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1. Overview of Bayesian sequential Monte Carlo methods for group and extended object tracking

February 2014

Lyudmila Mihaylova | Avishy Y. Carmi | François Septier | Amadou Gning | Sze Kim Pang | Simon Godsill

This work presents the current state-of-the-art in techniques for tracking a number of objects moving in a coordinated and interacting fashion. Groups are structured objects characterized with particular...

2. Instantaneous frequency in time–frequency analysis: Enhanced concepts and performance of estimation algorithms

December 2014

Ljubiša Stanković | Igor Djurović | Srdjan Stanković | Marko Simeunović | Slobodan Djukanović | Miloš Daković

The instantaneous frequency (IF) is a very important feature of nonstationary signals in numerous applications. The first overview of the concept and application of the IF estimators is presented in...

3. A new robust and secure digital image watermarking scheme based on the integer wavelet transform and singular value decomposition

October 2014

Nasrin M. Makbol | Bee Ee Khoo

In this paper, a new robust and secure digital image watermarking scheme that can be used for copyright protection is proposed. The scheme uses the integer wavelet transform (IWT) and singular value...

4. High accuracy and low complexity adaptive Generalized Sidelobe Cancelers for colored noise scenarios

November 2014

Ricardo Kehrle Miranda | João Paulo C.L. da Costa | Felix Antreich

The Generalized Sidelobe Canceler (GSC) is a beamforming scheme which is applied in many fields such as audio, RADAR, SONAR and telecommunications. Recently, the adaptive Reduced Rank GSC (RR-GSC) has...

5. Video fire detection – Review

December 2013

A. Enis Çetin | Kosmas Dimitropoulos | Benedict Gouverneur | Nikos Grammalidis | Osman Günay | Y. Hakan Habiboğlu | B. Uğur Töreyin | Steven Verstockt

This is a review article describing the recent developments in Video based Fire Detection (VFD). Video surveillance cameras and computer vision methods are widely used in many security applications....

6. Hidden information detection using decision theory and quantized samples: Methodology, difficulties and results

January 2014

Rémi Cogranne | Florent Retraint | Cathel Zitzmann | Igor Nikiforov | Lionel Fillatre | Philippe Cornu

This paper studies the detection of Least Significant Bits (LSB) steganography in digital media by using hypothesis testing theory. The main goal is threefold: first, it is aimed to design a test whose...

7. Image retrieval based on query by saliency content

January 2015
Alex Papushoy | Adrian G. Bors

In this research study we propose the query by saliency content retrieval (QSCR) image retrieval method which is based on human visual attention models. The proposed methodology represents a bottom-up...

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December 2014
Sheng Hong | Zheng Zhou | Enrico Zio | Wenbin Wang

Rotating bearing degradation is a physical process that typically evolves in stages characterized by different speeds of evolution of the characteristic health indicators. Therefore, it is opportune...

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July 2014
Luis Alejandro Sánchez-Pérez | Luis Pastor Sánchez-Fernández | Sergio Suárez-Guerra | Miguel Márquez-Molina

The closer proximity between airports and residential areas has created a growing attention regarding noise pollution. The noise abatement procedures established by the aeronautical authorities and...

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December 2014
Aris S. Lalos | Luis Alonso | Christos Verikoukis

Wireless Body area networks (WBANs) consist of sensors that continuously monitor and transmit real time vital signals to a nearby coordinator and then to a remote terminal via the Internet. One of the...

11. Lossy image compression using singular value decomposition and wavelet difference reduction

January 2014
Awwal Mohammed Rufai | Gholamreza Anbarjafari | Hasan Demirel

This paper presents a new lossy image compression technique which uses singular value decomposition (SVD) and wavelet difference reduction (WDR). These two techniques are combined in order for the SVD...

12. On a cuckoo search optimization approach towards feedback system identification

September 2014
Apoorv P. Patwardhan | Rohan Patidar | Nithin V. George

This paper presents a cuckoo search algorithm (CSA) based adaptive infinite impulse response (IIR) system identification scheme. The proposed scheme prevents the local minima problem encountered in...

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January 2015

Jesus Fernandez-Bes | Luis A. Azpicueta-Ruiz | Jerónimo Arenas-García | Magno T.M. Silva

We propose a diffusion scheme for adaptive networks, where each node obtains an estimate of a common unknown parameter vector by combining a local estimate with the combined estimates received from...

14. Detrended fluctuation thresholding for empirical mode decomposition based denoising

September 2014
Ahmet Mert | Aydin Akan

Signal decompositions such as wavelet and Gabor transforms have successfully been applied in denoising problems. Empirical mode decomposition (EMD) is a recently proposed method to analyze non-linear...

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November 2014
Xuan Wang | Junhua Liang | Fangxia Guo

Plant leaf recognition is very important and necessary to agricultural information and ecological protection. Unfortunately, the robustness and discriminability of the existing methods are insufficient....

16. A high quality single-image super-resolution algorithm based on linear Bayesian MAP estimation with sparsity prior

December 2014
Dong Sun | Qingwei Gao | Yixiang Lu | Lijun Zheng | Hui Wang

This paper proposes a novel single-image super-resolution algorithm based on linear Bayesian maximum a posteriori (MAP) estimation and sparse representation. Starting from constructing several probability...

17. Automatic contrast enhancement of low-light images based on local statistics of wavelet coefficients

December 2013
Artur Łoza | David R. Bull | Paul R. Hill | Alin M. Achim

This paper describes a new method for contrast enhancement in images and image sequences of low-light or unevenly illuminated scenes based on statistical modelling of wavelet coefficients of the image....

18. Effects of underdamped step-varying second-order stochastic resonance for weak signal detection

January 2015
Siliang Lu | Qingbo He | Fanrang Kong

Stochastic resonance (SR) has been proved to be an effective approach for weak signal detection. In this paper, an underdamped step-varying second-order SR (USSSR) method is proposed to further improve...

19. Speaker Verification Using Adapted Gaussian Mixture Models

January 2000
Douglas A. Reynolds | Thomas F. Quatieri | Robert B. Dunn

Reynolds, Douglas A., Quatieri, Thomas F., and Dunn, Robert B., Speaker Verification Using Adapted Gaussian Mixture Models, Digital Signal Processing10(2000), 19–41....

20. Robust least squares methods under bounded data uncertainties

January 2015
N. Denizcan Vanli | Mehmet A. Donmez | Suleyman S. Kozat

We study the problem of estimating an unknown deterministic signal that is observed through an unknown deterministic data matrix under additive noise. In particular, we present a minimax optimization...

21. A tutorial – game theory-based extended H infinity filtering approach to nonlinear problems in signal processing

November 2014
Jaechan Lim

In this paper, we provide a tutorial for the applications of “game-theory-based extended H infinity filtering (EHIF)” approach to various problems in disciplines of signal processing. The algorithm...

22. Audio watermarking with high embedding capacity based on multiple access techniques

November 2014
Mohammed Khalil | Abdellah Adib

This paper deals with a new digital audio watermarking scheme based on multiple access techniques. In digital communication, multiple access techniques allow several users transmissions by taking the...

23. A fast algorithm for matrix embedding steganography

February 2014
Qian Mao

A fast algorithm for matrix embedding steganography is proposed in this paper. Matrix embedding encodes the cover image and the secret message with an error correction code and modifies the cover image...

24. A new variable length NLMS adaptive algorithm

November 2014
Khaled Mayyas | Hani A. AbuSeba

The Fractional Tap-length Normalized Least Mean-Square (FT-NLMS) adaptive algorithm, a member of the variable tap-length LMS algorithms family, has attracted attention recently due to its robustness...