

ABSTRACTS**DATA TRANSMISSION AND PROCESSING**

P.V. Babayan, A.B. Feldman. RECOGNITION OF OBJECTS ON IMAGES AT SUPERVISION FROM SPACE

Key words: image, recognition, classification, normalization, principal component analysis.

Four algorithms of moving objects recognition on the images received under observing the Earth surface from space are offered. Mathematical apparatus of principal component analysis for informative attributes allocation and binary images objects invariants reception relative to their rotation and displacement in the picture area is used in the algorithms. The algorithms are orientated to work in real time

V.A. Damm, V.A. Shalaginov, V.V. Yelepherevskiy, A.V. Kutuzov. RECOVERING TIME INTERVAL ERROR MISSING DATA FOR DECOMPOSING TOTAL PHASE JITTER IN A DIGITAL SIGNAL

Key words: phase jitter, time interval error, missing data, decomposing components, discrete Fourier transform, Markov's chain.

The recovering time interval error missing data method is suggested for decomposing total phase jitter in a digital signal. The block-scheme of suggested method is shown, and availability of the method is proved. The results of the simulation modeling in MathCad are presented. The appropriateness of the applying the suggested method under the specified conditions is shown

A.V. Krevetskiy, Yu.A. Ipatov. SELECTION OF OBJECTS ON A COMPLEX HETEROGENEOUS BACKGROUND AT THE ANALYSIS OF COLOR IMAGES IN BIOLOGICAL RESEARCHES

Key words: segmentation, space, color, brightness, algorithm, program, cluster.

The selection of objects on a complex heterogeneous background in the process of color images analyzing in biological researches. Statistical characteristics of color images projective coating plants with an optimal color space choice are analyzed. The mathematical model of images for researched objects is developed. The algorithm of segmentation for the set objects and complex heterogeneous background, which is effective in the computing volation and on quality of solutions, is synthesized. The adaptation for the conditions of observation and types of statistically heterogeneous scenes is reached by means of preliminary training

S.I. Saitov, D.Yu. Muzalevskiy. USAGE OF HOLOGRAPHY AND FOURIER OPTICS METHODS FOR ORGANIZATION OF CONTINUOUS CONTROL OF FIBER-OPTICAL LINE CHANNEL

Key words: information-measuring methodology, continuous control, controlled parameters, information-measuring system, associative holography memory, fiber-optical line channel, unit under test.

The new approach to the decision of an operability and methodical validity vise problem of continuous control of fiber-optical line channel, which are based on the usage of perspective holography and Fourier Optics methods

RADIOTECHNICAL AND MEASURING SYSTEMS

S.N. Kirillov, A.S. Slesarev. MODIFICATION OF PHASE-SHIFT KEYED SIGNAL DIGITAL FILTERING ALGORITHM FOR ACQUISITION BLOCK OF SATELLITE RADIO TECHNIQUE

INFORMATION TRANSMITTING SYSTEM

Key words: digital filtering, fast Fourier transform, acquisition signals, satellite radio technique systems of information transmitting.

Modifications digital filtering algorithms in frequency domain for one or two satellite radio technique information transmitting system phase-shift keyed signals acquisition block based on fast Fourier transform are offered. The possibility of computational burdens decreasing by 16...19% while calculating filter output signal spectrum is shown providing calculating gains up to 8...14% on acquisition stage

V.U. Smirnov, O.R. Nikitin. THE LINEAR PHASED ANTENNA GRATING FOCUSED IN THE SHORT-RANGE ZONE

Key words: antenna grating, simulating, focal area, electromagnetic field, short-range zone.

The results of the computer simulating of the linear phased antenna grating focused in a short-range zone are presented. Possibility of the effective focusing of the electromagnetic field in the given area of space is shown. Comparison of the geometrical parameters of the grating with the parameters of focal area is done

O.K. Abramov. THE EQUIPMENT FOR ACCELEROMETERS CALIBRATING IN EARTH GRAVITATION

Key words: accelerometer, calibrating, code device, compound pendulum, characteristic oscillation, measuring, sensitivity, error.

The method of accelerometers calibrating by means of dynamic inclinations in earth-gravitation is offered. The possibilities to realize the method by means of applying analog and digital precision calibrating instruments are considered

I.A. Saitov, N.I. Myasin, K.I. Myasin. LINEAR SECTION FIBER-OPTICAL TRANSFER DISTANCE SYSTEM MAXIMIZATION WITH WAVELENGTH DIVISION MULTIPLEXING AND LINER OPTICAL AMPLIFIERS

Key words: fiber optic linear path, multiplexing, wavelength, non-linear effects, forced combinational dissipation, fiber-optic amplifier, signal-noise ratio.

The new approach to the decision of a distance signal transfer increase problem in fiber-optical transfer system by means of fiber-optical linear section active components characteristics optimization with wavelength division multiplexing and linear fiber-optical amplifiers in terms of simulated Roman's scattering effects domination is offered. Analysis of simulated Roman's effect domination on signaling reliability in fiber-optical transfer system is made. The express method of tungsten alloys spectral analysis has been developed and used in manufacturing technique products of electronic equipment

COMPUTER SCIENCE AND APPLIED MATHEMATICS

L.A. Demidova, E.I. Konyaeva. OBJECT CLUSTERING USING FCM-ALGORITHM ON THE BASE OF TYPE-2 FUZZY SETS AND GENETIC ALGORITHM

Key words: FCM-algorithm, type-2 interval fuzzy sets, Karnik-Mendel algorithm.

The application of FCM-algorithm on the base of type-2 fuzzy sets to a problem of clustering object is considered. To define optimal combination of fuzzifier values it is offered to use the genetic algorithm

A.N. Privalov, V.L. Kuleshov. MATHEMATICAL MODEL OF FUNCTIONING OF TRAINEE ADAPTATION PROCESS IN COMPUTERS TRAINING SYSTEM

Key words: mathematical model, adaptation, training system.

The structurally functional scheme of adaptive computer training system is offered. The task of trainee adaptation is formulated. The mathematical model realizing a technique of formation of effective ways of adaptation in adaptive computer training systems on studying is developed

A.I. Baranchikov, A.V. Alpatova. RELATIONAL DATABASES KEYS REENGINEERING

Key words: reengineering, databases, relational, design, data system, key, relation.

Reasons for advisability of using relational databases reengineering are listed. Algorithms of finding simple and compound keys of relations are offered. Evaluation of time complexity of the given algorithms is estimated

Ye.V. Komerzan, O.M. Kirasirov. THE ANALYSIS AND MODELING OF THE BRIDGE CRANE DISPERSAL PROCESS

Key words: crane dispersal process, modeling of dispersal process, mechanism of the bridge crane dispersal, the electric motor of dispersal mechanism, climbing overhead type crane, optimal dynamic characteristics of dispersal process.

The main stages of automated modeling system of the crane dispersal process are presented. The law of electric motor moment change and its mechanical characteristics are used as a key parameter. Modeling of dispersal process is carried out with help of program "Solid Works" of appendix "Cosmos Motions"

P.A. Baranchikov. THE PROBLEM OF RELATION KEYS CONFLICT AND WAYS TO SOLVE IT

Key words: databases, relation key, restriction access.

The problem of relation keys conflict when developing of access-controlled databases is considered. Some ways to solve the keys conflict that depend on the subject area and demands of access restriction between database users are suggested. Some examples of these methods applying and their advantages and disadvantages are offered

I.V. Goryunov, S.Yu. Semchenkov DEVELOPING METHODOLOGY OF INFORMATION SUPPORT SYSTEM FOR EDUCATIONAL PROCESS BASED ON TOTAL QUALITY MANAGEMENT (TQM) PRINCIPLES BY USING OLAP-TECHNOLOGY

Key words: quality control of education, management of high educational establishment, informatization of education, OLAP-technology, quality management system, TQM, general quality control, informatization of quality management system.

Informational model of quality management system of educational process is proposed. Current informational systems in Ryazan State Radioengineering University are analyzed. Principles of development of informational systems on Ryazan State Radioengineering University are formulated. Usage of OLAP systems for development of analytical subsystem is substantiated. Proposed informational model is based on Total Quality Management (TQM) principles, OLAP – technology, informational system

ELECTRONICS

N.P. Ovsyannikov, A.E. Malutin, A.A. Fefelov. RESEARCH ION STREAM OF FIELD ION SOURCE CHARACTERISTICS

Key words: ion source, field ionization, carbon fibers, auto ion microscope.

The mathematical model of field ion source with multineedle emitter on the basis of carbon fiber is offered. A number of ion stream characteristics are theoretically determinate. Method of ion stream characteristics research by analysis of field multineedle emitter image in the auto ion microscope is suggested. Angular integrated stream distribution and stream fine structure

analysis are researched

Zh.P. Rusakova, V.B. Savelyev. HIGH-MELTING TUNGSTEN ALLOY IDENTIFICATION BY SPECTRAL ANALYSIS

Key words: spectral analysis, tungsten alloys, emission is spectra, semiquantitative analysis.

Visual spectral analysis express-method of tungsten alloys, applied in the electronic products manufacturing technology has been elaborated. Emission is spectra of tungsten, rhenium and molybdenum have been studied in the broad wave length band. Characteristic analytical lines of each element, allowing to identify safely the following tungsten alloy brands: VA (pure tungsten), VR-20 (tungsten with 20% of rhenium), VAR-5 (tungsten with 5%rhenium), MV-50 (tungsten with 50% of molybdenum), VAM-5 (tungsten with 5% of molybdenum), have been discovered. Rational analytic operation sequence is offered

BRIEF REPORTS

V.A. Sablina. ON ORDERS OF CLOSED CLASSES IN THREE- DIGIT LOGIC, II

Key words: three-sign logic, closed class, basis, order, expressibility, foundation, greed.

Visual spectral analysis express-method of tungsten alloys, applied in the electronic products manufacturing Questions of closed class order determination and closed class functions expressibility by formulae above basis system are considered by examples of two foundation retaining classes. It is proved that one class has order 2 and the other class has order 3. Ways of expression for functions of classes by formulae above basis systems of given classes are indicated

V.A. Fatkin, N.A. Kudrova, V.E. Rojkova. THE GROWTH OF COMPETITIVENESS OF MACHINE-BUILDING PLANTS ON THE BASIS OF INTEGRATED QUALITY MANAGEMENT SYSTEMS

Key words: management system, quality, internal environment, external environment, integration, production level.

The concept of integrated quality management system for machine-building plant offered. The elements of integrated quality management system are determined. Main management levels of machine-building production are specified. Basic approaches and principles of system integration are determined

A.V. Nesterov. THE ANALYSIS OF DIGITAL INFORMATION PROCESSING METHODS IN COMPUTER VISION SYSTEM AND THE SURVEY OF THE USAGE FIELDS OF GIVEN SYSTEMS

Key words: computer, vision, information, image, recognition, algorithm, method.

The standard structure of computer vision system is described. The main methods information processing methods in such systems are marked. The division on levels of approaches and tasks complexity is observed. Standard instances of method application are given. The survey of current direction of computer vision system application is realized. Integration of computer vision units in the information technologies fields is especially marked

R.T. Seredzhinov. ANALYSIS OF SERVICE POWER SUPPLY PROCESSES AT THE EXPENSE OF STEP-UP INDUCTOR OF POWER COEFFICIENT CORRECTOR

Key words: power coefficient corrector, step-up inductor, AC/DC, step-up, modeling, Micro-Cap, short circuit, idling.

The processes of service power supply (SP) of AC/DC converters at the expense of step-up inductor of power coefficient corrector (PCC) are examined in the article and AC/DC the start-up processes are analyzed by means of modeling in Micro-Cap