that hides secret data in the integer wavelet coefficients of the cover image with the optimum pixel adjustment (OPA) algorithm. The coefficients used are selected according to a pseudorandom function generator to increase the security of the hidden data. The OPA algorithm is applied after embedding secret message to minimize the embedding error. The proposed system showed high hiding rates with reasonable imperceptibility compared to other steganographic systems.

23. AN AUTOMATIC MOVING OBJECT DETECTION ALGORITHM FOR VIDEO SURVEILLANCE APPLICATIONS 2009

Moving object detection is a very important step in video surveillance. And frame difference algorithms are suitable for these applications. First of all, an automatic threshold calculation method was proposed according to statistic information to obtain moving pixels of video frames. Then moving regions can be formed by morphological operations. At last, the nearest distance of two regions was proposed and it was satisfying for region combination. The proposed algorithm is automatic and efficient in intelligent surveillance applications.

24. BLOOD VESSEL SEGMENTATION IN ANGIOGRAMS USING FUZZY INFERENCE SYSTEM AND MATHEMATICAL MORPHOLOGY 2009

Angiography is a widely used procedure for vessel observation in both clinical routine and medical research. Often for the subsequent analysis of the vasculature it is needed to measure the

angiogram area covered by vessels and/or the vessel length. For this purpose we need vessel enhancement and segmentation. In this paper, we evaluate the performance of a fuzzy inference system and morphology filters for blood vessel segmentation in a noise angiograms image.

25. COMBINED WAVELET-DOMAIN AND MOTION-COMPENSATED VIDEO DENOISING BASED ON VIDEO CODEC MOTION ESTIMATION METHODS 2009

Integrating video coding and denoising is a novel processing paradigm, bringing mutual benefits to both video processing tools. In this paper, we propose a novel video denoising approach of which the main idea is reusing motion estimation resources from the video coding module for video denoising. In most cases, the motion fields produced by real-time video codecs cannot be directly employed in video denoising, since they, as opposed to noise filters, tolerate errors in the motion field. In order to solve this problem, we propose a novel motion-field filtering step that refines the accuracy of the motion estimates to a degree that is required for denoising. Additionally, a novel temporal filter is proposed that is robust against errors in the estimated motion field. Numerical results demonstrate that the proposed denoising scheme is of low-complexity and compares favorably to the state-of-the-art video denoising methods

26. DECISION-BASED MEDIAN FILTER USING K-NEAREST NOISE-FREE PIXELS 2009

Traditional median filter replaces each pixel in an image with the median value of their k -nearest pixels (commonly known as pixels in 2-D window). The problem associated with this approach is that the restored pixel is noise if median value of their k -nearest pixels is a corrupted pixel. To mitigate the above problem, this paper proposes a novel decision-based median filter that replaces each corrupted pixel with the median value of their k -nearest noise-free pixels. Advantages of the median filter using k -nearest noise-free pixels instead of k -nearest pixels are two facets: first, it guarantees that pixels after being restored must be noise-free, because the median filter operator is executed on noise-free pixels; second, the median filter using k -nearest noise-free pixels adaptively adjusts its window size for each pixel such that the number of noise-free pixels locating in the window increases up to k . To realize it, the median filter using k -nearest noise-free pixels firstly detects noise-free pixels in an image, then replaces each corrupted pixel with the median value of their k -nearest noise-free pixels. The proposed median filter is tested on four real images corrupted by different levels of salt-and pepper noise. Experimental results confirm the effectiveness of decision-based median filter using k -nearest noise-free pixels.

27. LIVER SEGMENTATION FROM CT IMAGES BASED ON REGION GROWING METHOD 2009

Accurate liver segmentation on computed tomography (CT) images is a challenging task because of inter and inpatient variations in liver shapes, similar intensity with its nearby organs. We proposed a liver segmentation method based on region growing approach. First of all, basic theory of region growing approach is introduced. Secondly, a pre-processing method using anisotropic filter and Gaussian function is employed to form liver likelihood images for the following segmentation. Thirdly, an improved slice-to-slice region growing method combined with centroid detection and intensity distribution analysis is proposed. Finally, the superior liver region is extracted by applying the morphologic operation. Experiments on a variety of CT images show the effectiveness and efficiency of the proposed method.

28. MEDICAL RADIOGRAPHS COMPRESSION USING NEURAL NETWORKS AND HAAR WAVELET 2009

Efficient storage and transmission of medical images in telemedicine is of utmost importance however, this efficiency can be hindered due to storage capacity and constraints on bandwidth. Thus, a medical image may require compression before transmission or storage. Ideal image compression systems must yield high quality compressed images with high compression ratio; this can be achieved using wavelet transform based compression, however, the choice of an optimum compression ratio is difficult as it varies depending on the content of the image. In this paper, a neural network is trained to relate radiograph image contents to their optimum image compression ratio. Once trained, the neural network chooses the ideal Haar wavelet compression ratio of the x-ray images upon their presentation to the network. Experimental results suggest that our proposed system, can be efficiently used to compress radiographs while maintaining high image quality.

29. NOISE CANCELLATION ON ECG AND HEART RATE SIGNALS USING THE UNDECIMATED WAVELET TRANSFORM 2009

This article describes the research carried out to eliminate the noise found in ECG signals and cardiac rhythm. The purpose to obtain clarity and reliability in the acquiring signals which can later be interpreted by a specialist. The work is based on the use of the Undecimated Wavelet Transform (UWT)[1]. In order to get a better identification of the acquired signal the Wavelet filter D6 (Daubechies) was chosen, primarily because its scaling function is closely related to the shape of the ECG, fitting very well with the applications constraints [2]. The processed signals were acquired using an amplifying board of bioelectrical signals (front-end board) and a NI PCI-6221 data acquisition board with a sampling frequency of 200 Hz. The ECG signals are obtained through the implant of electrodes connected to a channel of the frontend board. The cardiac rhythm is then obtained using an optic dactilar sensor connected to an independent channel of the ECG signal. The

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| | <p>amplifying board was designed and developed for researching purposes on the telemedicine and signal processing area. The application to denoise the ECG signal was developed by LabView® and is capable of graphically showing the data before and after it's processed.</p> | |
| <p>30.</p> | <p>REGION BASED IMAGE FUSION FOR DETECTION OF EWING SARCOMA</p> <p><i>In the medical image processing different sources of images are providing complementary information so fusion of different source images will give more details for diagnosis of patients. In this paper an automatic region based image fusion algorithm is proposed which is applied on the registered Magnetic Resonance (MR) image of human brain. The aim of this paper is to detect all the information required for accurate diagnosis of a brain tumor namely, Ewing sarcoma which is simultaneously not available in individual MR images. The proposed region based image fusion method is applied on two types of MR sequence images to extract useful information which is than compared with different pixel based algorithm and the performance of these fusion schemes are evaluated using standard quality assessment parameters. From the analysis of quality assessment parameters we found that our scheme provides better result compared to pixel based fusion scheme. The resultant fused image is assessed and validated by radiologist.</i></p> | <p>2009</p> |
| <p>31.</p> | <p>REVERSIBLE DATA HIDING BASED ON HISTOGRAM MODIFICATION OF PIXEL DIFFERENCES</p> <p>In this letter, we present a reversible data hiding scheme based on histogram modification. We exploit a binary tree structure to solve the problem of communicating pairs of peak points. Distribution of pixel differences is used to achieve large hiding capacity while keeping the distortion low. We also adopt a histogram shifting technique to prevent overflow and underflow. Performance comparisons with other existing schemes are provided to demonstrate the superiority of the proposed scheme.</p> | <p>2009</p> |
| <p>32.</p> | <p>DIGITAL WATERMARKING USING IMAGE FUSION METHOD</p> <p>With the growing popularity of digital Medias through the WWW, intellectual property needs copyright protection, prevention of illegal copying and verification of content integrity. The new data hiding techniques need to be developed that satisfy the requirements of imperceptibility, robustness, capacity, or data hiding rate and security of the hidden data in order to keep the distribution of digital multimedia work both profitable for the document owner and reliable for the customer. Previous research [01] indicates that significant portions of the host image, e.g. the low frequency components, have to be modified in order to embed the information in a reliable and robust way. This led to the development of watermarking schemes embedding in the frequency domain. The wavelet transform has the number of advantages over other transforms such as the DCT that can be</p> | <p>2009</p> |

exploited for both, image compression and watermarking applications. Therefore it is imperative to consider the wavelet transform domain for watermarking applications.

33. WAVELET-BASED COMPRESSION WITH ROI CODING SUPPORT FOR MOBILE ACCESS TO DICOM IMAGES OVER HETEROGENEOUS RADIO NETWORKS 2009

Most of the commercial medical image viewers do not provide scalability in image compression and/or region of interest (ROI) encoding/decoding. Furthermore, these viewers do not take into consideration the special requirements and needs of a heterogeneous radio setting that is constituted by different access technologies [e.g., general packet radio services (GPRS)/ universal mobile telecommunications system (UMTS), wireless local area network (WLAN), and digital video broadcasting (DVB-H)]. This paper discusses a medical application that contains a viewer for digital imaging and communications in medicine (DICOM) images as a core module. The proposed application enables scalable wavelet-based compression, retrieval, and decompression of DICOM medical images and also supports ROI coding/decoding. Furthermore, the presented application is appropriate for use by mobile devices activating in heterogeneous radio settings. In this context, performance issues regarding the usage of the proposed application in the case of a prototype heterogeneous system setup are also discussed.