COPLANAR WAVEGUIDE RESONATOR DESIGN PROCEDURE

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Abstract: In this paper we are concerned on coplanar waveguide (CPW) resonator design for X band antenna applications. The CPW technology can be considered as an good alternative to microstrip due to uniplanar presence of both signal and ground planes, thus offering high possibility of integrating active components.

SOME ASPECTS CONCERNING THE DESIGN OF A DIGITAL ELECTRONIC TACHOGRAPH

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Abstract: This paper presents a project meant to design and realize a digital electronic tachograph intended for transport vehicles. This project was the object of the scientific research contract 8C1/2004 AMTRANS financed by the Romanian Ministry of Education.

The paper presents some aspects of the hardware design of the system, the software and security solutions for data transfer between central system and the motion sensor, respectively external media.
TIME EQUIVALENT SYSTEMS

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Keywords: energy generation system, fuel cell, energy storage device, boost converter, system
time constant, current peak control, Simulink models.

Abstract: In this paper we analyze the time equivalent systems with a system topology that are the
generalization of the Energy Generation System (EGS) topology. The Time Equivalent Systems (TES) concept is
associates with system time constants and for two TES means that the systems behavior is almost the same, but
at different time scale. The time scale reduction operates to the all system time constants in order to not
introduce error in systems simulation. Usually, the controller time constant is the sample time and sample
frequency is constant, so we analyze if the errors can appears. The simulation results show that the EGS
behavior is well defined and almost the same for different time scale reduction. The used Simulink models for the
EGS blocks and some mathematical consideration are presented, too.

CYCLOCONVERTER OPERATION
IN THE LOW-COST ENERGY GENERATION SYSTEMS

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Keywords: Energy Generation System, cycloconverter, two-carrier PWM controller, modeling.

Abstract: This paper presents an investigation of the Cycloconverter function used into Energy Generation
System (EGS). The cycloconverter structure consists of eight unidirectional switches organized in four
bidirectional pairs into a full bridge. The cycloconverter is used into an EGS as power interface between the
high frequency (HF) DC bus an AC output. The simulation results show that the cycloconverter switching using
a two-carrier PWM controller is strongly dependent by the load quality factor when the load current is close to
zero. This affect the AC output current (and voltage) spectrum. We analyze the control linearity of the AC output
voltage amplitude (fundamental spectral component) by the PWM amplitude modulation index, too. The AC
output voltage amplitude can be stabilized using a well designed PI control. The used Simulink models for the
used EGS blocks and some design consideration are presented, too.
AN APPLICATION OF THE BOX-JENKINS METHODOLOGY ON ELECTROMAGNETIC ENVIRONMENT FROM BOARD OF MARITIME SHIPS. RESULTS.

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Keywords: Box-Jenkins Methodology, maritime ships, modeling

Abstract: In this paper we present an application of the Box-Jenkins methodology on electromagnetic environment from board of the maritime ships. The methodology uses statistic modeling of the disturbing electromagnetic interferences as a whole, based upon some methodologies of analysis and prediction of the time series (dynamic). Within the framework of the performed experiment, the components of the investigated computers, installed in the command room of the ship, have normally operated during the 10 experiments realized.

ANALOG PROCESSING OF BIOELECTRIC SIGNALS

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Keywords: bioelectric signal, ElectroCardioGraphy (EKG), signal filtering, notch filter, signal-to-noise ratio (S/N)

Abstract: The bioelectrical signals contain relevant information about the electrical activity of some human organs. The main objective of this paper is the optimization of analog processing of bioelectrical signals. On this purpose, a signal filtering method is used. The signal-to-noise ratio (S/N) is increased by limiting the frequency range of acquisitioning bioelectrical signals and rejected the harmonics of 50Hz AC mains interference. The simulations results, for an EKG signal, confirm the advantages of the used method.
THE BEHAVIOUR IN SPACE DOMAIN OF THE EDGES DETECTOR, LAPLACIAN OF GAUSSIAN

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Keywords: images processing, images segmentation, edge detection, Laplacian of Gaussian operator.

Abstract: The images segmentation is an key domain in various areas of images processing, as for example in images analysis, shape recognition and robots viewing, that because it represents an essential part of the relating process of objects from real world with it’s representations in digital images. In this paper are presented few aspects about one of the instrument used for segmentation realization, the second order derivative operator, Laplacian of Gaussian (LoG).

TRUST - BASE OF DECISION MANAGEMENT IN COLLABORATIVE ENTERPRISES

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Abstract: We are currently facing a shift from the existing organisational approaches to more dynamic systems. The concurrent integration of the design of a product, services and delivery process will lead to a more sustainable business. This new engineering approach, that adopts the challenges of a continuous changing environment is named "Collaborative Enterprise".

As trust becomes more and more important in helping managers in the process of decision making, we designed and implemented a system that computes trust values in different types of environments and also gave a model to integrate it in a complex structure like a Collaborative Enterprise.

We define trust to be the tranzitive relation between two actors in the system which refer to the subjective expectation an agent has about another's future behaviour based on the history of their encounter. We will give a mathematical representation of trust and an algorithm that distributedly computes trust values in a Trust Network, based on different trust relationships among entities.
FROM NEURAL INTERFACES TO BIOLOGICAL COMPUTERS

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Keywords: sensorimotor, Brain-Computer Interfaces, Neural Prostheses, phototaxis, menotaxis, neuro-robotic systems

Abstract. In this chapter, we report on the state of the art in the technology of neural interfaces, and describe in some detail a number of on-going projects, in which they are used to explore the neurobiology of learning and memory. In particular, it is proposed to use artificial multi-sensory information coming from a roving robot that interacts with the environment, under the perspective of feeding an in vitro network of real neurons with a set of time and spacedependent signal resembling those processed by the nervous system.

A MEDICAL EXPERT SYSTEMS OVERVIEW

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Keywords: Artificial Intelligence, Expert System, Clinical Decision Support, Knowledge Base, Knowledge acquisition, Inference Engine, Explanation Module

Abstract: The paper is underlying the basic concepts related to the expert systems in general and to expert systems applied in medicine in particular, reviewing the basic architecture of an expert system, main modules, methodologies and tools used to build an expert system. In the second section of the article we are reviewing some of the most known expert systems used in the medical practice, underlying the main characteristics of those systems.
INVERSE ROBOT KINEMATICS - NEW APPROACH

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Keywords: inverse kinematics, robotics structure, Paden-Kahen sub-problems.

Abstract: Inverse kinematics is, out and away, the most intricate problem in the case of industrial robotics structures. This is also the reason for which majority of robotics structures are controlled by education and not directly by programming. This paper developed a solution method of the inverse kinematics using a series of sub-problems, Paden-Kahen sub-problems, which even if are not applicable in general case, they offer, at least for the majority of the industrial robotics structures efficient and fast solutions. The solutions presented in the second part of the paper are a proof on the radical simplifications which this method allows.

FRACTAL FUNCTIONS IN ELECTRONICS

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Keywords: signal theory, fractal functions

Abstract: The fractal category, introduced in mathematics in 1975 by B.B. Mandelbrot, has found its applications in many areas – geometry, set theory, chaos theory s.o. – between there is electronics domain. If the fractal antenna idea is speculative, the fractal functions proved their currency. Below, you can find, on premiere, a model of signal who is offering its fractal properties on the temporal axes.
MODELING AND CONTROL OF THE LUBRICATION SYSTEM

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Key words: modeling, automotive, lubrication system, Fourier transformer

Abstract: The paper represents an analytic study about distribution of the pressure in hydrodynamic cylindrical bearing with complete bearing. Starting from the general equation of equilibrium of the viscid Newtonian fluids, work the simplifications and the neglects enforced of the thickness reduced of the lubricant film, I determinate the move equations, respectively the distribution of speeds in the film of fluid. For stationary regimes, on the basis of balance-sheet equation of the flows masses, the pressure in the film of lubricant created in the bearing of motive D2156 were measure to different rotation, obtained the values that validated the described model. In the last propose a control structure of the oil film pressure for a uniform lubrication in all range of rotations.

NTP VERSUS PTP IN COMPUTER NETWORKS CLOCK SYNCHRONIZATION

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Abstract: Trusted and precise time sources are required in computer networks and Internet for various reasons: time stamps for electronic documents, online transactions, storage and document retrieval, electronic mail, multimedia applications and many others. Also, the demand for Ethernet as a real-time control network is increasing, as manufacturers realize the benefits of employing a single network technology across the plant. For control and measurement applications, the need of an accurate distribution–wide sense of time is even more stringent than regular applications. This paper is comparing two clock synchronization protocols, the Network Time Protocol and the IEEE-1588 Precision Time Protocol. It gives an overview of synchronization methods by the time stamping employed in IP-based real-time applications looking at the possible sources of errors as well as the achievable performance of the two standards.
OPERATORS USED IN DIGITAL IMAGE PROCESSING. LAPLACIAN OPERATOR

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Keywords: digital image processing, Laplacian operator, thresolding

Abstract: In this paper we analyze the possibilities for usage of the Laplacian operator for selection of the luminance threshold, selection needed in image processing by thresholding. The method is to construct histograms only using that points of image where a Laplacian operator has high amplitude response (as example, we retain first 10% points, with high amplitude). By using this method, a histogram with abrupt valley is obtained.

SECURITY SOLUTIONS IN HEALTH CARE – CERTIFICATES AND SECURED DIGITAL IDENTITY CARDS

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Keywords: Public Key Certificates, Attribute Certificates, Health Insurance Card, Health Professional Card, X.509

Rezumat: Devenind necesară, în general răspunzând la problemele etice ale medicinei, precum intimitatea clientului, securitatea datelor sale personale trebuie asigurată. În special, procesul de stocare și transmisia vor fi efectuate în condiții de protecție de înalt nivel și folosind cele mai avansate standarde de securitate ale momentului. Deși nu este nouă, ideea cardurilor digitale de identitate poate fi implementată cu succes și în sistemul românesc de sănătate. Datele conținute de un astfel de card trebuie securizate prin semnături digitale. În ideea de a răspunde cerințelor menționate, acest card digital de identitate va conține certificate și chei criptografice.

Abstract: Becoming necessary, generally responding to ethical problems of medicine, like the client’s privacy, the security of his personal data must be assured. Mostly, the storage process and the transmission will be performed in high level protection conditions and using the most advanced security standards of the moment. Although, it is not new, the idea of digital identity cards may be successfully implemented in the Romanian health care system. The contained data by a certain card must be secured by digital signatures. In order to respond to the mentioned requirements, this digital identity card will contain certificates and cryptographic keys.
THE IMPLEMENTATION OF THE EXSYS DEVELOPER INTELLIGENT SYSTEM

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Abstract: Exsys Developer is produced by an American company bearing the same name and it was launched in 1989. The last version of this system works in graphic media controlled by Windows system, the Exsys intelligent system being elaborated for computers compatible with IBM PC/PS that operate with IF-THEN-ELSE rules. Exsys Developer is created for personal fast applications and consists of five fundamental components and three advanced components.

A LABVIEW BASED E-LEARNING METHOD FOR COMMUNICATIONS LABORATORIES

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Keywords: e-learning, virtual instrument, modulation techniques, simulation.

Abstract: The novelty of the proposed E-learning method consists in the use of LabVIEW software for the implementation of the virtual instrument that allows the simulation of various modulation techniques (AM, DSB, FM, PM) using various types of carriers and information signals. In order to improve the efficiency of learning process, besides the software application, a second part consisting in a conversion hardware realised as an acquisition board coupled on the parallel port of a PC was attached to the proposed platform. This allows realistic displaying and measurement with a oscilloscope of the signals simulated by the software application. The saved data, representing the simulation results can be shared and viewed on a local area network or through the Internet, similarly with a virtual laboratory. The main benefit of the proposed method came from its interactivity and visual approach.
RECONFIGURABLE SIGNAL PROCESSING
IN INTEGRATED RECEIVERS

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Keywords: adaptable circuit design, multimode receiver, flexibility, non-complex signal processing.

Abstract: In this paper, after a brief introduction in the domain of integrated receivers, it is presented a
digitized, low-IF receiver architecture intended for use in a cellular radio application. By processing only the
real part of the complex IF signal after the mixer, it avoids the need for a complex analog to digital (ADC) this
resulting in a very much simpler and more adaptable circuit design. The non-complex signal processing of the
receiver described in this paper can give more flexibility to a multimode receiver. Advancing the position of the
ADC in a low-IF receiver already gives improved adaptability by moving the channel filtering into the digital
domain. The non-complex signal processing causes an inevitable loss in image rejection but this problem is
easily overcome by including a simple passive polyphase filter before the ADC.

GSM SECURITY MODEL

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Keywords: Authentication, algorithm, encrypt, GSM Security

Rezumat: Sistemul Global pentru Comunicaţii Mobile este cel mai utilizat sistem de telefonie mobilă din
lume. Sistemul mobil nu are numai avantaje pentru utilizatori ci introduce şi o serie de
probleme legate de securitate. Lucrarea îşi propune să furnizeze cunoştinţe de bază necesare
înţelege rii problematicii securităţii în reţelele GSM.

Abstract: Global System for Mobile Communications (GSM) is the most popular mobile phone system in
the world. Mobile networks not only provide great benefits to their users but they also
introduce inherent security issues. This paper briefly explains the basics of the GSM Security
system.
BIOMETRIC IDENTIFICATION

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Keywords: Identification, Fingerprints, Facial Recognition, Iris Recognition

Rezumat: Lucrarea îşi propune să furnizeze cunoştinţele necesare pentru a evita potenţialele capcane în alegerea, instalarea şi operaţionalizarea unui sistem biometric de identificare. Decizia finală privind utilizarea cestui tip de sistem depinde aproape în întregime de scopul aplicaţiei.

Abstract: This article provides the security professional with the knowledge necessary to avoid potential pitfalls in selecting, installing, and operating a biometric identification system. The final decision about putting biometric systems to work depends almost entirely on the application’s purpose.

SOME ASPECTS CONCERNING THE MULTI-SENSOR DATA FUSION FOR MODELLING HUMAN INTERACTION WITH ENVIRONMENTAL OBJECTS

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Key words: sensor fusion, human interaction, environmental objects.

Abstract: The paper presents some aspects concerning the multi-sensor data fusion for modelling human interaction with environmental objects. The modelling allows to estimate ecological conditions of the environment not only from the positions of direct danger to human health, but also from the positions of the comfort of human activity in the environment observed. The functioning of the developed fusion algorithms is considered on example of determination of the set of organoleptic parameters of the environmental dispersed object.
CONSIDERATIONS CONCERNING THE NON-LINEAR SYSTEMS IDENTIFICATION

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Key words: genetic algorithm, non-linear system, identification.

Abstract: The paper presents some considerations concerning the non-linear systems identification. A genetic algorithm for terms selection was described and applied in the identification of a non-linear real system. Due to being a generate-and-test approach, the genetic algorithm produces not only one, but a family of low variance models, which can be assessed according to different criteria before the final model is chosen.

Rezumat: Lucrarea prezintă unele considerații cu privire la identificarea sistemelor neliniare. Un algoritm genetic pentru selecția termenilor a fost descris și aplicat în identificarea sistemelor reale neliniare. Datorită abordării de generare și testare, algoritmul genetic produce nu numai una, ci o familie de modele de diversitate redusă, care pot fi evaluate cu diferite criterii după ce modelul final a fost ales.