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Authors: Anubhuti Khare, Manish Saxena, Pravin J Chaudhari

Paper Title: Signal Code Modulation for Broadband Wireless Systems

Abstract: This paper seeks to present ways to eliminate the inherent quantization noise component in digital communications, instead of conventionally making it minimal. It deals with a new concept of signaling called the Signal Code Modulation (SCM) Technique. The primary analog signal is represented by: a sample which is quantized and encoded digitally, and an analog component, which is a function of the quantization component of the digital sample. The advantages of such a system are two sided offering advantages of both analog and digital signaling. The presence of the analog residual allows for the system performance to improve when excess channel SNR is available. The digital component provides increased SNR and makes it possible for coding to be employed to achieve near error-free transmission

Keywords: SCM, Hybrid Modulation, Quantized residual amplification.

References:

Authors: Mohd. Shahnawaz, Ashish Ranjan, Mohd Danish

Paper Title: Temporal Data Mining: An Overview

Abstract: To classify data mining problems and algorithms we used two dimensions: data type and type of mining operations. One of the main issue that arise during the data mining process is treating data that contains temporal information. The area of temporal data mining has very much attention in the last decade because from the time related feature of the data, one can extract much significant information which can not be extracted by the general methods of data mining. Many interesting techniques of temporal data mining were proposed and shown to be useful in many applications. Since temporal data mining brings together techniques from different fields such as databases, statistics and machine learning the literature is scattered among many different sources. In this paper, we present a survey on techniques of temporal data mining.

Keywords: Temporal Data; Temporal Data Mining; TDM Task; Temporal Sequence Mining.

References:
Abstract: Mobile agents are software which moves autonomously through a computer network with the aim to perform some computation or gather information on behalf of its creator or an application. In the last several years, mobile agents have proved its numerous applications including e-commerce. In most applications, the security of mobile agents is a burning issue. There are plenty of techniques to protect mobile code. There need a brief discussion about each method including strength and limitation so it may guide to choose best techniques for individual application. This paper presented a overview of various security techniques with their strength and limitation. This article presents comparison of different aspects of mobile code security, namely the protection of code, mobile agents have proved its numerous applications, including e-commerce. In most applications, the security of mobile agents is a burning issue. There are plenty of techniques to protect mobile code. There need a brief discussion about each method including strength and limitation so it may guide to choose best techniques for individual application. This paper presented a overview of various security techniques with their strength and limitation. This article presents comparison of different aspects of mobile code security, namely the protection of hosts receiving a...
malicious mobile code and the protection of a mobile code within a malicious host.

Keywords: Security, Mobile agents, Mobile code, malicious host, Electronic commerce.

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The purpose of this study was to emphasize the Vegetation-enhanced bioremediation or phytoremediation plan for the surroundings of industrial area of Bhopal. This regions contain many industries and therefore there is a big risk of environmental pollution which is very hazardous to our health. Heavy metal accumulation in agricultural soils is potentially hazardous to human and livestock health. Excessive accumulations also present the risks of elevated heavy metal uptake by crops which could affect food quality and safety.

Conventional remediation technologies are used to clean the vast majority of metal-polluted sites but they also tend to be clumsy, costly, and disruptive to the surrounding environment. In contrast, plants are known to sequester certain metal elements in their tissues and may prove useful in the removal of metals from contaminated soils. Over the past decade there has been increasing interest for the development of plant-based remediation technologies which have the potential to be low-cost, low-impact, visually benign, & environmentally sound, a concept called phytoremediation.

Efforts should be made for dense vegetation of heavy metal bioaccumulation plants at the industrially contaminated sites. So that they reduce pollution and also give eco friendly aesthetic sense to enhance the beauty of the Bhopal city.

Growing and, in some cases, harvesting plants on a contaminated site must be compulsory condition to setup or run a specific industry because this remediation method is an aesthetically pleasing, solar-energy driven, passive technique that can be used to clean up sites with shallow, low to moderate levels of contamination. This technique can be used along with or, in some cases, in place of mechanical cleanup methods.

This paper attempted to provide a brief review on recent progresses in research and practical applications of phytoremediation for soil. Numerous plant species have been identified and tested for their traits in the uptake and accumulation of different heavy metals. Mechanisms of metal uptake at whole plant and cellular levels have been investigated. Progresses have been made in the mechanistic and practical application aspects of phytoremediation. They were reviewed and reported in this paper.

Keywords: Phytoremediation, Heavy Metals, Soil pollution, Contaminated Site, Phytoextraction, Rhizofiltration, phytostabilization, phytovolatilization

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19. Hrishikesh Upadhyaya1, Sanijb Kumar Pand2, Mrinal Kanti Bhattacharyee1 and Sakhi Dutta1 ’Role of arbesculous mycorrhiza in heavy...
Abstract: The coefficients of thermal expansion (CTEs) of aluminum and aluminum/Al2O3 metal matrix composites (MMCs) are measured using a dilatometer and analysis of residual thermal stresses by Finite Element Analysis (FEA). The MMCs were prepared by liquid metallurgy technique for varying percentages of reinforcement in steps of 0, 5, 10, and 15% by weight. The CTE is expected to vary with relative residual strains which in turn are dependent on the percentage of reinforcement when cooled from 500°C to room temperature. The experimental CTE values were compared with developed model. FEA has been used to investigate the distribution of residual thermal stresses in the interfacial region. The result indicates that the properties of the interfacial region affect the stress distribution.

Keywords: Al 6061, CTE, FEA, Liquid Metallurgy, TMA

References:
Abstract: A new approach of control design of internal model controller is proposed in this paper. The proposed design method focuses on modifying the old general structure of IMC and develops a new model structure while saving the same general concept of using the invertible version of the system in the controller design. The new approach combines the IMC structure and the traditional structure of a control problem and this demonstrates an excellent performance and behavior against different disturbance inputs and model uncertainty presented in model parameter mismatch. Beside that a smith predictor is added to promote the design to compensate the delayed time systems. Also a proposed stabilizer has mentioned to deal with unstable systems.

Keywords: IMC, Unstable, Time Delay, Pendulum System, Smith predictor.

References:
Handwritten signatures are considered as the most natural method of authenticating a person’s identity (compared to other biometric and cryptographic forms of authentication). The learning process inherent in Neural Networks (NN) can be applied to the process of verifying handwritten signatures that are electronically captured via a stylus. This paper presents a method for verifying handwritten signatures by using NN architecture. Various static (e.g., area covered, number of elements, height, slant, etc.) and dynamic (e.g., velocity, pen tip pressure, etc.) signature features are extracted and used to train the NN [2]. Several Network topologies are tested and their accuracy is compared.

Although the verification process can be thought of as a monolith component, it is recommended to divide it into loosely coupled phases (like preprocessing, feature extraction, feature matching, feature comparison and classification) allowing us to gain a better control over the precision of different components. This paper focuses on classification, the last phase in the process, covering some of the most important general approaches in the field. Each approach is evaluated for applicability in signature verification, identifying their strengths and weaknesses. It is shown that some of these weak points are common between the different approaches and can partially be eliminated with our proposed solutions. To demonstrate this, several local features are introduced and compared using different classification approaches.

Keywords: Handwritten Signature Verification (HSV), Hu’s moment invariants, Neural Networks (NN), offline, Signature Recognition, etc.

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Authors: Kavita Mahajan, M. R. Vargantwar, Sangita M. Rajput

Paper Title: Classification of EEG using PCA, ICA and Neural Network

Abstract: The processing and analysis of Electroencephalogram (EEG) within a proposed framework has been carried out with DWT for decomposition of the signal into its frequency sub-bands and a set of statistical features was extracted from the sub-bands to represent the distribution of wavelet coefficients. Reduction of the dimension of the data is done with the help of Principal component analysis and Independent components analysis. Then these features were used as an input to a neural network for classification of the data as normal or otherwise. The performance of classification process due to different methods is presented and compared to show the excellent of classification process. These findings are presented as an example of a method for training, and testing a normal and abnormal prediction method on data from individual petit mal epileptic patients.

Keywords: ANN, DWT, Electroencephalogram (EEG), Independent components analysis (ICA), Principal component analysis (PCA),

References:

Authors: Anubhuti Khare, Manish Saxena, Jagdish Patel

Paper Title: FPGA Based Efficient Implementation of Viterbi Decoder

Abstract: It is well known that data transmissions over wireless channels are affected by attenuation, distortion, interference and noise, which affect the receiver’s ability to receive correct information. Convolutional encoding with Viterbi decoding is a powerful method for forward error detection and correction. It has been widely deployed in many wireless communication systems to improve the limited capacity of the communication channels. In this paper, we present a Spartan XC3S400A Field-Programmable Gate Array efficient implementation of Viterbi Decoder with a constraint length of 3 and a code rate of 1/3. The Viterbi Decoder is compatible with many common standards, such as DVB, 3GPP2, 3GPP LTE, IEEE 802.16, Hiperlan, and Intelsat IESS-308/309.

Keywords: Convolutional encoder, FPGA, Register Exchange, Spartan XC3S400A Board, Viterbi decoder.

References:
Abstract: Networks-on-Chip (NoC) is recently proposed as an alternative to the on-chip bus to meet the increasing requirement of complex communication needs in Systems-on-Chip (SoC). Most researchers advocate the use of traditional regular networks like meshes as architectural templates which gained a high popularity in general-purpose parallel computing. However, most SoC platforms are special-purpose tailored to the domain-specific requirements of their application. They are usually built from a large diversity of heterogeneous components which communicate in a very specific, mostly irregular way. In such systems the size and nature of cores may vary quite widely making the topology irregular. Moreover regular topologies can become irregular due to faults in links and switches. In such scenario topology agnostic routing algorithms are generally required. In this paper, we have analyzed the performance and applicability distributed table based routing for irregular NoC on an Network-on-Chip simulation framework.

Keywords: Distributed routing, Interconnection networks, NoC, SoC.

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