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# Abstracts

Sl. No.	Title of the paper	Abstract
01	A Deductive Theory of Space, Time and Consciousness	<p>In this paper, I try to explain what I have understood about Time, Space and Consciousness. It is after studying various related paradigms and philosophies for a number of years, I dare to write some sense what I could perceive from oblivion. To me it appears that time, as we perceive, is a subjective entity created by 'active consciousness', which is a blend of kinetic energy and information. Alternatively, 'the static consciousness', which is a blend of potential energy and information, witnesses frozen time. Thus, 'universal consciousness' encompasses 'time' and there is nothing called 'universal time'. The ensemble of all deterministic processes over a particular hypothetical time constitutes a stochastic process what we call as 'Einstein-Minkowski space'. Cross section of this space at any instant of time is called 'world order'. One can as well visualize Einstein-Minkowski space as a hypothetical concatenation of world orders. To be brief, active consciousness creates temporal order and other physical dimensions and entities. The purpose of this paper is to provide a logico-mathematical approach to comprehend space, time and consciousness.</p>
02	Gravitational Waves Repulsive Force Dark Energy Problem ( A New Look at Gravitation )	<p>In this work, one crucial observation ( made during 1996 in a Los Angeles Public Library ) related to the gravitational force between spinning/vibrating astronomical objects is discussed. Based on this observation, it is reasoned that REPULSIVE FORCE exists between certain spinning/vibrating strings. In other words, the gravitational waves associated with certain spinning/vibrating strings are potentially interfering destructively. This repulsive force is proposed to account for the dark energy accelerating the expansion of universe. It is observed that the theoretical framework required to predict repulsive force is already available in the literature. The observation related to direction of motion of strings at quantum level is projected to have important physical consequences.</p>
03	A New Binary Coded Ant Algorithm For Optimizing Continuous Functions	<p>In this paper a new graph based ant algorithm for optimizing functions of continuous variables is presented. Proposed binary coded ant algorithm (BCAA) allocates some bits for each variable and one node for each bit. If the ant passes through a node, the value of the corresponding bit is one, otherwise zero. By decoding these bits, we obtain variables values. To determine best pheromone updating method, four pheromone updating methods are tested. Performance of the new algorithm is evaluated on two benchmark problems. The proposed BCAA is very similar to a binary genetic algorithm (GA), thus can be used on all optimization problems on which a binary GA can be used.</p>
04	Pipelined Floating Point Hardware For Adaptive RBFNN Control	<p>The paper presents pipelined hardware architecture of adaptive Radial basis function neural network to control the nonlinear process. The implementation is attempted with pipelined floating point operations and verified with second order process. The design takes less area requirement and minimum time for updating the hidden centers and output weights online. The tracking response of the controller for the nonlinear process is analyzed and the performance is found to be acceptable.</p>
05	Layout Design And Analysis Of Intelligent Traffic Light Controller In VLSI Using VHDL	<p>Intelligent Traffic Light Controller (ITLC) is very useful for busy time roads when people go to their work places and find it difficult to negotiate with traffic. Now-a-days, traffic congestion has become uncontrollable because of the lacuna in the technology and design of traffic control lights kept at signalized intersections. That is, the present day traffic lights work on fixed time signaling and this causes unwanted stop time wherein there is no traffic in a particular direction. At this juncture, we propose ITLC which would reduce waiting time for drivers at signalized intersections. In this paper, we discuss one such technology based on autonomous system driven by intelligent sensors. ITLC's efficiency is increased when vehicles are less on narrow roads. Empirically, we got an efficiency of this ITLC, that is, maximum 36%. ITLC functional program is written in VHDL and the program fused in an IC through FPGA. ITLC is introduced in terms of optimistic IC whose layout is shown using the latest 0.6<math>\mu</math>m CMOS technology.</p>

- This work aims to verify whether Galvanic Skin Response (GSR) can be used as a valid pain indicator and to analyze the changes in GSR during hypnotic analgesic condition. Two types of experiments were conducted namely 'Pain-GSR' (PG) and 'Hypnosis-Pain-GSR' (HPG) experiments for 10 subjects. The experiments were done under pain and no-pain conditions on subjects of both the gender in the age group of 20 to 30 years old. We used 4 iron discs of 1.25 Kg each to create mechanical pain for PG experiment in our laboratory set up. For the HPG experiment, a disposable needle was inserted on subject's skin to create pain. The HPG experiment was conducted in a clinical setup with the help of an experienced hypnotherapist. The experiments were conducted in same ambient conditions of respective setup. The incremental change in conductivity of skin was observed in 'During Pain' stage of PG experiment. In HPG experiment, the conductivity of skin is in same range in 'Pre Pain without Hypnosis' and 'During Pain with Hypnosis' stages. The results of PG experiment show a clear relation between Pain and GSR and there is a scope for measuring pain objectively using GSR. The results of HPG experiment show that the subjects do not feel pain during hypnotic analgesia, and GSR is a true indicator of pain. However before concluding that GSR is a good indicator of pain, it requires experimental studies with more subjects.
- A mobile ad hoc network is a collection of nodes that is connected through a wireless medium forming rapidly changing topologies. Routing protocols, which act as the binding force in these networks, are a common target of these nodes. The attacks are launched by participating malicious nodes against different network services. The widely accepted existing routing protocols designed to accommodate the needs of such self organized networks do not address possible threats aiming at the disruption of the protocol itself. A number of secure routing protocols have recently been proposed, which make use of cryptographic algorithms to secure the routes. However, in doing so, these protocols entail a number of prerequisites during both the network establishment and operation phases. In contrast, trust-based routing protocols locate trusted rather than secure routes in the network by observing the sincerity in participation by other nodes. These protocols thus permit rapid deployment along with a dynamically adaptive operation, which conforms to the current network situation. In this paper, we evaluate the performance of our proposed Fuzzy based Trusted AODV routing protocol in a network with varying number of malicious nodes, mobility and number of connections. With the help of simulations, we demonstrate that the performance of the proposed protocol is better than AODV in terms of routing overhead ratio, throughput, latency and packet loss under similar attack conditions.
- Reconfigurable architectures are well suited for wireless application since they provide high performance computation together with the capability to adapt to changing communication protocols. Moving to deep sub-micron technology and below, FPGA could suffer from leakage energy consumption. This paper estimates the extensive transistor level leakage power of Virtex-II Configurable Logic Block (CLB) at 65nm technology and, also explore different techniques to minimize leakage power. HSPICE simulations based on BPTM (Berkeley Predictive Technology Model) at 25°C and 85°C shows that, for worst-case data, techniques such as High threshold voltage ( $HV_T$ ), High gate-oxide (HTox) and Gate biasing (NVGS) improve the leakage power saving by up to 65.70%, 70.53% and 31.85% with average delay penalty of 15.40%, 26.24% and 0% respectively.
- Surface Representation deals with the digital representation of surfaces. The surface from which the data are sampled is known, say in form of a real model, and the goal is to get a computer-based description of exactly this surface. Mesh generation is a key component for the computer simulation of physical and engineering problems. In surface representation, random elevation data is taken and this is approximated with a mesh of triangles, also known as a triangulated irregular network, or TIN. The popular Delaunay triangulation of a vertex set simultaneously optimizes several of the quality measures: maxmin angle, minmax circumcircle, and minmax min-containment circle over all possible triangulations of the same point set. It favors equiangular triangles. An algorithm for surface representation should accurately approximate the original model and use as few triangles as possible. It should take care of various constraints imposed by the characteristics typical to terrain modeling. The efficiency of a triangular mesh generator rests on its triangulation algorithm and data structure. The data structure should be efficient in terms of storage. In essence, the algorithm should be fast, memory-efficient
- 06 GSR Analysis Of Hypnotic Analgesia
- 07 Fuzzy Based Trust Establishment In Mobile Ad Hoc Networks
- 08 Leakage Power Estimation And Minimization In Configurable Logic Block Of FPGA
- 09 Meshing Algorithms For Surface Representation

- and robust. Five data structures, namely Quad-edge, Triage, Triplet, Biedge and TIN have been implemented and their performance studied. Algorithms for the Incremental Insertion of points, the Divide and Conquer strategy, insertion of Constrained Edges, Saving the Triangulation and Loading the Triangulation have been implemented. The DTM model is output as coordinates of triangles. The DTM created has been used to calculate the quantity of earthwork in cut and fill applications.
- 10 Target Detection And High Delay-Doppler Resolution Measurement Using Adaptive Waveform Radar
- In this paper a new approach of designing adaptive waveform radar is explained. Two optimum waveforms, linear frequency modulated and modified pushing sequence, are jointly used to form an effective signal set for adaptive waveform radar. The aim of using adaptive waveforms is to enhance radar performance in close-target environment. The attention focused here is to achieve high delay-Doppler resolution measurement through waveform diversity and a common hardware can processes both the waveforms.
- 11 Hierarchical Representation For A Classified Page Of A Newspaper
- A classified page in any newspaper consists of contextually similar content. The classified page is filled with the advertisements and the associated headers of different levels. To get full information about the advertisement one has to read the advertisement and the associated headers, which may not be placed adjacent to each other. This paper presents a set of algorithms to segment and label a classified page and then construct a suitable representation for the segmented blocks to enable efficient search and retrieval. A top-down segmentation algorithm splits the classified page into blocks based on its geometrical characteristics. The segmented blocks are identified and labeled using the size of the blocks and their position in the input classified. A preorder traversal of the classified page is obtained by listing the labels of the segmented blocks in the order they appear in the classified. This preorder traversal is used to realize a general tree representing the classified page. The proposed algorithms are tested for different types of classified pages of different newspapers and the results are analyzed.
- 12 A Constructive Reformulation Of Extended Topological Filters (Lecture Series – 9)
- At the end of section 8, it was mentioned that notions like ultra filters and ultra products could be used in describing a higher order system property as a first order logical sentence. In the classical sense, ultra filters constitute a special class of topological filters over finite spaces. These concepts of general topology are not of appropriate use in the case of  $C_{\aleph}$ , because of the fact that they are primarily meant for infinite spaces, whereas the basic spaces of our concern in the study of the model  $C_{\aleph}$  are finite. In view of this fact, it is more appropriate in our case to use concepts from Hammer's extended topology, because the theory of his extended topology is applicable both to infinite and finite spaces [33], [34]. In this section, we reformulate the theory of extended topological filters in constructive logic and show that a normal algorithm over an alphabet  $A$  is an ordered sequence of constructive extended filter bases over the same alphabet  $A$ .