

CONTENTS

DATA TRANSMISSION AND PROCESSING

V.K. Zlobin, B.V. Kostrov, A.S. Asaev, E.R. Myratov. SPECTRAL TECHNIQUES OF IMAGE IMPROVEMENT

The image improvement approaches for spectral domain are reported using Walsh basis function expansion. Filter construction for image washout and increase in clearness is considered by giving an example for Gaussian filter in spectral domain, also the problem of image spectral contrast and object recognizing is presented. The results of image processing in Walsh spectral basis is obtained3

V.F. Odinokov. RECOVERING CARRIER OF INFORMATION TRANSMISSION SYSTEM

The proposed procedure is determination for frequency deviation of carrier of information transmission system at noise of channel of communication8

S.N. Kirillov, I.V. Kostkin. ALGORITHM EQUALIZATION ON BASE MULTICOMPONENT BETA-DISTRIBUTION TO BRIGHTNESS OF THE IMAGE

Offered modification of the equalization algorithm by transformations of the histogram to brightness of the image with use multicomponent beta-distribution. It Is Shown that offered algorithm provides close to even law of the sharing the histogram to brightness of the image and allows to restore source distribution to brightness of the images with 3-7 % importance average square-law deflections point to brightness to transmission only parameters of model, instead of all histogram counting12

A.A. Bryantsev. COMBINED FILTRATION OF NOISY IMAGES, OBTAINED FROM SYNTHESIZED APERTURE RADARS

For images, obtained from synthesized aperture radars (SAR-images), is characteristic problem speckle-noise. The SAR-images analysis reveal, that speckle-noise depend from image texture. Moreover, on different parts SAR-images probability density function of speckle-noise differ from theoretical. In this paper is described the process of making data base, enable to choose optimal filtering algorithm SAR-images depend off type probability density function of noise and images texture..... 16

V.S. Muraviev, S.I. Muraviev. THE ALGORITHM FOR OBJECT EXTRACTION AND COORDINATES MEASUREMENT ON CLOUDY BACKGROUND

In last years the problem of detection aircrafts, observed in cloudy background begins to take an important place. In this paper authors suggested the algorithm capable to solve this problem. The algorithm was tested on typical natural video sequences in both TV and IR subbands. The results of the research show that the developed algorithm is suitable to use in real-time onboard vision systems.....20

RADIOTECHNICAL AND MEASURING SYSTEMS

V.G. Andrejev, S.A. Yukin. FORMATION OF RADAR IMAGE OF THE UNDERLYING SURFACE ON THE DIGITAL TOPOGRAPHICAL MAP

The formation method of the ground surface detailed radar image basing on the district digital topographical map and parameters onboard coherent pulsed radar is considered. The generated image represents Doppler portrait model of radio reflections from the underlying surface which is used in motionless objects detection process and navigating maintenance in low-level flight conditions of carrier radar. The prize in comparison with the classical method makes 7,31 dB for analyzed map25

O.K. Abramov. ABOUT THE INSIDE AND EXTERNAL ERRORS IN THE MEASURING INSTRUMENTS

It is disclosed and systematized the physical springs of the errors in measuring instruments (MI).....31

T.B. Ivanova, V.N. Loktjukhin, A.A. Tcherepnin. THE PRINCIPLES OF VIDEOENDOSCOPY SYSTEM WITH EXTENDED FUNCTIONALITIES ORGANIZATION

It is necessary for the doctor to take into account various physiological parameters of the patient's body

and stuffs from a illness's history during the videoendoscopy inspection process. It is offered to expand functionalities of known videoendoscopy systems by means of addition by the decisions making support computer system for the complex account of a illness's history stuffs to help a doctor to establish the diagnosis.....40

N.A. Smolyarov. RELIABILITY ESTIMATION OF DOUBLE RESTORABLE SYSTEM WITH COMMON SWITCH

Expressions for probability of failure – free operation and mean operating time to failure of double restorable system with common switch and different types of derating redundancy are obtained in this article.....43

P.V. Skoropletov. THE TIME COORDINATION OF POSITION OF THE ELECTROMAGNETIC GAUGE WITH THE HELP OF DIGITAL GAUGES

The comparative analysis of existing gauges of position is carried out. Key parameters of the gauges influencing a choice for their further use are determined. Merits and demerits of various types of gauges are resulted. The choice of the digital gauge for tracking position of an electromagnetic probe is analysed. The circuit of connection of the digital gauge is resulted47

COMPUTER SCIENCE AND COMPUTER ENGINEERING

A.I. Baranchikov, E.A. Baranchikova. SPAM NEGATIVE INFLUENCE ON SMALL INFORMATION SYSTEM WORK. METHODS OF SPAM FILTERING

The negative influence of spam on modern information systems of small enterprises is covered in the article according to the limited resources, allocated to the security provision. The value of damages to buiseness maden by spam is written. The general methods of defending from «spam» are characterized and suggested. The advantage of realization of suggested methods is shown.....51

E.V. Ovchinnikova, V.A. Fatkin. SOME ASPECTS OF REALIZATION OF THE PROCESS APPROACH AT RECEPTION OF DIELECTRIC COATS METHOD OF A SCREEN PRINTING

The structural model of process of reception of dielectric coats by a method of a screen printing, and also algorithm of work of expert group on revealing, an estimation and is offered to the analysis of parameters of quality and productivity of process. The factors influencing quality of dielectric coats are revealed. In the work there is offered a technique of an estimation of efficiency of the process of dielectric coating production at electronic facilities components production.....53

A.V. Bakulev, M.A. Bakuleva. APPLYING WAVELET TRANSFORM FOR ANALYZING DATA OF WAREHOUSE

This article is devoted applying methods multiresolution analyses based on wavelet transform in tasks of on-line analytical processing (OLAP) data in warehouse. Developed algorithms are shown. Represented algorithms allow raising performance analytical process57

A.V. Blagodarov, A.N. Pylkin, D.M. Skudnev. THE ETHERNET NETWORK FUNCTIONING PROCESSES MODELING

The Ethernet network functioning modeling principles are considered. The term 'Block' is suggested for the separate network devices presentation. Block is a modification of the N.P. Buslenko's term 'aggregation'. Different network devices models and examples of typical network models are introduced60

ELECTRONICS

B.I. Kolotilin, S.A. Kolesnikov. CALCULATION OF PARAMETERS OF THE INSTALLATION FOR GETTING PLASMOIDS AT ELECTROEXPLOSIONS OF WIRE SPIRALS TURNED IN TORUS

Calculation of parameters of the installation is carried out under varied conditions of experiments on electro explosions turned in torus wire spirals in an atmosphere. The experimental results as oscillograms of processes of transfer of energy in copper spirals of various designs are submitted.....65

V.A. Korotchenko, D.V. Suvorov. THE SELF-CONSISTENT MODEL OF FORMATION VOLUME DISCHARGE. II. NUMERICAL MODEL OF DISCHARGE FORMATION

Numerical realization model of formation volume discharge is presented. Features of algorithm the models providing stability of numerical calculation are described. Results of modeling for the nitrogen laser with pumping by a transverse discharge are presented.....69

A.N. Vlasov. POWERFUL PULSING INDUCTION DISCHARGE WITH THE DENSE PLASMA INSIDE THE INDUCTIVE ENERGY CONDENSER

Attempt of an explanation of abnormal high lifetime of plasmoids gained at electrical explosion of wire spiral turned in a torus is undertaken. On the basis of the analysis of circuitry and physical processes of input of electromagnetic energy in the powerful pulsing induction discharge at which the magnetic pressure created by a discharge current, is comparable with gas dynamics pressure of a surrounding medium it is shown, that in the dense plasma most effectively it is possible to provide input of electromagnetic energy at rather flat forward and sharp back fronts of an impulse of a current of a Ruhmkorff coil for what induction stores of energy of the toroidal shape in the best way approach. Parameters of pulsing magnetic system at which inside to circumrotate circulating dense plasma formation of toroidal current layer with long lifetime are designed 73

A.A. Fefelov, A.I. Ulitenko, A.F. Mannanov. THE DECISION THE METHOD OF BOUNDARY ELEMENTS OF THE TASK ABOUT DISTRIBUTION OF TEMPERATURE IN THE PRISMATIC CORE UNDER THE SET BOUNDARY CONDITIONS THE FIRST AND THIRD SORT

Stages of numerical realization of a method of boundary elements are considered at the decision of a classical task on distribution of temperature in prismatic a core of constant section. Comparison of the received results with the theoretical decision of a problem, and also with data of numerical modelling by a method of final elements in SolidWorks/CosmosWorks environment is lead. The analysis of results allows to speak about higher accuracy of calculation of temperature at use of a method of boundary elements 81

A.E. Malutin. SOME SPECIAL FEATURES OF THE CORONA DISCHARGE CREATED IN A BOUNDED DOMAIN

The positive corona discharge in a gas flow was investigated experimentally and described. The positive corona discharge was created in a bounded region within a flash chamber of atmospheric pressure ion source by a multineedle matrix emitter by a bunch of carbon fibers 85

A.N. Kozlov. ANALYSIS OF DEGRADATION ACTION OF THE MICROWAVE ON ELEMENTS AND DEVICES OF COMPUTER FACILITIES AND CONTROL SYSTEMS OF OBJECTS OF AEROSPACE TECHNICS

Maintenance dependable control systems and devices of computer facilities is one of the major problems for today. One of the factors lowering dependable by means of a conclusion out of operation of elements and devices of computer facilities and control systems, is the microwave. The urgency of the given problem is proved and the brief analysis of degradation action of the microwave is resulted, expected parameters of sources of the microwave are submitted, ways of penetration of the microwave to cases of the radio-electronic equipment are resulted 89

BRIEF REPORTS

V.I. Koshelev, Vu Tuan Anh. ADAPTATION MULTICHANNEL REJECTION FILTER TO PARAMETERS OF CLUTTER

Methods of adaptation multichannel rejection filter, based on a recurrent estimation of a correlation matrix of clutter are considered. The necessary volume of learning sample $m \geq 20$ for reception of the set error of estimation and the necessary number of channels $L \leq 6$ for reception of the set efficiency of suppression of clutter are determined 94

M.V. Dubkov, A.V. Nickolaev. INFLUENCE OF NONLINEAR DISTORTIONS OF ELECTRIC FIELD ON ACCEPTANCE IN QUADRUPLE MASS-ANALYZER

Research of influence of nonlinear distortions of trapping electric field in quadruple mass-analyzers (such as quadruple mass-filter, monopole) on the form and area of acceptance was carried out and described 97

A.S. Kudryavtsev, A.Y. Klochkov. FEATURES OF CONSTRUCTION OF SYSTEM OF THE QUALITY MANAGEMENT OF THE AVERAGE ENTERPRISES ACCORDING TO REQUIREMENTS ISO 9001:2000

The organization, seriously engaged in construction of system of a quality management, should

reconsider the technologies, processes, resources, system of document circulation, it is more precise and obviously to define the strategy and a policy, in detail to paint with the purpose, to organize the monitoring system and the account, to reconstruct system of motivation of employees. In the message features of reduction of system of a quality management of the average enterprises in conformity with requirements of standard ISO 9001:2000 are considered, the program on reduction of system of a quality management conformity with requirements ISO 9001:2000 is developed..... 100

Yu.M Korshunov. MODELING OF THE “DISTORTION-AND-RECONSTRUCTION” PROCESS USING THE MARKOVIAN CHAINS

The method for modeling of the “distortion-and-reconstruction” process, using the Markovian chains, is considered. It is programmed in the MATLAB packet. The examples of practical tasks solving are discussed too 103

A.A. Khoreva. NUMERICAL COMPUTATION OF CABLE ROUTS IN APPLICATION BUNDLE OF CAD SYSTEM KOMPAS-3D

The task of cable routs formation in 3D is shown. The iteration algorithm of computation of cable rout’s points is given. The testing of algorithm’s stability and satisfying the accuracy requirements in CAD systems is performed 106

I.S. Nikitina. AUTOMATIC DATA PROCESSING OF EXPERT GRADES

There is a automatic data processing of expert grades in the publication. The base method is methodic of systems theory PATTERN. The calculation of expert grades make on mathematical method of multicriterion problem solution. Author described an example of using the system, evaluated ability of using the system for solution the typical questions of structural analysis on different scope of activity 109

V.V. Tarasov. TO PROBLEM OF EXPRESSIBILITY OF BOOLEAN FUNCTIONS OVER THE BASIS OF FUNCTIONS CONTAINING DEPENDING ON THE PARAMETER

Necessary and sufficient conditions of expressibility of Boolean functions over the basis of functions containing constants and depending on the parameter are obtained 112

J.S. Mitrohin, A.N. Andreev. ANALYSIS OF SOLUTION STABILITY OF THREE DIFFERENCE EQUATION SYSTEM

In this work it is given the construction functions by which the problems of solution stability of three difference equations are determined. The result can be extended on similar (analogous) system of random order 115

V.V. German. APPLICATION OF SCANNERS OF SAFETY: PROBLEMS AND WAYS OF THE DECISION

In this article arising the problems that are considered at carrying out of audit safety of a computer network with use of scanners of safety. The results of researches which are described in the first part of article have allowed to the author to offer classification of modern scanners of safety. Offered classification substantially promotes formation competent understanding of specific features of the given means of the analysis of security and helps to orient with a subject not only to experts, but also unprepared reader. The second part of job is devoted to practical aspects of application of scanners of safety. One of the basic problems at a stage of preparation for carrying out of the analysis securities of information system from unauthorized access, is the problem of a choice of one or several scanners. Reliability of the received data as a result of application of scanners of safety in much depends on a correctness of a choice of concrete software/hardware security analysis asset. For the successful decision of the designated problem the author offered the algorithm, which allows an analyst to carry out correct choice. In the third part of article considered problems which arise at a stage of applications scanners of safety. Analyzing the reasons of their occurrence, the author offers the practical recommendations directed on increase of a degree reliability of the reports received as a result of their application 118

G.N. Kolod’ko. MULTIRATE ADAPTIVE SIGNAL PROCESSING IN RADIO-WAVE IMAGING RADAR

The paper describes the ways of designing a digital receiver structure in radio-wave imaging radar. Processing algorithms based on multirate and adaptive techniques are discussed. A mathematical model of an input signal and a digital receiver structure are offered for the case of ground-mapping radar with moving targets detection mode. It is shown that the multirate and adaptive techniques together are the very effective method of solving radio-wave imaging problems 121

THE ITEMS OF INFORMATION ON THE AUTHORS 126