Conferences papers

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Title

An Integrated Image Fusion Technique for Boosting the Quality of Noisy Remote Sensing Images

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Abstract:

To better identify the objects in remote sensing images, the multispectral images with high spectral resolution and low spatial resolution, and the panchromatic images with high spatial resolution and low spectral resolution need to be fused. Many fusion techniques are discussed in the recent years to obtain images with high spectral resolution and also high spatial resolution. In this paper an image fusion technique, based on integrating both the Intensity-Hue-Saturation (IHS) and the Discrete Wavelet Frame Transform (DWFT), is proposed for boosting the quality of remote sensing images. A panchromatic and multispectral image from Landsat-7(ETM+) satellite has been fused using this new approach. Experimental results show that the proposed technique improves the spectral and spatial qualities of the fused images. Moreover, when this technique is applied to noisy and de-noised remote sensing images it can preserve the quality of the fused images. Comparison analyses between different fusion techniques are also presented and show that the proposed technique outperforms the other techniques.

Keywords:

Image fusion; Noisy remote sensing images; IHS transform; DWFT; De-noised remote sensing Images

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البحث رقم (2)

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Title

An Efficient Block-by-Block SVD-Based Image Watermarking Scheme

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Abstract:

- This paper presents a block based digital image watermarking that is dependent on the mathematical technique of singular value decomposition (SVD). Traditional SVD watermarking already exists for watermark embedding on the image as a whole. In the proposed approach, the original image is divided into blocks, and then the watermark is embedded in the singular values (SVs) of each block separately. This segmentation process and watermarking on a block-by-block basis makes the watermark more robust to the attacks such as noise, compression, cropping and other attacks as the results reveal. Watermark detection is implemented by extracting the watermark from the SVs of the watermarked blocks. Extracting the watermark from one block at least is enough to ensure the existence of the watermark.

Keywords:

image processing, watermarking, singular value decomposition.

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البحث رقم (3)

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Title

Parallel Interference Cancellation and Linear Equalizatio for Multirate Downlink CDMA Systemsn

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Abstract:

: The capacity of a code division multiple access (CDMA) system is multiple access interference (MAI) limited. Parallel interference cancellation (PIC) is an effective method to suppress MAI and improve the CDMA system capacity. In this paper, we propose an efficient interference cancellation receiver for downlink multirate CDMA systems that makes use of a regularized zero forcing (RZF) equalizer to remove intersymbol interference
(ISI). The proposed receiver is based on the RZF equalizer and PIC with tanh decision function (RZFTPIC). The BER performance of the proposed RZF-TPIC
is evaluated by computer simulation. It is found that the proposed scheme offers significant gains, even with large interfering users.

Index Terms:

Downlink multirate CDMA, decision functions, PIC and RZF.

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Journals Papers

البحث رقم (1)

Title

EFFICIENT IMPLEMENTATION OF DOWNLINK CDM EQUALIZATION USING FREQUENCY DOMAIN APPROXIMATIONA

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ABSTRACT

A signal transimitted through a wireless channel may be severely distorted due to intersymbol interference (ISI) and multiple access interference (MAI). In this paper, we propose an efficient CDMA receiver based on a frequency domain equalization with a regularized zero forcing equalizer and unit clipper decision with parallel interference cancellation (FDE-RZF-CPIC) to combat both ISI and MAI. This receiver is suitable for downlink zero padding CDMA (ZP-CDMA) cellular systems. The effects of the decision function, the channel estimation, the number of cancelled users, and the user loading on the performance of the proposed receiver are discussed in the paper. The bit error rate (BER) performance of the proposed receiver is evaluated by computer simulations. It has been found that the proposed receiver provides a good BER performance, even at a large number of interfering users. At a BER of 10-3, the performance gain of the proposed receiver is about 2 dB over the RAKE receiver with clipper decision and parallel interference cancellation in the half loaded case (8 users) and is much larger in the full loaded case (16 users).

Keywords:

Downlink CDMA, Decision Functions, PIC, FDE-RZF, Zero Padding, Channel Estimation.

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البحث رقم (2)

Title

AN EFFICIENT BLOCK-BY-BLOCK SVD-BASED IMAGE WATERMARKING SCHEME

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ABSTRACT

This paper presents a block based digital image watermarking scheme that is dependent on the mathematical technique of singular value decomposition (SVD). Traditional SVD watermarking already exists for watermark embedding on the image as a whole. In the proposed approach, the original image is divided into blocks, and then the watermark is embedded in the singular values (SVs) of each block separately. This segmentation and watermarking process makes the watermark much more robust to the attacks such as noise, compression, cropping. Watermark detection is implemented by extracting the watermark from the SVs of the watermarked blocks. Experiments show that extracting the watermark from one block at least is enough to ensure the existence of the watermark.

Keywords:

Image Processing, Watermarking, Singular Value Decomposition.

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البحث رقم (3)

Title

DYNAMIC ADMISSION CONTROL AND RESOURCE RESERVATION FOR WCDMA

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ABSTRACT

Current and next generation wireless networks including 3rd generation (3G) and beyond are expected to provide a wide range of multimedia services with different QoS constraints. Call admission control (CAC) and resource reservation (RR) for mobile communication are of the most important issues that guarantee system efficiency and QoS required for different services in a

very scarce resource as the radio spectrum. As forced call termination due to the handoff call dropping are generally less desirable than blocking a new one, handoff calls should have a higher priority than new calls. This paper investigates the concepts of sharing resources and reservation for WCDMA systems with the unique feature of soft capacity. Voice and data traffic are considered, and further classified into handoff and new requests. The reservation thresholds are dynamically adjusted according to the traffic pattern and mobility prediction in order to achieve maximum channel utilization while guaranteeing different QoS constraints. Blocking probability, dropping probability, and channel utilization are used as benchmarks for the proposed scheme.

Keywords:

call admission control, resource reservation, WCDMA.

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