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V.V. Vanniaperumal College For Women, Virudhunagar, Tamil Nadu, India

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PREFACE

Dear Mathematicians

It gives me grand contentment to present you the Proceedings of the International Conference on Advances in Mathematics & Computer Science 2017 with the collaboration of V.V. Vanniaperumal College For Women, Virudhunagar, Tamil Nadu, India, comprising new ideas, the state-of-the-art research results and fundamental advances in all aspects of Mathematical Sciences.

Proceedings of the International Conference on Advances in Mathematics & Computer Science 2017 from IMRF intends to be of interest and utility to researchers and practitioners in the academic, industrial and all the sectors to which this rich knowledge of contributions witnessed in the book are applicable. The book aims at providing a platform for researchers, mathematicians, statisticians, scientists, educators, young academicians, teachers and syllabus designers in the field and so forth with a pre-requisite mandate like all theoretical work contributed to this book should be original in its motivation or modeling structure.

The book is believed to make sure of rendering new teaching methods, assessment, validation and the impact of new technologies be practical in their purpose and function on the part of professionals and researchers concerned across the globe. Further, the book is destined to spread the open canvas consisting of latest trends and developments in the ever expanding subject stream of mathematical sciences.

The thematic concerns and the set of sub-themes of this book include pure mathematics, applied mathematics, application oriented mathematics, statistics, applied statistics, artificial intelligence, , computational statistics, database, data mining, financial mathematical, , imaging mathematical, industrial mathematical, internet computing, networking, operations research scientific computing, software mathematical and its applications together with the theories of computing and mathematical stream of consciousness considered for serious research concerns.

IMRF considers it mandatory to make all the contributions, strictly adhering to the fundamentals of publication ethics and so the employs rapid blind peer review to justify the testified submissions for publication in this esteemed Book known for its referential validity in the circles concerned accordingly. To say, articles submitted herein are sent for reviews will have names of the authors deleted with a view towards enhancing the objectivity and fairness of the review process. While it encourages a broad spectrum of contribution in the mathematical sciences, its core interest lies in issues concerning material modeling and response. The primary goal of the editors on the board is known for their expertise in the field is to maintain high quality of publications.

I earnestly thank for IMRF its esteemed contributors, the distinguished Editorial Board and well-wishers on the ceremonial release of this book as ever duly placing on record virtuous regards to Ratna Prasad Multidisciplinary Research and Educational Society, Vijayawada, India for being borne as its entity. It is my privilege at this juncture to expand my thanks to V.V. Vanniaperumal College For Women, Virudhunagar, Tamil Nadu, India, for their ever dynamic support and cooperation. Gratitude is attitude!

With greetings,

D.B. Ratnakar
Editor-in-Chief

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**Tentative Program of the Proceedings of the
International Conference on Advances in Mathematics & Computer Science - 2017**

	14/12/2017 First Day Proceedings		
09.30 to 10.00	Registrations		
10.00 to 11.30	<u>Inaugural Function</u> Chief Guest : Mr.K.Pandiarajan Hon'ble Minister, Govt of Tamil Nadu		
11.30 to 11.45	Tea Break		
11.45 to 12.30	Keynote : Prof. Dr. Yanchun Zhang Director, Centre for Applied Informatics, College of Engineering & Science Victoria University, Melbourne, Australia		
12.30 to 13.00	Plenary Talk : Prof. Dr. Pankaj Srivastava Professor & Head, Dept of Mathematics, MNIT, Allahabad, UP		
13.00 to 13.30	Plenary Talk : Prof.Dr.Indumathi Jayaraman Professor of Information Science and Technology, Anna University, Chennai TN.		
13.30 to 14.15	Lunch		
14.15 to 14.45	Plenary Talk : Prof. Dr. G. Mahadevan Assistant Prof, Dept. of Mathematics, Gandhigram -Deemed University, TN		
15.00 to 16.15	Presentations - Graph Theory	Presentations - Computer Science	Presentations - Topology
16.15 to 16.30	Tea Break		
16.30 to 17.30	Presentations - Graph Theory	Presentations - Computer Science	Presentations - Applied
18.00 to 19.15	Cultural Evening		
19.30 to 20.15	Dinner		
	15/12/2017 Second Day Proceedings		
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10.30 to 11.00	Plenary Talk : Prof. Dr. J. Paulraj Joseph Professor & Head, Dept of Mathematics, MSU, Tirunelveli, TN		
11.10 to 11.30	Plenary Talk : Prof. Dr. A. Senthil Rajan Director, Computer Centre, Alagappa University, Karaikudi. TN		
11.30 to 12.00	Plenary Talk : Prof. Dr. Ayaz Ahmad Assistant Prof, Dept of Mathematics, NIT Patna, Bihar		
12.00 to 13.30	Presentations - Graph Theory	Presentations - Computer Science	Presentations - Statistics
13.30 to 14.15	Lunch		
14.15 to 14.45	Plenary Talk : Prof. Dr. K Srinivas Rao Professor & Head, Dept of Mathematics Sri Chandrasekharendra Saraswathi Vishwa Maha Vidhyalaya, Kanchipuram, Tamilnadu		
14.45 to 15.15	Plenary Talk : Prof. Dr. Lellis Thivagar Professor & Chairperson, School of Mathematics, Madurai Kamaraj University, Madurai, TN		
15.30 to 16.15	Valedictory Function & Certificate Distribution		
16.30	Refreshments & Conference Closes		

Presentation Track Details		
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14/12/2017		
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1. Two Days Attendance is compulsory. 2. Delegates can present by Power Point Presentation (PPT) 12 min including queries. 3. Any Modifications, Changes Please Contact Dr.Ratnakar Conference Chairman		
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TALKS

MEDICAL BIG DATA: MEDICAL DATA MINING AND INNOVATIVE APPLICATIONS WITH PATIENT MONITORING AND AGING CARE

DR.YANCHUN ZHANG

Abstract: Due to the recent development or maturation of database, data storage, data capturing, and sensor technologies, huge medical and health data have been generated at hospitals and medical organizations at unprecedented speed. Those data are a very valuable resource for improving health delivery, health care and decision making and better risk analysis and diagnosis. Health care and medical service is now becoming more data-intensive and evidence-based since electronic health records are used to track individuals' and communities' health information (particularly changes). These substantially motivate and advance the emergence and the progress of data-centric health data and knowledge management research and practice. In this talk, we will introduce several innovative data mining techniques and case studies to address the challenges encountered in e-health and medical big data. This includes techniques and development on medical data streams, correlation analysis, abnormally detection and risk predictions with patient monitoring and aging care applications.

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NANO RESOLVABLE SPACES VIA IDEALS

DR. M. LELLIS THIVAGAR

Abstract: In 1966, Kuratowski introduced the concept of ideal of topological spaces. The notion of Kuratowski operator plays a vital role in defining ideal topological space which has its application theory in set topology. Ideals have been frequently used in the field closely related to topology such as real analysis, measure theory and lattice theory. Lellis Thivagar et al. introduced a new topological space called nano topological space whose elements are named as nano open sets. It is termed as nano topology, since it has atmost five open sets whatever may be the size of universe. Hewitt introduced the concept of resolvable space. The notion of nano resolvable space was further developed in terms of Ideal. The concept explored via ideals has a lengthy and interesting historic development. In this paper, ideal on nano resolvable spaces and nano codense ideal and nano completely codense ideal have been introduced and discussed. Moreover nano resolvable space is also defined on nano relative topology. Further, nano F^* - space has been introduced and interrelation with earlier nano ideal resolvable space have been established.

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SOFT COMPUTING DIAGNOSTIC INFORMATION SYSTEM FOR HYPERTENSION

DR.PANKAJ SRIVASTAVA

Abstract: Nowadays young IT professionals are a soft target of hypertension due to the increased work pressure, abnormal life style, eating junk foods and poor tolerance. Many people have high blood pressure for years without knowing it. Most of the time, there are no symptoms, but when this condition goes untreated it damages arteries and vital organs throughout the body and that is why it is also termed as the silent killer. Complications arising from hypertension could lead to stroke and heart failure. The present talk is focused on design and development of soft computing diagnostic information system for the hypertension.

Keywords: Soft Computing, Hypertension, Risk Assessment.

AMS Subject Classification: 68P20, 81P10, 03G12, 06F05, 06F15, 94D05.

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DESIGN AND DEVELOPMENT OF AN INNOVATIVE METHOD FOR COMPUTER PROGRAMMING USING VEDIC MATHEMATICS

DR. J. INDUMATHI

Mathematics may not teach us how to **add** love or how to **minus** hate.
But it gives us every reason to hope that “**every problem has a solution**”.

-- Unknown

Abstract: Data is the first-hand coinage slogan in all the walks of life of people. At the steering wheel, in the second part of this century, the world has witnessed a steady rise in the importance of data analytics. In a nutshell, the gears of mathematics churn the field of data analytics to yield, the information and knowledge in order to make the best decision making. The field of mathematics has left no stone unturned for us to solve problems. Mathematics improves the ability to think, inculcates the habit of analytical thinking, to explain how things work, with clarity, coherence and precision. It promotes wisdom and quickens our minds to dive deep into the complex problems. Mathematics is essential in a world of constant change. In short from cradle (assess the weight, height of the new born, physical parameters) to grave (measurement for the burial or burning); the utility of mathematics is unquestionable for every individual. It is the queen of all sciences and the king all arts it offers. In this paper, we tap this untapped treasure using a combination of vedic maths with the python languages.

Keywords: Analytics, Data, Decision Making, Object Oriented Languages, Vedic Maths.

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ADVANCES IN GRAPHS AND DERIVED GRAPHS

DR. J. PAULRAJ JOSEPH

Abstract: Let $G=(V, E)$ be a simple graph of order n and G^c be its complement. If $\alpha(G)$ is a graph parameter, then the lower and upper bounds on the sum $\alpha(G) + \alpha(G^c)$ in terms of n are of prime importance in graph theory. The first of its kind with reference to chromatic number of a graph was studied by Nordhaus and Gaddum on *complementary graphs* and published in *American Mathematical Monthly* in 1956. A set $S \subset V$ is a *dominating set* of G if each vertex of $V - S$ is adjacent to at least one vertex in S . The *domination number* $\gamma(G)$ of G is the minimum cardinality taken over all dominating sets of G . An *induced cycle path partition* of G is a partition of V into subsets such that the subsets induce cycles and paths only. The minimum order taken over all induced cycle path partitions is called the *induced cycle path number* of G and is denoted by $\rho_{cp}(G)$. In this talk, we discuss the recent developments with reference to domination number and induced cycle path number for other derived graphs.

Keywords: Chromatic Number, Domination Number, Induced Cycle Path Number.

AMS Subject Classification: 05C 15.

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APPLICATIONS OF SOME INTERESTING DOMINATION PARAMETERS IN GRAPHS

DR. G. MAHADEVAN

Abstract: Anything and everything is possible with the help of Graph theory especially Domination theory. Because of its rich application, recently the theory domination ranks top among the most prominent areas of research. A subset S of V is said to be a dominating set of G , if every vertex in $V-S$ is adjacent to at least one vertex in S . The minimum cardinality taken over all minimal dominating sets is called the domination number of G and is denoted by $\gamma(G)$. Any of our physical unsolved problems can be converted into proper graph model. For this specified graph, we found various domination number (depending upon the situation we choose the respective domination parameters) and that is the solution of our problem. Lot of domination numbers like, domination number, paired domination number, induced paired domination number, strong and weak domination number, complementary perfect domination number, etc are available in the literature. Recently the concept of triple connected graphs was introduced by Dr.Paulraj Joseph. A graph G is said to be triple connected, if any three vertices are lie on a path. Motivated by this, recently Dr.G.Mahadevan, Dr.Paulraj Joseph, introduced the concept of triple connected domination number of a graph. A Subset S of V is said to be triple connected dominating set, if S is a dominating set, and $\langle S \rangle$ is triple connected. The minimum cardinality taken over all triple connected dominating sets is called triple connected domination number of G and is denoted by $\gamma_{tc}(G)$. Lot of new various types of triple connected domination parameters was introduced by the same authors. In this talk, it is proposed to explore some of the interesting domination parameters with application to our society

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DESIGN ON BENEFIT MECHANISM OF THE INFORMATION AND COMMUNICATION TECHNOLOGY BASED ON BOOLEAN LAW

DR. A. SENTHILRAJAN

Abstract: Situated in the network based learning environment the non – rationality of the learners in the information and communication technology community makes it a demanding for the establishment of the benefit mechanism to ensure the success of learning community. This paper gives an outline to the Boolean law and the necessity of benefit mechanism in information and communication technology is also illustrated. Based on the theoretical framework of the Boolean law, some suggestions are put forward such as improving the network base learning environment by the value type, dividing the award program, modifying the performance, increasing the measures for the low utilization.

Keywords: Boolean law, Award Program, Network Based Learning, Communication, Utilization.

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A STUDY OF ENVIRONMENT PROBLEM BASED PARTIAL DIFFERENTIAL EQUATION

DR. AYAZ AHMAD

Abstract: In this work, I have discussed with four aspect of building problem solving environments for PDE based application.

- a) Software architecture of development frame work.
- b) Computational intelligence.
- c) High level languages.
- d) Integrating experimentation and computation.

This work studies the problem of developing such advanced software platforms for scientific applications whose mathematical models are based on PDEs problem solving environments are software environments that assist in the development, solution and analysis of some problem.

Our goal is to improve the software infrastructure available for building PSEs for PDE based applications. While the technology of PDE solving software has evolved over the years. The based technology used by application scientist for building application specific PDE solver are still, at most, library based systems.

The objective of this work describe is to design a frame work for building software environments. That provide all the computational facilities needed to solve target class of problem “quickly” by communicating in the users term.

Keyword: Software Problems, Software Environment, Software Architecture and Software Infrastructure.

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BOOLEAN ALGEBRAS OF PRE A*-ALGEBRA

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Abstract: The concept of Pre A*-algebra introduced by J.Venkateswara Rao [1]. Partial ordering [2] defined on Pre A*-algebra by $x \leq y$ if and only if $x \wedge y = y \wedge x = x$, studied the properties of this partial ordering and given necessary and sufficient conditions for Pre A*-algebra to become a lattice. In[3], defined congruence relation on Pre A*-algebra by $\theta_x = \{(p, q) \in A \times A / x \wedge p = x \wedge q\}$ and studied subdirectly irreducible representation of Pre A*-algebra. Proved that if A is Pre A*-algebra, $x \in A$, then $M_x = \{s \in A / s \leq x\}$ is a Pre A*-algebra under the induced operations \wedge, \vee where the complementation is defined by $s^* = x \wedge \tilde{s}$, the relation is defined on Pre A*-algebra A by $s \leq x$ if $s \wedge x = x \wedge s = s$ and the mapping $\alpha_x : A \rightarrow M_x$, defined by $\alpha_x(s) = x \wedge s$ for all $s \in A$ is homomorphism of A onto M_x with kernel $\alpha_x (= \theta_x)$ and hence $A / \theta_x \cong M_x$ also studied decomposition[4] of Pre A*-algebra. In this paper, we proved

- If A is Pre A*-algebra, $x \in A$ and $P_x = \{x \vee t / t \in A\}$, then $\langle P_x, \wedge, \vee, * \rangle$ is a Pre A*-algebra with x as the identity for \vee , where \wedge, \vee are the operations in A restricted to P_x and for any $x \vee t \in P_x$, here $(x \vee t)^* = x \vee \tilde{t}$
- If A is Pre A*-algebra with 1 and $x \in A$, then the mapping $\alpha_x : A \rightarrow P_x$ defined by $\alpha_x(a) = x \vee a$ for all $a \in A$ is a homomorphism of A to P_x with kernel $\alpha_x (= \theta_x)$ and hence $A / \theta_x \cong P_x$
- If A is Pre A*-algebra with 1 and $a \in B(A)$, then $A \cong P_a \times P_{\tilde{a}}$
- If A is Pre A*-algebra with 1, then the set $\mathfrak{F}_{P(A)} = \{P_a / a \in B(A)\}$ is a Boolean algebra under set inclusion
- If A is Pre A*-algebra with 1, define $\phi : B(A) \rightarrow \mathfrak{F}_{P(A)}$ by $\phi(a) = P_{\tilde{a}}$, for all $a \in B(A)$, then ϕ is an isomorphism i.e., $B(A) \cong \mathfrak{F}_{P(A)}$
- It is proved that [4], if A is a Pre A*-algebra with 1, $x \in A$, then $M_x = \{s \in A / s \leq x\}$ is a Pre A*-algebra under the induced operations \wedge, \vee where the complementation is defined by $s^* = x \wedge \tilde{s}$, the relation is defined on Pre A*-algebra A by $s \leq x$ if $s \wedge x = x \wedge s = s$ and the mapping $\alpha_x : A \rightarrow M_x$, defined by $\alpha_x(s) = x \wedge s$ for all $s \in A$ is homomorphism of A onto M_x with kernel $\alpha_x (= \theta_x)$ and hence $A / \theta_x \cong M_x$. Now if $\mathfrak{F}_{M(A)} = \{M_a / a \in B(A)\}$ is a Boolean algebra under set inclusion and $\psi : B(A) \rightarrow \mathfrak{F}_{M(A)}$ by $\psi(a) = M_{\tilde{a}}$ for all $a \in B(A)$, then ψ is an isomorphism. Also we can easily observe that $B(A), \mathfrak{F}_{P(A)}, \mathfrak{F}_{M(A)}$ are isomorphism

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WHY SAFEGUARDING THE GIRL CHILD AND EMPOWERING WOMEN IS CRUCIAL TO INDIA

PROF. DAVID SWEENEY

Abstract: Most would accept PM Modi's statements (International Yoga Festival, 2 March 2017, India) that global peace requires there should be peace among the nations, that this is possible only when there is peace within the society, and only peaceful individuals and families can constitute a peaceful society.

Knowing that the vast majority of girls born will one day become Mothers, why does a patriarchal society deny the glorious girl child of that Country her God-given (by all religions) right to the equal, fair, respectful and opportunistic life it grants to males simply by virtue that they were not born as females?

Why do the leaders in a patriarchal society ignore all the global evidence and indicators that the empowerment of women results in a massive and speedy uplift in the GDP of each Country? Why do patriarchal societies cling to the word "culture" as the excuse for ethically and morally (not to mention Constitutionally) unacceptable behaviour? Why do patriarchal societies fail to understand that patriarchy only breeds control and domination, and that such outcomes prevent care, tenderness, gentleness, compassion, kindness, respect, humility and love being at the centre of marriage and family life?

This presentation outlines the work of Abused Angels of India; it brings to the fore global evidence how the 'culture' of massive societies across USA and western Europe and beyond are having to open and change their mindsets about sexual harassment of, and violence towards, every girl and woman. Within India, there is a massive undercurrent of programmes and schemes that will contribute to this Country opening and changing its mindset.

Global predictions suggest India will need to provide 1 billion jobs by year 2050; that 12 million extra Indian people will need jobs every year for the next 30 years; that Robotics and AI will make 800 million workers globally lose their jobs by year 2030 – with a very high level of unskilled labour, who will feed these families in India? The answer is that Mothers will, as always and ever globally, perform miracles to care for their families.

This presentation will demonstrate how patriarchy can, and will, be materially eradicated in India within the lifespan of the presenter and those in attendance at this event. And, for the reasons given above, why this is crucial to the future of this great Country – Incredible India.

Prof. David Sweeney

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**PAPER
PRESENTATIONS**

HOSOYA POLYNOMIAL AND WIENER INDEX OF HEXACHAINS

A. DHANALAKSHMI, K. SRINIVASA RAO

Abstract: In this paper, we obtained the general formula for Wiener index of some structures with hexagons linked in chains. The general formula for finding the Wiener index helps us to find the Wiener index of the structures with more number of hexagons.

Keywords: Hosoya Polynomial, Wiener Index, Hexagon.

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ON SOME DECOMPOSITION PROBLEMS OF FIBONACCI GRAPHS, COMPLETE BIPARTITE GRAPHS AND COMPLETE GRAPHS

K. REJIKUMAR, JASMINE MATHEW

Abstract: Fibonacci graphs are important graphs with efficient communication properties in interconnection networks. We study various decomposition possibilities of Fibonacci graphs. Isomorphic path decomposition of $F_{d,n}$ into $\frac{n}{2}$ paths P_d and isomorphic star decomposition of $F_{d,n}$ into $\frac{n}{2}$ stars S_d are presented in this paper. We also show that the decomposition of complete graphs and complete bipartite graphs into Ascending Sub graph star Decomposition (ASD), and stars of required degree d is possible using decomposition of Fibonacci graphs.

Keywords: Ascending Sub Graph Decomposition, Broadcasting, Complete Graphs, Complete Bipartite Graphs, Fibonacci Graphs, Gossiping, Isomorphic Decomposition, Path Decomposition, Star Decomposition.

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PROTEIN SIMILARITY/DISSIMILARITY USING MODIFIED WEISFEILER ALGORITHM AND MINIMUM DISTANCE SUB GRAPH

D. VIJAYALAKSHMI, K. SRINIVASA RAO

Abstract: In this paper, the protein similarity and dissimilarity is studied using kernel function and minimum distance sub graph. Modified Weisfeiler algorithm has been introduced to measure similarity /dissimilarity between proteins. Initially the proteins are converted to protein graph. Using reverse –delete algorithm the minimum distance sub graph of protein graph is obtained and modified Weisfeiler algorithm is applied to measure the similarity between proteins.

Keywords: Kernal Function, Minimum Distance Sub Graph, Weisfeiler Algorithm.

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A FAMILY OF BLOCK-WISE $(1,2)$ BURST CORRECTING OPTIMAL CODES OVER $GF(q)$

TARUN LATA, VINOD TYAGI

Abstract: In this paper we obtain a lower bound on the number of parity-check digits in an $(n = n_1 + n_2, k)$ linear codes over $GF(q)$, q is prime which are optimal in a specific sense i.e. the codes are capable to correcting single errors in the first sub-block of length n_1 and bursts of length 2 or less in the second sub-block of length n_2 , $n = n_1 + n_2$.

Keywords: Burst Error, Optimal Codes, Parity-Check Matrix, Syndromes.

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CORDIAL LABELING OF JOHNSON GRAPHS

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Abstract: Johnson graph form a special class of undirected graphs defined from systems of sets. Let γ, k, I be fixed positive intergers suchthat $\gamma \geq k \geq i$. Let Ω be a fixed set of size γ . Define $J(\gamma, k, i)$ as follows: The vertices of $J(\gamma, k, i)$ are the subsets of Ω with size k . Join two vertices if their intersection has size I . A function f from the set of vertices of a graph G to the set $\{0, 1\}$ assigning for each edge uv the label $|f(u) - f(v)|$ is called cordial labeling, if the number of vertices labeled 0's and the number of vertices 1's differ by at most 1, and the number of edges labeled 0's and the number of edges labeled 1's differ by at most 1. This paper deals with cordial labeling of $J(\gamma, 2, 1)$.

Keywords: Cordial Labeling, Johnson Graph.

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A RECURSIVE PROCEDURE FOR CONTRACTION POLYNOMIALS

DR. S. M. MEENA RANI, R. ANANTHA MONISHA

Abstract: Polynomial is one of the most natural association with graphs. A number of polynomials such as reliability polynomial, Tutte polynomial, characteristic polynomial, chromatic polynomial for some graphs have been determined. In this paper, a recursive procedure for contraction polynomials of some families of graphs are determined.

Keywords: Contraction Polynomial, Partition, Shrinks.

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VARIANTS OF GENERALIZED EULERIANESS IN NON-EULERIAN GRAPHS

D. PANDIARAJA, R. P. ADITYA, G. PRABAKARAN

Abstract: A connected graph G is said to be $(m_1^{l_1}, m_2^{l_2}, \dots, m_k^{l_k})$ - Eulerian if there is a closed walk which contains all the edges of G such that l_1, l_2, \dots, l_k number of edges reoccurring with minimum of m_1, m_2, \dots, m_k times respectively. We tried to characterize and generalize Non-Eulerian graphs using this definition restricted with $m_i \leq 2 \forall i$. Since then, there have been lots of researches on Eulerian graphs, this paper is focused on Non-Eulerian graphs.

Keywords: Eulerian, Non-Eulerian, $(m_1^{l_1}, m_2^{l_2}, \dots, m_k^{l_k})$ - Eulerian.

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SIGNED GRACEFUL GRAPH

R. B. GNANAJOTHI, D. MUTHAMIL SELVI, T. SOBANARAJI

Abstract: Graceful labeling was introduced by Rosa in 1967[4]. A graph which admits a graceful labeling is said to be a graceful graph. For signed graph $S=(V, E)$ with m positive edges and n negative edges let $f:V(S) \rightarrow \{0,1,2,\dots,m+n\}$ be such that in the induced edge function defined by $g_f = s(uv) |f(u) - f(v)|$ for all $uv \in E(G)$, the set of numbers received on the positive edges of S is $\{1,2,\dots,m\}$ and the set of numbers received on the negative edges of S is $\{-1,-2,\dots,-n\}$ respectively. If S admits such an encoder then S is called graceful signed graph [1]. In this paper, a new concept namely 'Signed graceful graph' is introduced. A graph is said to be signed gracefully if it can be given a signed structure which gives rise to a graceful signed graph. A graph which can be signed gracefully is called a signed graceful graph. Signed graceful cycles and one point union of two cycles are studied in this paper.

Keywords: Graceful Graph, Graceful Signed Graph, Signed Graceful Graph.

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A STUDY ON COMPLETE ALMOST REGULAR K-PARTITE GRAPH

R. B. GNANAJOTHI, M. ATHISHTALAKSHMI

Abstract: There are more and more special families of graphs in graph theory and a partite graph is one of the celebrated family of graphs. In this paper, we discussed about complete almost-regular partite graphs, $T(n,k,b,h)$ and also some properties of the graph $T(n,k,b,h)$ and reliability polynomial of $T(5,3,1,1)$ are determined.

Keywords: Regular Graph, Regular K-Partite Graph, Complete K-Partite Graph.

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n_o – EXCELLENT GRAPHS

A. P. PUSHPALATHA, G. JOTHILAKSHMI, S. NASREEN BANU

Abstract: Claude Berge [2] in 1980, introduced B graphs. These are graphs in which every vertex in the graph is contained in a maximum independent set of the graph. Fircke et al [3] in 2002 made a beginning of the study of graphs which are excellent with respect to various graph parameters. For example, a graph is domination excellent if every vertex is contained in a minimum dominating set. The concept of neighbourhood number of a graph, n_o was introduced by Prof. E.Sampath kumar and P.S.Neeralagi in [11]. A graph is no-excellent graph if every vertex of the graph belongs to at least one neighbourhood set of the graph. This paper is devoted to the study of n_o - excellent graphs.

Keywords: N_o -Neighbourhood Set, Neighborhood Number, N_o -Good Vertex, N_o -Bad Vertex, No-Excellent Graph.

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TOTAL DEGREE IRREGULARITY ON VERTICES OF S - VALUED GRAPHS

S. MANGALA LAVANYA, M. CHANDRAMOULEESWARAN

Abstract: In this paper we define and study some regularity and irregularity conditions for total degree on vertices of S - valued graphs and obtain some results.

AMS Classification: 05C25, 16Y60.

Keywords: S - Valued Graph, Totally Ds - Vertex Irregular Graph, Neighborly Totally Ds - Vertex Irregular Graph.

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MIXED DOMINATION NUMBERS ON S-VALUED GRAPHS

S. KIRUTHIGA DEEPA, M. CHANDRAMOULEESWARAN

Abstract: In this paper we determine ve and ev mixed domination numbers and study their properties.

Keywords: S Valued Graphs, ve m-Domination Number, ev m-Domination Number.

AMS Classification: 05C25, 16Y60

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ISOMORPHISM ON S-VALUED GRAPHS

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Abstract: In this paper we study the isomorphism between two S-valued graphs and obtain some results.

Keywords: Graph Operations, Semi Ring, S-Valued Graphs.

AMS classifications: 05C76, 16Y60, 05C25.

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SEMIGROUP STRUCTURES OF S-VALUED GRAPHS-CATEGORICAL PRODUCT

P. VICTOR, M. CHANDRAMOULEESWARAN

Abstract: Motivated by the study of Categorical product on S-valued graphs, in this paper, we discuss the semi group structure of S-valued graphs under Categorical product.

Keywords: Graph Operations, S-Valued Graphs, Categorical Product of S-Valued Graphs.

AMS Classification: 05C76, 16Y60, 05C25.

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BITOPOGENIC GRAPHS

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Abstract: Topogenic graphs were first introduced by B.D.Acharya in 2011. A number of research papers on this topic have appeared in the past five years. Topological graphs, Bitopological graphs and Topogenic graphs have been discussed. A graph possessing a set-indexer $f : V \rightarrow 2^X$ such that $f(V) = \{f(v) : v \in V(G)\}$ is a topology on the ground set X is called a topological graph. A graph $G = (V, E)$ is called a bitopological graph if there exist a set X and a set-indexer f on G such that both $f(V)$ and $f^\oplus(E) \cup \emptyset$ are topologies on X . A graph $G = (V, E)$ is topogenic with respect to a nonempty ground set X if it admits a topogenic set-indexer, which is a set-indexer $f : V \rightarrow 2^X$ such that $f(V) \cup f^\oplus(E)$ is a topology on X . Motivated by these concepts this paper introduces two new concepts namely 'Bitopogenic graphs' and 'Weakly Bitopogenic graphs'. Paths, star graphs, shadow graphs, topogenic complete graphs and a particular case of bistars are seen to be bitopogenic. Apart from these some weakly Bitopogenic graphs namely $P_2 + \overline{K_m}, P_3 + \overline{K_m}$ and complete bipartite graphs have been identified.

Keywords: Set-Indexers, Topogenic Set-Indexers.

AMS Classification (2010): 05C78; 05C10.

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HOP EXCELLENT GRAPHS

S. BALAMURUGAN, R. B. GNANA JOTHI, P. GETCHIAL PON PACKIAVATHI

Abstract: A graph is said to be excellent if given any vertex x then there is a γ -set of G containing x . This concept had been the motivation for many researchers. This paper deals a new type of excellence. A graph G is said to be hop excellent if every vertex $u \in V$ belongs to a minimal hop domination set (γ_h -set) of G . Some families of hop excellent graphs have been identified and some elementary properties of hop excellence are dealt with.

Keywords: Dominating Set, Excellent Graphs, Hop Dominating Set.

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THE LOCAL R-DOMINATION NUMBER OF A GRAPH

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Abstract: Let $G = (V, E)$ be a simple, connected and undirected graph. Let r be a positive integer. A subset S of $V(G)$ is said to be a r -dominating set if for any vertex $u \in V-S$, there is a $v \in S$ such that $d(u, v) \leq r$. The minimum cardinality of all r -dominating set of G is called r -domination number of G and its cardinality is denoted by $\gamma_r(G)$. We define $\gamma_{l_r}(G) = \max\{\gamma_r(N_r(x)) : x \in V\}$. The number γ_{l_r} is the local r -domination number of G within a distance r . Also we define $\gamma_l(G) = \min\{\gamma_{l_r}(G) : 1 \leq r \leq \text{diam}(G)\}$. The number $\gamma_l(G)$ is called the local r -domination number of the graph G .

Keywords: R-Domination Number, R-Dominating Set, Local R-Dominating Set, Local R-Domination Number.

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GEOMETRIC MEAN CORDIAL LABELING OF CORONA OF COMPLETE GRAPH, WHEEL AND COMPLETE BIPARTITE GRAPH

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Abstract: Let $G = (V, E)$ be a graph and f be a mapping from $V(G) \rightarrow \{0, 1, 2\}$. For each edge uv , assign the label $\Gamma \sqrt{f(u)f(v)}$, f is called a **geometric mean cordial labeling** if $|v_f(i) - v_f(j)| \leq 1$ and $|e_f(i) - e_f(j)| \leq 1$, where $v_f(x)$ and $e_f(x)$ denote the number of vertices and edges labeled with x , $x \in \{0, 1, 2\}$ respectively. A graph with a geometric mean cordial labeling is called **geometric mean cordial graph**. In this paper, the geometric mean cordiality of corona of graphs such as complete graph, wheel, complete bipartite graph are discussed.

Keywords: Cordial Labeling, Cordial Graphs, Geometric Mean Cordial Labeling, Geometric Mean Cordial Graphs, Corona of Graphs.

AMS Subject Classification (2010): 05C78.

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GRAPH THEORY AND ARCHITECTURE

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Abstract: Today, the link between architecture and digital software is so strong; it's easy to forget that it hasn't always been this way. Architecture's reliance on digital design programs has led to the spread of a homogenous 'global-style' architecture — buildings made from the same material, designed by the same methods, using the same software, all over the world. By contrast to this homogeneous global style architecture, this research would provide quite a different approach to architectural design process. This paper presents a research on mathematical models, methods, and techniques for analysis, and evaluation of spatial configurations in architectural and urban design and built forms. In this research, graph theory is used to mathematically model spatial configurations in order to provide intuitive ways of studying and designing spatial arrangements for architects and urban designers and used to mathematically model architectural forms from its evolution. Primarily aims to present possible analytical approaches of graph theory into architectural aspects ranging from urban level planning to neighborhood level planning, site level planning and building level planning aspects. The major areas of graph theory are analyzed analytically and provides varied range of architectural applications and for designing of built forms.

Keywords: Graph Theory, Architectural Planning, Architectural Built Forms, and Urban Design.

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FG- COUPLED FIXED POINT THEOREMS IN GENERALIZED METRIC SPACES

PRAJISHA E, SHAINI P

Abstract: In this paper we establish FG- coupled fixed point theorems in partially ordered complete S^* metric space. We illustrate our results with examples. An S^* metric is an n -tuple metric from n -product of a set to the non negative reals. Our theorem generalizes the main results of Gnana Bhaskar and Lakshmikantham [T. Gnana Bhaskar, V. Lakshmikantham; Fixed point theorems in partially ordered metric spaces and applications; Nonlinear Analysis 65 (2006) 1379 - 1393].

Keywords: FG- Coupled Fixed Point, Mixed Monotone Property, Partially Ordered Set, S^* Metric.

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NOTE ON $*$ - CONNECTED IN GENERALIZED TOPOLOGY WITH HEREDITARY CLASSES

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Abstract: In this paper we discuss $*$ -connectedness in GTS with hereditary class. The property of being connectedness is shown.

Mathematics Subject Classification 2010: 54A05, 54A10.

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INTEGRAL TYPE FIXED POINT THEOREMS IN COMPLETE METRIC SPACE

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Abstract: In this paper we prove some fixed point theorem for self mapping Satisfying contractive conditions of integral type in complete metric space . The prove Results generalize and extended some of the known result in the literature.

Keywords: Fixed Point Theorem, Complete Metric Space, Rational Expression.

AMS Classification: 47H10, 54H25.

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FUZZY SEMI-REGULAR WEAKLY OPEN AND CLOSED FUNCTIONS IN FUZZY TOPOLOGICAL SPACES

BASAYYA B. MATHAD, R. S.WALI

Abstract: In this article, we introduce the new weaker form of fuzzy closed and fuzzy open maps viz. Fuzzy semi-regular weakly closed (briefly fuzzy srw-closed) maps and fuzzy semi-regular weakly open (briefly fuzzy srw-open) maps in fuzzy topological spaces. Also we study properties of newly developed fuzzy maps in fuzzy topological spaces.

Keywords: Fuzzy Srw-Closed Maps, Fuzzy Srw-Boundary, Fuzzy Srw-Open Maps.

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REMARKS ON DECOMPOSITION OF SUPRA M-CONTINUITY AND COMPLETELY SUPRA CONTINUITY

M. SATHYABAMA

Abstract: In this paper, supra Locally closed-set, supra semi regular-set, and some new supra topological maps are introduced. Characterizations and properties of such new notions are studied. Also investigate the relationship with other mappings like supra Lc-continuous.

Keywords: Supra Sg-Closed Set, Supra A-Closed Set, Supra Supra Semi Regular And Supra Locally -Closed Set, Supra LC-Continuous Map, Supra M-Continuous Map, Supra A*-Continuous Map, Quasi Supra Sg*-Continuous Map, Supra Topological Space.

2010 Mathematics Subject Classifications: 54A10, 54A20.

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GENERALIZED DIFFERENCE PARANORMED SEQUENCE SPACE WITH RESPECT TO MODULUS FUNCTION AND ALMOST CONVERGENCE

RAYEES AHMAD, SYED NAJAMUL HASAN

Abstract: In this paper, we shall introduce some new generalized difference sequence spaces with respect to modulus function involving strongly almost summable sequences. We give some topological properties and inclusion relations on these spaces.

Keywords: Paranorm; Difference Sequence Spaces, Topological Properties.

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A NOTE ON QUASI $\hat{\Omega}$ -CONTINUOUS & AP $\hat{\Omega}$ -OPEN MAPPINGS

ANBUHELVI M, MUTHUMARI S

Abstract: This paper aims to introduce various types of mappings using the notion of $\hat{\Omega}$ -closed sets in a topological space. Mappings such as quasi $\hat{\Omega}$ -continuous, faintly $\hat{\Omega}$ -continuous and ap $\hat{\Omega}$ -open have been investigated. Some of their properties and characterizations have been derived.

Keywords: Quasi $\hat{\Omega}$ -Continuous, Faintly $\hat{\Omega}$ -Continuous, Ap $\hat{\Omega}$ -Open Mappings.

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α^* GENERALISED – CLOSED SETS IN TOPOLOGICAL SPACES

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Abstract: The aim of this paper is to introduce a new class of closed sets, α^* generalized - closed sets (briefly α^* g -closed sets) in a topological spaces which lies between α - closed sets and α g - closed sets. Further I have defined α^* g- closure and α^* g- interior in topological spaces and obtained some of their properties.

Keywords: α^* G -Closed Sets, α^* G -Open Sets, α^* G- Closure and α^* G- Interior.

Mathematics Subject Classification: 54A05.

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SEPARATION AXIOMS VIA SEMI* δ -OPEN SETS

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Abstract: In the present paper, we introduce and study the concept of semi* δ -Ti- space (for $i = 0,1,2$) by using the notion of semi* δ -open sets. Further, some of their properties and results are discussed.

Keywords: Semi* δ - T_0 -Space, Semi* δ - T_1 - Space and Semi* δ - T_2 -Space.

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SOME NEW OPERATIONS ON SINGLE VALUED NEUTROSOPHIC SETS

P. GEETHA, K. ANITHA

Abstract: Neutrosophic set is a part of neutrosophy which was introduced by Smarandache in 1995 as a mathematical tool for dealing problems with indeterminant data. Smarandache et al. introduced the concept of single valued neutrosophic sets and defined set- theoretic operations on single valued neutrosophic sets and investigated its properties. In this paper, we introduce some new operations, cross product, AND & OR on single valued neutrosophic sets with an example. Also, we prove De Morgan's laws on single valued neutrosophic sets with respect to the AND & OR operations. In addition, we present an application of single valued neutrosophic sets in a decision making problem.

Keywords: Neutrosophic Set, Single Valued Neutrosophic Set, Set- Theoretic Operator, Cross Product of Single Valued Neutrosophic Sets , AND & OR Operations on Single Valued Neutrosophic Sets.

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SOME CONVERGENCE RESULTS FOR GENERALIZED NONEXPANSIVE MAPPINGS IN $CAT(o)$ SPACES

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Abstract: The aim of this work is to study convergence behaviour of Thakur iteration scheme in $CAT(o)$ spaces for generalized nonexpansive mappings. In support of our main results, we also provide an illustrative numerical example. In process, several relevant results of the existing literature are generalized and improved.

Keywords: $CAT(o)$ Space, Fixed Point, Δ -Convergence And Generalized Nonexpansive Mapping.

AMS Subject Classification: 54H25, 47H10.

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FUZZY SUPRATOPOLOGICAL TM-SUBSYSTEM

M. ANNALAKSHMI, M.CHANDRAMOULEESWARAN

Abstract: In 2010, Tamilarasi and Megalai introduced a new class of algebras called as TM-algebras. In this paper, we discuss the notion of fuzzy supratopological TM-subsystem.

Keywords: BCK/BCI Algebra, TM-Algebra, Fuzzy Topology.

AMS Classification: 08A72, 03E72.

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INTRODUCTION ON NANO BIJECTIVE SOFT TOPOLOGICAL SPACES

M. GILBERT RANI, R. RAJESWARI

Abstract: With the help of Modern Mathematical tools to solve so many intricate uncertainty problems occurs in engineering, medicine science, economics and environmental science. To enrich the efficiency of those tools Molodstov [1] acquainted the concept of soft set theory in terms of the image of the function $F: A \rightarrow P(U)$. Later Ke Gong [3] registered a new version of soft set known as bijective soft set. In this paper we introduced nanobijective soft topological spaces.

Keywords: Bijective Soft Set, Nanotopology, Soft Topology.

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EFFECT OF MHD IN CASSON FLUID FLOW WITH HALL EFFECT

P. THIRUNAVUKARASU, S. BHUVANESWARI, K. K. VISWANATHAN

Abstract: Effect of MHD in Casson fluid flow with Hall effect has been studied. A similarity analysis method was used to transform the system of partial differential equations describing the problem into an ordinary differential equations, Analytical solutions are obtained by solving the ODE to analyze the velocity and temperature fields. Variations of interesting parameters on the velocity and skin friction are observed by plotting graphs. Further, it was concluded that the Casson fluid parameter and hall parameter has an retarding influence on velocity profile.

Keywords: Casson Fluid, Hall Effect, MHD, Velocity Field.

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MATHEMATICAL MODELING OF SEMI-ACTIVE SUSPENSION OF MR DAMPER IN PRESENCE OF UNIFORM MAGNETIC FIELD

H. P. SALUNKHE, S. D. THIKANE

Abstract: Magnetorheological fluid (MRF) is the smart material consisting of very small magnetic particles. On account of application of magnetic field its mechanical characteristics, viscosity and flow properties get varied. It changes its rheological behavior and shear stress with respect to applied magnetic field strength. Depending upon this property, dampers are using in various applications such as vibration and suspension control in automobiles. In this paper, Types and basic components of MR damper are studied. Mathematical formulation and semi-active response of the MR damper in uniform magnetic field is also given using Laplace transform. In which response of system under loading is explained.

Keywords: Magnetorheological Fluid, MR Dampers, Magnetic, Semi-Active Suspension, Smart Fluid.

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MAGNETORHEOLOGICAL FLUIDS AND ITS APPLICATIONS: CURRENT SCENARIO AND FUTURE PROSPECTS

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Abstract: Magnetorheological (MR) fluids are a kind of smart materials whose properties can be controlled by changing an external magnetic field. This peculiar behavior can be used in the developing novel technologies. The MR fluids have proven to be commercially viable and well suited for many applications. The MR fluids offer solutions to many engineering challenges. The success of MR fluid is apparent in many disciplines, ranging from the Automotive, Civil and Biomedical Engineering Community. The application of MR fluid based devices has grown rapidly in Civil Engineering, Safety Engineering, Mechanical Engineering, Transportation, and Life Sciences. Especially devices like MR fluid dampers are widely used in bridge construction, vehicle suspension and cancer detection tools. This paper presents a review on the development of magnetorheological fluids and its applications in future technology

Keywords: Smart Materials, MR Fluid, MR Fluid Damper.

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SOLUTION OF SOME PROBLEMS OF PARTIAL DIFFERENTIAL EQUATION USING HOMOTOPY ANALYSIS METHOD

V. P. GOHIL, DR. R. K. MEHER

Abstract: In this paper, various types of linear, non-linear, homogeneous, non homogeneous problems of partial differential equations discussed. Also shown that homotopy analysis method applied successfully for solving non homogeneous and non linear equations

Keywords: Homotopy Analysis Method, Partial Differential Equation, Linear, Homogeneous, Linear, Nonlinear, Homogeneous, Non Homogeneous.

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A NOTE ON THE EXACT TRAVELLING WAVE SOLUTION TO SOME NONLINEAR EQUATIONS

S. BALAMURUGAN, S. VIGNESHWARAN

Abstract: More new exact travelling wave solutions for a class of some nonlinear differential equations are obtained by using modification of tanh method based on the idea of the tanh method.

Keywords: Modification of Tanh-Function Method, Nonlinear Equations, Solitary Wave Solutions, Shock Wave.

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HYPERELLIPTIC LIMIT CYCLES FOR THE LIÉNARD EQUATION WITH SINGLE RETARDATION

K JAGAN MOHAN RAO, P VENKAT RAMAN

Abstract: Consider a general Liénard equation given by $\ddot{x} + \dot{x}f(x) + g(x) = 0$ which has the equivalent system $\dot{x} = y, \dot{y} = -f_m(x)y - g_n(x)$ where f and g are real polynomials of degree's m and n . In [04], Xiaolan Yu, Xiang Zhang showed that if $m \geq 3$ and $m + 1 < n < 2m$ then there exists Liénard equations containing the hyperelliptic limit cycle, while Llibre and Zhang [15] proved that the Liénard systems with $m = 3$ and $n = 5$ have no hyperelliptic limit cycles and that there exist Liénard equations with $m = 4$ and $5 < n < 8$ which do not have hyperelliptic limit cycles. To analyze and give a conclusion that the Liénard equation which have an algebraic limit cycle in cases $m > 4$ and $m + 1 < n < 2m$. The present paper concludes that there exist Liénard equation with single retardation satisfying the conditions $m = 3$ and $m + 1 < n < 2m$ have the tendency to possess hyperelliptic limit cycles.

Keywords: Liénard Equation, Retardation, Limit Cycles, Hyperelliptic Limit Cycles.

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APPLICATION OF FUZZY NEURAL NETWORK IN MULTI OBJECTIVE DECISION MAKING PROBLEM - A CASE STUDY

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Abstract: Artificial neural network have been effectively used in large variety of systems (linear or nonlinear). Adaptive neuro fuzzy inference system (ANFIS) and Co-active neuro fuzzy inference system (CANFIS) are used to predict any system or to forecast the data. . The goal of ANFIS and CANFIS is to find the model that will correctly associate the input values with the target values. CANFIS yields advantages for nonlinear fuzzy rules. In this paper, Fuzzy neural network has been applied to multi objective decision making problem of minimizing the ash percentage of different grades of coal and maximizing the yield of coal. ANFIS and CANFIS is applied to predict the system. The error percentage between the desired outputs and Fuzzy Inference System outputs has been obtained.

Keywords: Fuzzy Neural Network, Fuzzy Inference System, Multi Objective, Decision Making.

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OPTIMAL POLICIES FOR PERISHABLE ITEMS WHEN DEMAND DEPENDS ON FRESHNESS OF DISPLAYED STOCK AND SELLING PRICE

POONAM MISHRA, AZHARUDDIN SHAIKH

Abstract: Display of stock plays an effective role to boost up the demand as it encourages customer to buy more. For perishable good freshness is also an important factor affecting its demand, as consumers look for fresh items. Selling price is also a major factor affecting the demand. This paper proposes an inventory model where demand depends on selling price, freshness of item and displayed stock. Items like fruits, vegetables, bakery products follow this kind of demand pattern. The traditional assumption of zero ending inventories is relaxed to a non-zero ending inventory. As it may be profitable to have a closeout sale at a markdown price, and always keep on-hand fresh displayed stocks if the demand is freshness-and-stock dependent. The objective is to maximize the total profit with respect to three decision variables (i.e., unit price, cycle time and ending-inventory level). Numerical examples is presented to validate the model and sensitivity analysis of inventory parameters is done to understand their effect in determining optimal policies.

Keywords: Non-Zero Ending Inventory, Perishable Goods, Selling Price, Stock Dependent Demand.

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A PRODUCTION-INVENTORY MODEL OF DETERIORATING ITEMS WITH STOCK, AND SELLING PRICE DEPENDENT DEMAND

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Abstract: This paper contracts production inventory model with stock-dependent and selling price dependent demand. Demand rate is linearly increasing with stock and time, decreasing with a selling price of the item. This model is classified as the deterioration rate is continuous, and holding treats as constant. The model is understood numerically and diagnostically by limiting the aggregate stock cost and boosts the aggregate benefit. We have introduced a solution look system to discover the preservation innovation and ideal creation time. The main motivation for this problem is the improvement of customer service in manufacturing industries. This study is beneficial to the retail business.

Keywords: Inventory, Preservation Technology, Production, Stock Dependent Demand.

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UNDERSTANDING THE SEA-ICE TRENDS IN THE ARCTIC AND IN THE ANTARCTIC FOR THE YEAR 2017

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Abstract: Our planet earth is divided into various spheres, viz. geosphere, hydrosphere, biosphere, atmosphere and cryosphere. We mainly focus on the cryosphere, which is the frozen water part of the earth. It includes snow-covered land, fresh water ice in lakes and rivers, sea ice, glaciers, etc. Cryosphere plays a significant role in driving the global climate, hence knowing the behaviour of each of the components listed above is necessary. Various instruments required to study this sphere have been analyzed and reported earlier. Sea ice is mainly found in polar regions- the Arctic and the Antarctic. Here, we attempt to study the nature of sea ice and its trend in the polar regions. Various studies have reported a positive trend in the sea ice extent in the Antarctic and a negative trend in the Arctic. Further, the role of various sensors in understanding sea ice will be highlighted. The statistical analyses of sea ice in both - the Arctic as well as the Antarctic would be studied in detail.

Keywords: Cryosphere, Polar Regions, Sea-Ice, Statistical Analyses.

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COMPARISON OF BI-VARIATE VERSUS UNIVARIATE STRATIFYING VARIABLES

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Abstract: One of the main reasons for stratifying the population in sample surveys is to produce a gain in precision of the estimates. The variable(s) on the basis of which strata are being made is known as stratification variable. The stratification can be done either on the basis of single variable or more than one variable. In this study we have proposed a method by assuming linear regression on two variables, on the basis of which we have compared the variances of univariate stratifying variable and Bivariate stratifying variables. The numerical illustrations have been given for two different distributions.

Keywords: Bivariate Normal Distribution, Efficiency, Stratifying Variable, Two-Way Stratification.

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COST ANALYSIS FOR FUZZY QUEUEING SYSTEM WITH REMOVABLE SERVICE STATION

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Abstract: In any situation the decision maker does not like to break any system. Bhuvaneshwari has proposed the parameter analysed the interval optimality in fuzzy queueing system, but error has been occurred in some intervals [3]. We have extended this work, by using alpha cut approach to rectify the error and to resurrect the corresponding system. The basis of the α - cut representation and the extension principle of a pair of mathematical program are formulated and derived the performance measure in the family of crisp queue. Finally the range of the performance value is verified in a statistical manner (Hypothetical Testing in time series) with the help of XLSTAT-2014. Here the queue parameters are considered as a triangular fuzzy number.

Keywords: Triangular Fuzzy Number, α - cut membership function, NLP, XLSTAT-2014.

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SECURITY CHALLENGES IN IOT

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Abstract: The ongoing challenges in “Internet of Things” (IoT) are explicitly allied to the wide-scale applications of its system. IoT brings out opportunities for wearable devices, healthcare systems, home appliances, and various small devices communicating over internet. Ubiquitous or pervasive nature of small devices challenges the security and privacy of the data. Moreover the storage and flow of information via cloud is always subjected to many challenges like integrity, transparency, and identity from the perspective of wide-scale applications. In this paper we discuss and analyze various ongoing challenges involved with IoT in a cloud deployed environment. We primarily focus on security and privacy concerns from the perspective of service providers and users in the cloud.

Keywords: Internet of Things, Pervasive Computing, Ubiquitous Computing, Cloud Deployment Environment.

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PARAMETERIZED ANT COLONY ALGORITHM IN EDGE DETECTION USING BSDS IMAGES

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Abstract: The parameterized ant colony algorithm for edge detection play vital role in remote sensing images. In a Berkeley Segmentation Dataset (BSDS) image, edges are thought as food for ants. The ant colony structure and its accomplishment require further research. This ant colony edge detection operation is a fusion one. The proposed solution for ants is the two dimensional image and the artificial ants are built to move over the image. Parameters for ant colony algorithm are mapped into a multidimensional space, which guarantee that all parameters produce the optimal value, fast convergence for each parameter. This algorithm using the best parameters concludes with effective and accurate edge detection.

Keywords: Ant Colony Algorithm, Image Segmentation, Parameter Adaptation.

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A NOVEL FRAME REDUCTION METHOD FOR VIDEO ABSTRACT GENERATION

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Abstract: This paper describes a method for generating video abstract by reducing the number of frames in the video. It includes procedures for shot boundary detection also. The motivation behind the work is the crucial amount of redundancy in a video. Most frames in a video are redundant. Video abstracts are generated by removing the redundant frames from it. Each shot in the video are processed to identify the redundant frames in it. The method can be applied to any type of videos, edited or unedited. The result of the method on entertainment videos, news videos, documentary videos, and home videos are excellent.

Keywords: SBD (Shot Boundary Detection), Frame Reduction Algorithm, Video Abstracts.

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VEDIC SWARA RECOGNITION SYSTEM: A MOVE TOWARDS VEDIC CHANTING

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Abstract: Being one of the oldest among scriptures, Vedic scriptures are considered to be one of the richest creations of mankind. After much demolition and ruins, the Vedic Chanting techniques are still vast and tough to learn. In chanting a Vedic verse the notes used, known as the Swaras are strictly bound by rules. Mistake in implementing one Swara is considered a serious blunder in case of Vedic chanting. The motto of this work is to analyze a Vedic chant in order to get its Swaras and to check the accuracy of the chanting signals afterwards, whether their swara implementation is proper or not. Analyzing the complexity of the chanting signals, we have done the work in two phases using two separate techniques, Mel-Frequency Cepstral Coefficient and Wavelet Transformation. As Swara system is a vast field to study and analyze, this paper has only focused on the Yajurvedic verses that deals with four major swara chanting techniques. This work can be a great advancement in order to move ourselves towards the long forgotten Vedic wisdom.

Keywords: Vedic, Chanting, Swaras, Signals, Wavelets, Signal Processing.

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A SURVEY ON GEOMETRIC DATA PERTURBATION TECHNIQUE FOR PRIVACY PRESERVING IN DATA STREAM MINING

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Abstract: Nowadays a large amount of data such as sensitive data and personal data are collected and retrieved various organization and enterprises like retailers, financial organization, networking system. With huge inrush of the data mining and tools for mining process, the intimate requirements of the personal privacy are enhancing more and more urgent. The privacy of the personal data and information must be maintained while sharing of data among another untrusted party. So the privacy plays an important role in data mining. Privacy preserving is most important research area in data security. A various algorithmic techniques have been used for the Privacy Preserving Data Mining (PPDM). In this survey paper, it analyses a geometric perturbation technique for privacy preserving data stream mining.

Keywords: Data Mining, Data Perturbation, Geometric Transformation, Gaussian Noise.

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RATING PREDICTION BASED ON SOCIAL SENTIMENT REVIEWS

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Abstract: In the recent days, online shopping is becoming more and more popular one. When it need to decide whether to purchase a product or not on line, the opinions of others become important. Exponential growth of information generated by social networks demands effective recommender systems to give useful outcomes. It presents a broad opportunity to share our ideas for various products we purchase. However, people face the information overloading problem. How to mine valuable information from reviews to understand a user's preferences and make an accurate recommendation is crucial. Traditional recommender systems consider some factors, such as user's purchase records, product category. In this work, it propose a sentiment-based rating prediction method to improve prediction level accuracy in recommender systems. Firstly, it propose a social user sentimental measurement approach and calculate each user's sentiment on items. Secondly, it is not only consider a user's own sentimental attributes but also take interpersonal sentimental influence into consideration. Then, consider item reputation, which can be inferred by the sentimental distributions of a user set that reflect customers' comprehensive evaluation. At last, by combining three factors-user sentiment similarity, interpersonal sentimental influence, and item's reputation similarity into recommender system to make an accurate rating prediction. It conduct a performance evaluation of the three sentimental factors on a real-world dataset. Therefore, higher performance of the rating prediction can be achieved by the method than that when using single kind of features. Experimental results show the sentiment can well characterize user preferences, which help to improve the recommendation performance.

Keywords: Rating Prediction, Recommender System, Reviews, User Sentiment.

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**PERFORMANCE OF SCHEDULING ALGORITHMS FOR
MULTI-HOP BLUETOOTH NETWORK BASED ON BRIDGE NODES**

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Abstract: Bluetooth technology is an emerging mobile ad-hoc network standard that enables wireless communication. Bluetooth is a Personal Area Network (PAN) that provides better support for real time applications. A single hop network called piconet is the basic communication topology of bluetooth. It consists of seven active slaves controlled by one master. Multiple set of piconets interconnected via Bridge node is called Scatternet. So the performance of Scatternet scheduling is highly dependent on this node. The primary focus of this study is to observe the effect of bridge scheduling in inter-piconet communication. In this paper, we address scheduling schemes to be considered for efficient data flow in Scatternet based on bridge node.

Keywords: Bluetooth, Piconet, Scatternet, Bridge, Scheduling.

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TWITTER SENTIMENT ANALYSIS USING R STUDIO

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Abstract: Twitter is a popular microblogging service where users create status messages (called tweets). These tweets sometimes express opinions about different topics. Based on the sentiment(positive or negative) the tweets can be automatically classified as either positive or negative. We present the results of machine learning algorithms for classifying the sentiment of Twitter messages using R. This is useful for consumers who want to research the sentiment of products before purchase, or companies that want to monitor the public sentiment of their brands.

Keywords: Emotions, Sentiment, Shiny, Tweets.

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IMPROVING THE EDGE DETECTION ALGORITHM FOR COLOR IMAGE

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Abstract: Edge detection plays an essential role in computer vision and segmentation, because the edges separate the object from the background. It indicates abrupt deviations in the pixel intensity of an image. Many methods are employed for grey scale conversion, because of its simpler routine and the fewer computational requirements. In contrast edge detection in color image has not received enough attention though provides more information which can be used to extract edges accurately. In this paper a modified edge detection algorithm is presented.

Keywords: Color Image Processing, Edge Detection, RGB Model.

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CONCEPTUALIZATION OF BIG DATA

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Abstract: Data is generated every moment, everywhere. This proposes a great challenge in receiving, managing, analyzing and interpreting the information, out from it. Latest technological improvements like Cloud Computing, Hadoop and MapReduce offers solutions to overcome the challenges, which is secure and fault tolerant. This paper gives the overview of such challenges, methodological solution to manage Big Data and interpret information.

Keywords: Big Data, Cloud Computing, Hadoop, MapReduce.

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A SURVEY ON IMAGE PROCESSING TECHNIQUES RELATED TO HAND GESTURE RECOGNITION

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Abstract: Identifying hand gesture recognition is necessary in many real world applications. Areas of applications include security, entertainment, medicine etc. Major challenges in hand gesture recognition are the difficulties that arise due to the rotation of the hands, real time movement of the hands variation in the finger positions, cluttered background occlusion etc. To resolve these limitations various research works have been done pertaining to the related areas. There are different ways of tracking and recognizing hand movements. We observe that only a little attempt has been made for full hand poses recognition during real time full body movements and work done even for hand gesture recognition without considering whole body movement in Bharathanatyam is limited. In this survey we have focused on different techniques and approaches which have been used in various stages of hand gesture recognition. We have carried out this survey with an objective of enhancing existing works on hand gesture recognition so that they can be applied in class room training sessions as a teaching aid pertinent to Bharathanatyam.

Keywords: Hand Gesture Recognition, Image Processing, Machine Learning.

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A UNIFIED FRAMEWORK FOR OPINION MINING AND SENTIMENT ANALYSIS

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Abstract: It has been observed by many researchers that Web is emerging as a new medium for data collection and information sharing. Web contents provide valuable information for various stake holders which include product manufacturers, online customers, Government and security agencies etc. A unified framework is required for opinion mining and sentiment analysis that computationally evaluate and extracts users' opinions and sentiments from Web contents. Such evaluation and extraction has tremendous practical real life applications spanning from business intelligence to web surveillance.

Keywords: Opinion Mining, Sentiment Analysis, Subjectivity Analysis, Review Mining, Business Intelligence.

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A SURVEY ON CLUSTERING TECHNIQUES IN DATA MINING

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Abstract: Data mining is defined as a process used to extract usable data from a larger set of any raw data. It implies analyzing data patterns in large batches of data using software. It is the procedure of mining knowledge from data. Clustering is an important task of exploratory data analysis and data mining applications. Cluster is a collection of objects that belongs to the same class. Similar objects are grouped in one cluster and dissimilar objects are grouped in different clusters. Cluster analysis is a significant data mining technique to find data segmentation and useful pattern information. It refers to forming group of objects that are very similar to each other but are highly different from the objects in other clusters. There are different types of clusters: Well separated clusters, Center-based clusters, Contiguous clusters and Density-based clusters. This paper focuses on a keen study of different clustering algorithms such as hierarchical, partitioning, density and grid based algorithms.

Keywords: Clustering, Clustering Techniques, Types of Clustering.

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IMAGE MINING USING ARTIFICIAL NEURAL NETWORK AND ARTIFICIAL BEE COLONY ALGORITHM FOR MEDICAL IMAGE

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Abstract: In the recent days, image mining more and more popular one. When it use to medical image vast image is unpredictable image so this technical to use that Currently, content-based Image recovery (CBIR) drives for producing approaches which supports viable searching and scanning of vast picture progressive libraries by considering unwavering image texture features and has been a rapidly growing inspection bearing among image information recovery, computer vision, and database. The learning procedure of CBIR is achieved with the Neural Network method together with GLCM feature abstraction in our projected technique. Furthermore, with the ABC algorithm the normal/abnormal arrangement of the medical dataset images is managed. Lastly, to regulate the function of the projected method the solutions were replicated and associated with the available method. In the working platform of MATLAB the projected method is applied.

Keywords: GLCM (Gray Level Co-occurrence Matrix) feature; CBIR (Content Based Image Retrieval); ANN (Artificial Neural Network); ABC (Artificial Bee Colony).

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GRAPH THEORY FOR COMMUNITY DETECTION IN TWITTER

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Abstract: The undisputed golden standard of communication in the information era is social media and it will continue to be the industry buzzword, as many businesses are beginning to truly understand the need and are jumping onto the social bandwagon. Social Media not only has revolutionized the way people communicate with each other in the Digital Communication Era, but has open new avenues in the business world. This social network can be represented easily by a graph of vertices (or nodes) and edges (or arcs, links). The nodes represent the individuals or entities, and the edges correspond to the interactions or relationships among them. Graph theory, is a part of combinatorics, matrix theory, set theory and topology which holds a prime place in the area of Discrete Mathematics and is used to structure models. The graph theory has penetrated biochemistry, electrical engineering, computer science, operations research and physics, by way its applications. Twitter, a microblogging service is one of the most popular social networks worldwide which enables users to follow any other user and to interact with people with similar interests and famous personalities who regularly post on the social media site. In a network, communities represent people with similar interests and preferences (clusters of nodes) that exhibit strong intra-connections or relationships among nodes in the cluster and detection of these communities has found to be advantageous in various applications. In this paper we will discuss the fundamental task of Community detection in social network analysis. The problem of sentiment analysis is then studied in the context of these detected communities. This paper, highlights the different facets of community detection and presents an improved detection algorithm based on un-weighted graph. The efficiency of the algorithm is found using the support vector machine.

Keywords – community detection, graph theory, twitter analytics

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CLUSTERING - BREAST CANCER DATA SET USING SIMILARITY RELATION

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Abstract: In medical field, we often encounter situations to classify non-overlapping similar group patients for serious diseases such as cancer, to study about dominating symptoms or attributes to each cluster. One of the life threatening diseases to women is cancer. In particular it affects breast and uterus of a women. In this paper, a simulation study is carried out to cluster patients who suffered from breast cancer using fuzzy clustering technique. It is observed that number of clusters varies to different threshold values which would enable us for better investigation on the patients with respect to the attributes.

Keywords: Fuzzy Set, Similarity Measure, Similarity Relation, Breast Cancer, Fuzzy Clustering.

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A METHOD TO KNOW ONE'S DEPRESSION LEVEL USING FUZZY RELATION EQUATION

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Abstract: Diseases caused by the depressive disorder have become a huge burden to our society. To cure these diseases, it is necessary for an individual to pay their attention to know about their depressive disorder level at equal intervals using the symptoms such as intense sadness, sleep disturbances, change in appetite, decreased energy level, feelings of helplessness. Fuzzy set theory was introduced by L.A. Zadeh. Using fuzzy relation equation, a methodology to know the depression level is presented.

Keywords: Fuzzy Relation Equation, Depressive Disorder, Fuzzy Equivalence Relation

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PSNR BASED OPTIMIZATION APPLIED TO MAPEM FOR IMAGE RECONSTRUCTION IN A MULTI-CORE SYSTEM

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Abstract: Statistical reconstruction methods present high potential image quality as compared to analytical methods, however it suffers from reconstruction time. To reduce reconstruction time statistical reconstruction algorithm Maximum a Posterior via Expectation Maximization is parallelized in a shared memory environment. This work exposes a parallel Maximum a Posterior Expectation Maximization algorithm that reconstructs an Image on a multi-core parallel environment to reduce the execution time. The execution time, speed up is figured out for both serial and parallel Maximum a Posterior Expectation Maximization image reconstruction algorithm using various size phantom under different projection data. The research exhibits that the parallel computing environment provides the source of high computational power leading to reconstruct an Image instantaneously.

Keywords: Image Processing, Image Reconstruction, Iterative Image Reconstruction, Maximum A Posteriori Expectation Maximization, Parallel Processing, Open MP.

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