ABSTRACTS BOOK

OF

FOURTH INTERNATIONAL CONFERENCE OF IRAQI AL-KHWARIZMI ASSOCIATION IN COOPERATION WITH KHAZAR UNIVERSITY (ICMSPCS 2019)

1-2 August 2019

BAKU, AZERBAIGAN

Supported by

Iraqi Al-Khwarizmi Association

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INTRODUCTION:

Scientific societies have played a prominent role in advancing science and linking it to society. Scientific societies were built on the basis of volunteerism through the efforts of scientists, researchers, and academics.

At the international level, the Scientific Society is founded on a sincere voluntary desire by groups of learners and intellectuals to contribute to the collection and dissemination of useful information in the field in which we work among members of society without regard to the material output resulting or expected for its members.

Al-Khawarizmi Iraqi Society is one of the scientific societies concerned with the dissemination of the culture of mathematics and its sciences and includes the disciplines of mathematics, computer, statistics, and physics. It was established under the Law of Scientific Associations No. 55 of 1981 and its amendments as per the Ministerial Order No. (3/10793) in 10/10/2012. It works according to an internal system approved by the Legal Department of the Ministry of Higher Education and Scientific Research. The members of Al-Khawarizmi Iraqi Society based in the province of Qadisiyah aims to open other branches to it in the rest of the provinces.

1. Cooperation to raise the level of instruction and scholarship in the subject areas of the Association's specialties.
2. Promoting scientific research and sharing in the research, exchanging its results and linking applied research topics to the needs of Iraqi society.
3. Documenting cooperation between the corresponding departments inside and outside Iraq through the members of the Association.
4. Issue a quarterly Iraqi scientific journal in the specialties of the Society.
5. Unification of scientific terminologies in the specialties of the Association and encourage Arabization and composition in the Arabic language.
6. Attracting the scientific expertise and expertise from outside Iraq to benefit from their potential and to find out what is new in the fields of the Association's specialties.
7. Provide opportunities to complete the graduate studies of the members of the Association in coordination with the members of the Assembly as much as possible.

The Assembly adopted some means to achieve the objectives of the above-mentioned Association, as indicated in the following:-

1. Holding lectures, seminars, and conferences to discuss innovatively and applied research and findings of the member researchers as well as discuss the problems of society.

2. Issuing scientific journals and publications reflecting their activities, including research of their members and their achievements and exchanging with their counterparts locally and internationally.
3. Establishing scientific libraries through exchange or acquisition.
4. Organizing meetings or periodic meetings to study the new scientific terminology.
5. Organizing courses and studies for the activation and scientific modernization of the members.
6. To establish meetings between the Association and some scientific bodies rather than to serve the community.
7. Providing consultancy and technical services.
8. Provide a data room and a specialized library that combines scientific activity in the fields of the Society's specialties.

Program

Of Fourth International Conference of Iraqi Al-Khwarizmi Association in Cooperation with Khazar University (ICMSPCS 2019)

Under The Slogan

"Scientific societies are an important pillar in the construction and development of higher education and scientific research in Iraq"

For the period from 1-2 August 2019 Baku- Azerbaijan

Time	Activity	Location
First Day: Thursday 1 August 2019		
9:30 – 10:00	Registration	Conference Hall
10:00-10:30	National anthem Ayat from The Holy Quran Reading Al-Fatihah for the Iraqi martyrs' souls Speech of the association's President	Conference Hall
10:30- 11:30	Opening Lecture Prof. Dr. Falih Bin Omran Aldosary "Calculus of Variations and Some of its Applications"	Conference Hall
11:30- 12:00	Rest and Take photos	Different Places
12:00-02:00	First session of Mathematics Scope First session of Computer Sciences Scope First session of Statistical Scope First session of Physics Scope Second session of Mathematics Scope	Hall (1) Hall (2) Hall (3) Hall (4) Hall (5)
Second Day Friday 2 August 2019		
10:00-12:00	First session of Mathematics Scope First session of Statistical Scope First session of Physics Scope	Hall (1) Hall (2) Hall (3)
12:00- 12:15	Rest and Take photos	Different Places
12:15-01:00	Final Session of the conference Recommendations Awarding certificates of participation and certificates of appreciation	Conference Hall

Opening Session

Conference Hall Time: 10:30- 11:30

Date :1/8/2019 Day: Thursday

Chairman: Prof. Dr. Khalil Ibrahim Alsaif

Session Rapporteur: Assist. Prof. Dr. Mohammed K. Alzuwaini

Lecturer	Title of Lecture
Prof. Dr. Falih Bin Omran Aldosary	"Calculus of Variations and Some of its Applications"

Mathematics Scope Sessions

First Session:

Hall (1) Time: 12:00- 02:00

Date :1/8/2019 Day: Thursday

Chairman: Prof. Dr. Mohammed Jasim Mohammed

Session Rapporteur: Assist. Prof. Dr. Firas Shaker Mahmood

Researcher	Title of Research
Ihsan J. Khadim Mohmmed Sh. Omran	Lyapunov's Function for Random Dynamical Systems and Pullback Attractors
Khalil K. Abbo Edress M. Noori Youksl A. Laylani Hisham M. Khudur	Implicit Hybrid Conjugate Gradient Method For Unconstrained Optimization Problems.
Samir K. Hassan	Estimators of some inequality dynamical system
Mohammed K. Alzuwayni Shakir K. Ali Marwa M. Khasim	Tabu Search Method to Solve Machine Scheduling Problem under Fuzzy Processing Times
Abdul Sattar J. Ali Abber M. Jasim	New new analytical technique for heat transfer analysis unsteady squeezing flow of a Casson fluid between parallel plates

Mathematics Scope Sessions

Second Session:

Hall (5) Time: 12:00- 02:00

Date :1/8/2019 Day: Thursday

Chairman: Prof. Dr. Burhan F. Jomaa

Session Rapporteur: Dr. Rhyad D. Ali

Researcher	Title of Research
Mohammed J. Mohammed Falih Abdul mahdi	Fuzzy Neutrosophic Soft cosets on HX ring
Mohammed F. Hani	applying subordination on subclass of bi-univalent functions associated with ruscheweya operator
Noori F. Almyahi Ellham S. Nayif	Compact Linear Operator In Modular Spaces
Whaled K. Jaber	Solve Fractional Linear Programming by using Branch and Bound method
Dalyah K. Bahlool Zahra M. Hadi	The effect of alternative resource and refuge on the dynamical behavior of food chain model

Mathematics Scope Sessions

First Session:

Hall (1) Time:10:00 12:00

Date :2/8/2019 Day: Friday

Chairman: Assist.Prof. Dr. Sameer K. Hassan

Session Rapporteur: Assist. Prof. Dr. Hisham R. Mohammed

Researcher	Title of Research

Computer Sciences Scope Session

Hall (2) Time: 12:00- 02:00

Date :1/8/2019 Day: Thursday

Chairman: Prof. Dr. Murtadh M. Hammd

Session Rapporteur: Assist. Prof. Dr. Essa I. Essa

Researcher	Title of Research
Baidaa M Alsafy Assel Jabbar Almahdi Wamidh K. Mutlag	Psoriasis Disease Detection Based On Skin Color
Hadia S. AlBadrani Najla Matti Safar Khalil I. Alsaif	Studying the Properties of Water Plans in Satellite Images by Adopting Curvelet Transformation
Nadia M. Mohammed Najla B. Al dabagh	Protecting Data in Cloud using Steganography based on Cuckoo Search Algorithm
Younis kadthem hamead Ayad habib shamal	Using Adaptive Neuro Fuzzy Inference System in predicting the Deaths of Iraq

Statistical Scope Sessions

Hall (3) Time: 12:00- 02:00

Date :1/8/2019 Day: Thursday

Chairman: Prof. Dr. Abdul-Rhaim K. Rahi

Session Rapporteur: Assist. Prof. Dr. Muhanad F. Khadim

Researcher	Title of Research
Adil I. Khalil Ahmed K. Abbas	Processing of laser speckle contrast images: A primary study on signal complexity values of leg in healthy subjects
Muna I. Elias	Forecasting the Number of Private Secondary Schools in the Second Karkh Education Directorate up to(2027-2028) Using Methodology Box-Jenkins Model for Time Series
Mazin M. Alanaza Zakariya Yahya Algamal	Variable selection in count regression model using chaotic particle swarm optimization algorithm
Ghalia Twfeek Basheer Shaimaa Waleed Mahmood Zakariya Yahya Algamal	Classification of chronic kidney disease data via three algorithms

Statistical Scope Sessions

Hall (2) Time: 10:00- 12:00

Date :2/8/2019 Day: Friday

Chairman: Prof. Dr. Shaker K. Ali

Session Rapporteur: Assist. Prof. Dr. Ahmed Naeem

Researcher	Title of Research
Abdel-Rahim El-Harthy, Mostafa Kamel Suhayla Abdel-Zahra	The effect of public debt on economic exposure is an analytical vision in supporting the pillars of economic development in Iraq
Muhannad F. Al-Saadony Walaa J. Al-obaidi	Using some types of Brownian Motion in the Vasciek Interested Rate Process with application
Nasir A. Nasr Muhannad Al-Saadony	Numerical Solution of Stochastic Heat Equation
Gorgees Sh.Mohammad	goodness of fit approach for testing exponential better than used in convex for life distributions

Physics Scope Session

Hall (4) Time: 12:00-02:00

Date :1/8/2019 Day: Thursday

Chairman: Assist. Prof. Dr. Saleem A. Hussain

Session Rapporteur: Dr. Faezah L. Hassan

Researcher	Title of Research
Shaima Yassin Rifai Suad Jassim Obaid	the concept of energy between science and the Koran
Kamil Dhahi	Universe Unification
Mohammed Alansi	novel Study of Threshold Voltage for Self-Quenching GM Counters
I.K.Jassim Salih Y. Darweesh	The Influence of Laser Treatment on Fe-Mn layers Sprayed by Thermal Coating

Calculus of Variations and Some of its Applications

فالح بن عمران بن محمد الدوسري

قسم الرياضيات –كلية العلوم التطبيقية

جامعة أم القرى

The calculus of variations has been one of the major branches of analyses for more than two centuries concerned with certain maximum or minimum problems. It is a tool of great power that can be applied to a wide variety of problems in Mathematics, Physics, Engineering and Control Theory. Some of the problems of calculus of variations have a long history going back to ancient times, but the systematic study of variation problem dates from the eighteenth century with the work of Euler (1707-1793) and Lagrange (1736-1813).

In this lecture we give its history and some applications in Mathematics, Analytical and Quantum Mechanics.

لقد اهتم حساب التفاضل والتكامل بالقيم القصوى (العظمى والصغرى) للدوال ، لكثرة تطبيقاتها ، لكنه لا يمكن ان يعلمنا عن ماهية اقل مسافه بين نقطتين معلومتين في مستوٍ ، او اقصر مسافه بين نقطتين معلومتين على سطح معلوم او أقل زمن يستغرقه جسيم للتحرك من نقطةٍ الى اخرى على سطح معين ، او عن شكل المنحنى المغلق ذو المحيط المعلوم الذي يحد اكبر مساحه ممكنه ولا عن شكل المنحنى الذي ينزلق عليه جسيم في اقل زمن ممكن . وللإجابه عن تلك الأسئله ، وإيجاد فرع من الرياضيات يضع الحلول المناسبه لمثل تلك المسائل التي حل بعضها الرياضيان السويسريان يوحنا برنولي (1667م – 1748م) ويعقوب برنولي (1654م- 1705م) ، وكذلك الألماني ليبنز (1646م-1716م) ، والأنجليزي نيوتن (1642م- 1727م) ، والفرنسي لوبتال (1661م- 1704م) فقد وضع السويسري اويلر (1707م- 1783م) اساسيات هذا الفرع من التحليل الرياضي معرفاً ما يسمى الداليات " Functions "وهي دوال من مجموعه الدوال او من فضاء متري الى مجموعه الاعداد الحقيقيه ، وأوجد الشرط الضروري (معادله او معادلات اويلر) لوجود القيم القصوى والتي ادت الى حل امثال تلك المسائل وغيرها في الميكانيكا التحليليه والمرونه وميكانيكا الكم، وبعد أن نشرأويلرابحاثه في هذا المجال عام 1741م ، ودراسه الفرنسي لاجرانج (1736م – 1813م) لتلك الأبحاث توصل لاجرانج سنة 1755م الى نفس الشروط بطريقه اخرى "ولهذا السبب يسمي البعض معادله اويلر ، معادله اويلر ـــ لاجرانج" ، وأرسل ذلك الى اويلر فأعجب بها وسماها حساب التغييرات ، والتي اصبحت عنواناً لهذا الفرع من التحليل الرياضي المهتم بالقيم القصوى للداليات ، والذي تطور ، وحل الكثير من المشاكل في الرياضيات والفيزياء و وضعت شروط ضروريه وكافيه اخرى لوجود القيم القصوى من قبل الفرنسي لجندر (1752م – 1833م) ، والألمانيان ، جاكوبي (1804م – 1851م) ،

وفيرشـــتراس (1815 – 1897م) وبعد ظهور نظريه التحكم (Control Theory) ، اســـتخدم حســـاب التغييرات لإســتنتاج معادله بلمان التي قدمت اســلوباً آخراً لأشــتقاق معادله هاملتون كما اســتخدم حســاب التغييرات من قبل الروسي بونترياجن لحساب دوال التحكم وايجاد الشروط الضروريه للتحكم الأقصى.

وهدفنا في هذه المحاضرة التعريف بهذا الموضوع وبعض تطبيقاته.

Mathematics Scope

Fuzzy Neutrosophic Soft cosets on HX ring

Dr.Mohammed J.Al-Mesafer , Faleh Abdul Mahdi Jaber

Department of Mathematics , College of Education for Pure Sciences, University of Thi qar

ABSTRACT: In this paper, we introduce the notion of fuzzy neutrosophic soft HX subring of a HX ring , fuzzy neutrosophic soft coset and pseudo fuzzy neutrosophic soft coset of a HX ring. We explain some related properties and results of fuzzy neutrosophic soft coset and pseudo fuzzy neutrosophic soft coset of fuzzy neutrosophic soft HX subring.

Keywords: fuzzy neutrosophic soft set, fuzzy HX ring, soft set.

The effect of alternative resource for top predator on the dynamical behavior of food chain model

Zahraa Mohammed Hadi and Dahlia Khaled Bahlool

Department of Mathematics , College of science , Baghdad University Baghdad, Iraq

E-mail of the corresponding author: dahlia.khaled@gmail.com

Abstract.

A food chain model in which a top predator has an alternative food source has been constructed. The intermediate predator grows logistically in absence of prey. It is assumed the predation process is done according to Hollling type-II functional response which is incorporating in the first level a prey refuge depending on both prey and intermediate predator. The existence of the solution is discussed. All the equilibrium points are determined. The stability analysis of all these equilibrium points is investigated analytically as well as numerically.

Implicit Hybrid Conjugate Gradient Method For Unconstrained Optimization Problems.

Khalil K. Abbo[1] Edrees M. Nori[2] Yoksal A. Laylani[3] Hisham M.Khudhur[4]

Abstract

In the relevant paper to the conjugate gradient methods, we suggest a new implicit hybrid conjugate gradient method, which is based on Fletcher-Reveere and Hestenes-Stiefel methods. The descent property and global convergence with Wolfe line search are proved. The numerical results show that the proposed algorithm is efficient.

On fuzzy soft normed space

Noori F. Al-Mayahi and Donia SH. Farhood

Department of Mathematics, College of computer Science and Information Technology

University of AL-Qadisiyah, Diwanyah-Iraq

E-mail: nafm60@yahoo.com

Abstract:

In this paper, we have introduced the definition of fuzzy soft normed space and obtained some new properties of these space by studying the open and closed balls. Moreover, we studied the continuity and the convergences in fuzzy soft normed space .

Keywords: fuzzy soft norme , fuzzy soft set . fuzzy soft continuity

Compact Linear Operator in Modular Spaces

Noori F. Al-Mayahi and Al-ham S. Nief

Department of Mathematics, College of Computer Science and Information Technology

University of AL -Qadisiyah, Diwanyah -Iraq

E-mail: nafm60@yahoo.com

Abstract:

In the present paper, we give definition of Compact linear operator in modular spaces and prove some new results related with it .

M.S.C: 46A80.

Keywords: modular space, Compact linear operator in modular spaces.

Numerical Solution Based on Backward Differentiation Techniques for Systems of Nonlinear Weakly-Singular Volterra Integral Equations

Merewan A. Saleh[1] and Borhan F. Jumaa[2]

[1, 2]Computer Science Department, College of Computer Science and Information Technology, University of Kirkuk, Kirkuk, Iraq.

[1]marewan_812004abdal@yahoo.com

[2]borhan_nissan@yahoo.com

Abstract

This paper uses Backward Differentiation Formulas of step (1, 2, 3, 4, 5 and 6) to evaluate a system of three and two second kind of nonlinear Weakly-Singular Volterra integral equations numerically. The system is solved by using MATLAB 2014b software. Finally, a number of examples are proposed to demonstrate the accuracy and effectiveness of this formula.

Keywords: Nonlinear integral equation, Weakly-singular Volterra, Backward differentiation formulas.

Estimators of some inequality dynamical system

Assist. Prof.Dr. sameer Qasim Hasan

Al-Mustansiriyah un. College of education. math.Dep.

Abstract:

The aim of this paper to presented the estimation of some classes for some inequality dynamical system based on some inequality formulation that make important role in solvability of these types of dynamical system

New new analytical technique for heat transfer analysis unsteady squeezing flow of a Casson fluid between parallel plates

Abeer Majeed Jasim and Abdul-Sattar J. A. Al-Saif.

Department of Mathematics, College of Science, University of Basrah, Basrah, Iraq.
Department of Mathematics, College of Education for pure Science, University of Basrah, Basrah, Iraq.

Email address: abeer.jassem@yahoo.com, sattaralsaif@yahoo.com .

Abstract

In this paper, heat transfer analysis for unsteady the squeezing flow of a Casson fluid between parallel plates has been presented. Resulting equation have been solved by using new analytical technique. This new analytical technique depends mainly on the coefficients of powers series resulting from integrating nth order differential equation. The unsteady non-linear governing partial differential equations are converted by using the suitable similarity transformation into ordinary differential equation. In addition, some theorems are introduced to prove the convergence of a new analytical technique theoretically and explaining the verifications of these theorems computationally. present results proved that the accuracy and efficiency of the are reasonable comparing with the results of the other methods.

Applying Subordination on subclass of bi-univalent functions associated with ruscheweya operator

BY

Dr. Mohammad Falah Hani al'murshidy

Email:mohfalih17@yahoo.com

ABSTRACT: In the present paper, we introduce and investigate an interesting subclass $\mathcal{B}_{\Sigma}^{p,q}(\lambda)$ of the function class Σ of bi-univalent functions defined in the open unit disk U, which are associated with the Ruscheweyh operator, satisfying subordinate conditions, furthermore we find estimate on the Taylor – Maclaurin coefficients $|a_2|$ and $|a_3|$ for functions in this subclass.

KEY WORKS AND PHRASES. Subordination, analytic functions, univalent functions, Bi-univalent functions, Taylor – Maclaurin series, coefficients estimates Ruscheweyh operator

Tabu Search Method to Solve Machine Scheduling Problem under Fuzzy Processing Times

Al-zuwaini Mohammed Kadhim [1], Shaker K. Ali [2], Marwa Mohammed Kassim[3]

[1]University of Thi-Qar, mkzz50@yahoo.com

[2]University of Thi-Qar, shaker@utq.edu.iq

[3]University of Thi-Qar, mm8764270@gmail.com

Abstract

In the problem of scheduling a single machine to minimize multiple objective function (MOF). There are n jobs to be processed, each of which has fuzzy processing time, integer penalty number of early jobs, weighted number of late jobs and an integer due date. The objective is to find the approximate solutions which minimize the sum of penalty number of early jobs and weighted number of tardy jobs with fuzzy processing time. This problem with normal processing time is strongly NP-hard. Tabu search method was used to find on approximate solutions, The problem was solved with up to 12100 jobs in a short time.

Keywords: Scheduling; Single machine; Fuzzy processing time; Tabu Search method; Weighted number of early jobs; Weighted number of tardy jobs.

Solve Fractional Linear Programming by using Branch and Bound method

Waleed Khalid Jaber

University of Thi-Qar, Computer Science and Mathematics College, Iraq

waleedkhalidj@utq.edu.iq

Abstract

We can has many methods to solving Fractional Linear Programming Problems (FLPP) that getting the optimal solution of the problem where the values of variables are real numbers not integer numbers, But when there are conditions in the problem that requires the result is optimal integer solution, that is the resulted variables values was numerical integer, At that time we must turn to a method that we get from it the integer solution of the problem. That is the subject of the research where we will employ an algorithm of the method (Solve **Fractional Linear Programming by using Branch and Bound method**) to find approach integer solution of Fractional Programming problems.

Computer science Scope

Psoriasis Disease Detection Based On Skin Color

Baidaa M Alsafy[1], Assel Jabbar Almahdi[2], Wamidh K. Mutlag[3]

[1,2] Computer sciences and mathematics college, University of Thi_Qar, Thi_Qar, Iraq.

[3] Al shatrah Technical Institute, Southern Technical University, Iraq.

[1]baidaaalsafy@utq.edu.iq , [2] asseelalmahdi@gmail.com, [3]wamid.almuhaysen@stu.edu.iq

Abstract

Psoriasis detection and diagnosis is one of significant researches and has interest for medical domain. Image processing plays major role for medical domain to analysis and diagnosis numerous diseases such as in psoriasis diagnosis. Psoriasis is a chronic sore of the human leather in the form of various forms thick red specks, capped stratum of peels with silver color resemble chance (Hence the psoriasis denotation) and accompanies these husks itching, growing the riskiness in ultimate cases particularly cold days through the winter. Psoriasis happens overwhelmingly in adults with both men and women at nearly the same average. In numerous cases, there is a family history of psoriasis, and assured genes have been attached to the disease.

In this paper we built a system to diagnosis of psoriasis skin diseases using image processing techniques where images are loaded from a database on the web specializing in skin diseases and improved this images to make them enjoy the same conditions and then extract qualities based on skin color (12) features that were effective for distinguishing these features are inputs to the neural network first and SVM second which in turn performs the final diagnosis of the classification between psoriasis and other diseases. The results were effective and respond to the algorithm. The percentage for the training stage of ANN was 100% and the testing stage was 95%, the percentage for the training stage of SVM was 100% and the testing stage was 84%.

Keywords: psoriasis; preprocessing; Hair removal; feature extraction; ANN, SVM.

Studying the Properties of Water Plans in Satellite Images by Adopting Curvelet Transformation

* Hadia S. AlBadrani(lecturer) Comp. Sci. Dept., College of Computer Science and Mathematics - Mosul University e.mail : hadia_salih@uomosul.edu.iq	**Najla Matti Safar (lecturer) Branch of Basic Sciences - College of Agriculture and Forestry - Mosul University e.mail : najla.matti@uomosul.edu.iq
***Prof. Dr. Khalil I. Alsaif Comp. Sci. Dept., College of Computer Science and Mathematics - Mosul University e.mail : Khalil_alsaif@hotmail.com	

ABSTRACT

Features extraction and Texture analysis are regarded as important operations in image processing field for various computer applications.

In this paper a proposed method for analyzing and extracting the features of water plans images based on Curvelet transform (by decomposing the image into its components then adopting the segmentation algorithms on that components), which offers precisely the edges because it deals with the winding information in all directions. Apply segmentation techniques to get information in region of interest, as it is fragmented or split the image into several sections. Studying the features of texture of water plans in satellite images of northern Mosul (Mosul dam).

Proposed algorithm segmentation has been used to extract region of interest (water plans) from images, which contain limitation accuracy for edges, to be studied. The algorithm produces a set of segments, which are stored in the cells array, for extracting features of the textures using a co-occurrence matrix .

The texture features of the image, based on the proposed approach, such as Contrast, Correlation, Energy and Homogeneity, gave an accurate representation of texture class.

Protecting Data in Cloud using Steganography based on Cuckoo Search Algorithm

Nadia M. Mohammed

Najla B. Al dabagh

Abstract

In this research, a corporation's confidential data is protected in the cloud using a proposed method of hiding information based on one of the metaheuristic algorithms its Cuckoo Search (CS) algorithm, which is inspired by Cuckoo's breeding behavior. The proposed method is based on a Cuckoo Search algorithm to search for the optimal hiding locations in the cover image for the purpose of embedding the secret information in it. In the proposed method, first, the Euclidian Distance is used to determine the best pixel and use the Lévy random flight to achieve random movement from pixel to pixel. Second, the data are embedded in the RGB components using the Hash Least Significant Bit technique (HLSB 3-3-2). Finally, the image (after hiding) is uploaded to the cloud after the secret data has been embedded in it. Steganography using this method proved its efficiency through Peak Signal Noise Ratio (PSNR) values which is obtained in comparison with the methods based on other algorithms.

Keywords:

Cloud Computing, Data Storage, Security, Steganography, Cuckoo Search.

Using Adaptive Neuro Fuzzy Inference System in predicting the Deaths of Iraq

Younis kadthem hamead

Ayad habib shamal

Physics Scope

the concept of energy between science and the Koran

Shaima Yassin Rifai and Suad Jassim Obaid

We find in our world today who believes that the Koran this book, which is not falsehood between the hand and not created by the natural sciences, such as: physics, chemistry, biology, etc., is the book ethics and religious teachings and moral issues urging people to favor morale on materialism, To the afterlife before the life of the world, did not know that the great verses required clear and accurate signals on many scientific phenomena, including energy, physics and others, and hence came my choice of research tagged: ((the concept of energy between science and the Koran)); Physical physics Ge, which proved to reality in the Holy Quran since more than one thousand four hundred years, and the designations of which are almost to the approval of the newly discovered by modern scientists, and what is synonymous with her,

The methodology of the research: - It was adopted starting with the statement of the cosmic phenomena discovered in terms of energy and studied in a purely scientific study, and then comparing them with the texts of the Koranic verses that preceded the disclosure and what the commentators of old and recent of the interconnected concepts with the findings of modern science to highlight the miraculous side Of the Qur'an in the energy side is supported in those on a number of sources and references, including: Simplification of Science, d. Mohammed Mustafa Al-Khayyat and the Dictionary of Physics, Definitions, Mirvana Yasser Salama, and the Golden Encyclopedia in the Miracles of the Holy Quran and Sunnah, d. Ahmad Mustafa Al-Metwalli, and the scientific miracles in the Quran and Sunnah, for Munir Fares, the water in the Holy Quran, by Ahmed Amer Al-Dulaimi, Tafsir Al-Tabari and the mosque of the statement about the interpretation of the Quran,

The research plan: - The research was divided into an introduction, nine questions, and a conclusion, as follows:

In the statement of energy energy, the second topic: in the statement of kinetic energy, the third topic: in the statement of electrical energy, the fourth topic: in the statement of thermal energy, the fifth section: in the statement of light energy, and the sixth section: in the statement of nuclear energy, : In the statement of bioenergy, and the eighth topic in the statement of wind energy, and the ninth section: shouting and sound waves, and the conclusion: I mentioned the most important results of the research

Universe Unification

Kamil Dhahi

BSC Physics BASRA- IRAQ

Abstract

There is no equation is through if universe unites. The periodic table equation is the appropriate solution for this tropic. Periodic table equation computes the nuclear binding Energy interim of Z,A atomic no. and mass no. of any Element . as follow : Eb’ = (nA+Mz)2 \ Z(nA+_ mZ) Mev Where n,m are numbers.

A novel Study of Threshold Voltage for Self-Quenching GM Counters

Dr.Mohammed Alansi* *

Department of physics, Faculty of science, University of Al-Baath, Homs, Syria. E-mail: mohammedalansi3000@gmail.com

ABSTRACT : At normal temperatures, it is known that The threshold voltage of GM counters tubes, which were filled mixture of inert gas and quenched organic gas, was shifted toward higher voltages during operation time because of disintegration of quenched organic molecules. While threshold voltage of GM counters tubes, which were filled mixture of inert gas and quenched halogen, was shifted toward lower voltages during operation time because of reaction of quenched organic molecules with anode and cathode. In this research, assuming that the counter tube operates at constant temperature and exposed to constant activity, we derived an analytical equation of Geiger threshold voltage as function of operation time. This equation indicated that the Geiger threshold voltages of the tubes which contain halogen were exponentially decreased during operation time and the Geiger threshold voltages of the tubes which contain organic gas were exponentially increased during operation time.

Keywords: analytical equation,threshold voltage, operation time, GM counter.

The Influence of Laser Treatment on Fe-Mn layers Sprayed by Thermal Coating

[1] I.K.Jassim, [2] Salih Y. Darweesh

Tikrit University-College of Education and Pure Science- Physics Dep.

Tikrit University- College of Education Tuzkormato-Physics Dep.

(pro_ismail28@yahoo.com)

(Salih.younis@tu.edu.iq)

Abstract:

In this present study, an Fe-Mn powder alloy was deposited by using thermal spraying coating technique on to the surface of aluminum substrate. Several physical and mechanical properties were studied. The SEM microstructure, XRD, Micro hardness and bond adhesion strength were studied before and after heat treatment by laser type Nd: YAG. The result show very clear that the influence of laser remelting and re-solidification layer coating which gives a good microstructural modification like increase the surface hardness, decrease the oxide content and pores and also improving the metallurgical bond between the surface coating and substrate.

Keywords: Thermal Spray Coating, Laser surface Treatment, Aluminum, Microstructural Properties, Mechanical Properties.

Statistical science Scope

The effect of public debt on economic exposure is an analytical vision in supporting the pillars of economic development in Iraq

Prof. Abdel-Rahim El-Harthy, Dr. Mostafa Kamel, Dr. Suhayla Abdel-Zahra

Abstract

The management of natural resources is one of the most important issues that concern the decision maker in order to minimize losses and high economic return, which leads to support domestic production and strengthen the structure of the national economy and sustainable development.

The Iraqi economy suffers from a defect in the structure of exports in favor of the oil sector and has a defect in the structure of output for the benefit of the sector itself, which led to high economic exposure and dependency of the local economy abroad, after the isolation of the Iraqi economy over a decade. However, poor economic performance and the inability of the decision-maker to manage natural resources efficiently threatened the economy with its problems and presented many economic losses, the most important of which was the waste of natural resources and the financial surpluses accumulated by the export of crude oil. In the wake of the expansionary economic policies after 2003 and the weakness of public revenues, the public debt (internal and external) increased due to the lack of successful management of the country's resources. The hypothesis of the study is that the increase in public debt increases the degree of economic exposure, which negatively affects the local economy and the structure of the national product. The study concluded the most important conclusion is the existence of a long-term relationship and effect of internal and external public debt to economic exposure to prove the hypothesis of the study. The need to reduce public debt and diversify public revenue and GDP in order to address the high economic vulnerability and reduce its dependence abroad and strengthen the structure of the economy in the face of shocks and external and internal crises.

key words

Public debt, economic exposure, exports, imports, and GDP.

Processing of laser speckle contrast images: A primary study on signal complexity values of leg in healthy subjects

Adil I. Khalil* 1 and Ahmed K. Abbas1
University of Diyala, College of Education for Pure Science, Computer Science Deparment – Diyala-Iraq
A. Humeau-Heurtier
University of Angers, Computer Engineering Labroatory of Angers (LARIS), Angers, France
P. Abraham
University of Angers, Hospital of Angers, Angers, France
G. Mahe
University of Rennes 1, Rennes Cedex 9, France
Eyssa T. Anwer1
Please address correspondence to Adil Ibrahim Khalil, adil.khalil.uod@gmail.com adil.khalil@yahoo.com
Tel: +964 (0) 7705559307

Summary

Purpose: The physiological signals are considered as a sensitive measure for describing human state. The evaluation of such signals can be accomplished by monitoring peripheral blood flow in the skin. Laser speckle contrast imaging (LSCI) is a powerful optical imaging tool that provides two-dimensional information on microvascular blood flow. By applying entropy-based complexity measure to LSCI time series, we present herein a primary study measure signal complexity values obtained from leg into two age healthy groups.

Methods: Leg skin microvascular blood flow was studied with LSCI in 8 healthy subjects. The subjects were subdivided into two age groups; younger (20–30 years old, n=4) and older (50– 68 years old, n=4). To compute complexity values of microvascular blood flow, we applied entropy-based complexity algorithm to LSCI time series obtained from laser speckle contrast images of leg.

Results: The application of entropy-based complexity algorithm to LSCI time series presented higher entropy values obtained from young group than the ones obtained from aged group. However, there was no significant difference between these two age groups (p=0.649).

Conclusion: The impact of aging on microcirculation could be estimated by applying entropy-based complexity algorithms to LSCI time series of leg. However, there was no significant difference on complexity values between aged and younger groups. Further studies with more subjects are needed to confirm the results presented in this paper.

Keywords:

1) Laser speckle contrast imaging 2) Image processing 3) Microvascular blood flow 4) Entropy based compexity measures

Forecasting the Number of Private Secondary Schools in the Second Karkh Education Directorate up to(2027-2028) Using Methodology Box-Jenkins Model for Time Series

منى اسماعيل الياس ماجستير رياضيات /جامعة بغداد / علوم بنات

Abstract

This paper aims at analyzing six time series as to forecasting the number of private secondary schools (girls, boys) ,teachers, (male, female), and students(girls, boys) in the Karkh-2 Education Directorate for the next ten years (up to the 2028-2029 academic year) . In order to find a suitable model for the Six Time Series based on the annual statistics of the Karkh-2 Directorate that are accredited by the ministry of Education, the Box-Jenkins model(ARIMA samples) was employed to analyses

The data using GRETL program of auto-correlation function and partial correlation function. It was that the Six Time Series are unstable. The auto and partial correlation coefficients were calculated after taking the differences into consideration as well as the many possible options for these samples. To select the best model, three criteria were used (MAE, MAPE, RMSE). The ARIMA model (p, d, q) was found to be the most suitable one with different values for (p, d, q) in the six time series . The research findings reveal that the number of private secondary schools (girls, boys) ,teachers, (male, female)), and students(girls, boys) in the Karkh-2 Education Directorate will increase up to the -2029 academic year.

Variable selection in count regression model using chaotic particle swarm optimization algorithm

Mazin M. Alanaza

Department of Operation Research and Intelligence Techniques, University of Mosul, Iraq.

Zakariya Yahya Algamal

Department of Statistics and Informatics, University of Mosul, Iraq.

E-mail address: zakariya.algamal@uomosul.edu.iq

Abstract

Variable selection is a very helpful procedure for improving computational speed and prediction accuracy by identifying the most important variables that related to the response variable. Count regression model has received much attention in several science fields in which the Poisson regression model is the most basic models. Particle swarm optimization algorithm (PSO) is one of the recently efficient proposed nature-inspired algorithms that can efficiently be employed for variable selection. In this work, chaotic PSO is proposed to perform variable selection for count regression model. Extensive simulation studies and two real data applications are conducted to evaluate the performance of the proposed method in terms of prediction accuracy and variable selection criteria. Further, its performance is compared with other methods. The results proved the efficiency of our proposed methods and it outperforms other popular methods.

Keyword: Variable selection; count data; Poisson regression; particle swarm optimization algorithm.

Classification of chronic kidney disease data via three algorithms

Ghalia Twfeek Basheer
Department of Operations Research and Intelligent Techniques, University of Mosul, Mosul, Iraq
E-mail: ghalia.twfeek@uomosul.edu.iq

Shaimaa Waleed Mahmood *
Department of Statistics and Informatics, University of Mosul, Mosul, Iraq
E-mail: sh_redrose.2008@yahoo.com

Zakariya Yahya Algamal **
Department of Statistics and Informatics, University of Mosul, Mosul, Iraq
E-mail: zakariya.algamal@uomosul.edu.iq
ORCID: 0000-0002-0229-7958

**Corresponding Author
Zakariya Yahya Algamal
E-mail: zakariya.algamal@uomosul.edu.iq
Telephone number: +964 7701640834

Abstract

Pattern recognition can be defined as the classification of data based on knowledge already gained or on statistical information extracted from patterns. The classification of objects is important area for research and application in a variety of fields. In this paper, k-Nearest Neighbor, Fuzzy k-Nearest Neighbor and Modified k-Nearest Neighbor algorithms are used to classify of the chronic kidney disease (CKD) data with different choices of value k. The experiment results prove that the Fuzzy k-Nearest Neighbor and Modified k-Nearest Neighbor algorithms are very effective for classifing CKD data with high classification accuracy .

Keyword: Chronic kidney; k-Nearest Neighbor; Fuzzy k-NN; Modified k-NN, Classification.

Using some types of Brownian Motion in the Vasciek Interested Rate Process with application

Muhannad F. Al-Saadony Walaa J. Al-obaidi

Al-Qadisiyah University, Iraq

Abstract

A Brownian motion is a continuous space and continuous time stochastic process. The Vasicek Interest Rate model is the popular stochastic differential equation, which measures the evolution of interest rate. Our motivation is to implement some types of Brownian motion to show how the Vasicek Interest Rate process behavior through the simulation and real data. So, our aim is to study and analyse the Vasciek Interest Rate process driven by some types of Brownian motion (Brownian motion, Levy process and Fractional Levy process), then choose the best types of them. We will use the simulation and real data to implement our process.

Keywords: *Vasciek Interest Rate process, Some types of Brownian motion,*

Numerical Solution of Stochastic Heat Equation

Nasir A. Nasr
Msc student in Statistics

Dr. Muhannad Al-Saadony
Assist. Prof. in Statistics department

Abstract

This paper will show some numerical methods to solve the stochastic heat equation driven by (Brownian motion, Brownian bridge and Reflected Brownian motion) . The numerical scheme is based on a representation of the solution of the equation involving a stochastic part arising from the noise and a deterministic partial differential equation . We will apply our methods using daily temperatures of three regions in Iraq for the year 2018.

GOODNESS OF FIT APPROACH FOR TESTING EXPONENTIAL BETTER THAN USED IN CONVEX FOR LIFE DISTRIBUTIONS

By

Gorgees Shaheed Mohammad

AL -Qadisiya University ,College of Education ,Department of mathematics,

Abstract

Test statistic is derived for testing exponentially against exponential better (worse) than used in convex EBUC (EWUC). Selected critical values are tabulated for sample size n =5(1)25(5)50. The Power calculations of the test are simulated for some commonly used distributions in reliability. The pitman asymptotic relative efficiency based on other classes are studied. An example of 40 patients of blood cancer disease demonstrates the practical application of the proposed test in medical sciences.

Key Words and Phrases: Asymptotic normality, asymptotic efficiency critical values, life distribution classes, convex ordering, EBUC, EWUC, power of the test, product limit estimator, goodness of fit test.

Extensions on Epsilon-Skew Generalized Error Density

Dr. Ahmad Naeem Flaih

Statistics Department

Dr.Kareem Salem Hussain

Economics Department

University of Al-Qadisiyah

Abstract

Practical applied statistics reveals that the analysis of many real data that exhibit both fat-tailness and skewness indicates significant departures from normality assumptions. In these circumstances the adoption of more flexible models that cope with near normal data may be appropriate in place of adopt the robust approach, semiparametric or nonparametric models, and Box-Cox transformation. An alternative approach is to consider using the Epsilon Skew Generalized Error (ESGE) is a special case of Skewed Generalized T (GT) distribution proposed by Theodossiou (1998) which is embeds the normal, fat-tailness, and skewness distributions as special cases. We consider extensions based on the ESGE family and apply the area under receiver operating characteristic curve, Tobit (censored regression) model