

THE 5th INTERNATIONAL
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(IDS -2022)

The 5th International Conference on Intelligent Decision Science (IDS -2022)

THE BOOK OF ABSTRACTS

Editors:

Prof. Tofiq Allahviranloo
Dr. Amir Seyyedabbasi



INTERNATIONAL CONFERENCE ON
INTELLIGENT DECISION SCIENCE

**The 5th International Conference on Intelligent
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**ISTINYE UNIVERSTY
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Istanbul, TURKEY
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KEYNOTE SPEAKERS

▪ **Prof. Irina Perfilieva**

Ostrava University, Czech Republic.

Speech Title: Fuzzy transforms in numerical analysis
and solution of differential equations

▪ **Prof. Mehran Mazandarani**

Shenzhen University, China.

Speech Title: An outline of Fractional Fuzzy Inference
Systems: A new branch of fuzzy systems

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SPEECHES

Analysis of Fuzzy Radial Basis Functions Interpolation by Z-Numbers

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Choice of shape parameter is a challenge that researchers working with Radial Basis Function (RBF) interpolation always face. In this paper, using the concept of Z-numbers introduced by Zadeh, examine the selection challenge shape parameter and the impact of this selection on accuracy of RBF interpolation. Basically, the concept of a Z-number relates to the issue of reliability of information. In choosing and making decisions based on information as a linguistic variable, it is very important to have confidence in our decision and to be able to examine the results of that decision. In this paper, we first, getting the idea of Zadeh introduced, that means the idea of a Z-number associated with an uncertain variable V , and by denote to properties of Z-numbers, we analysis choosing of free shape parameter and accuracy of RBF interpolation and finally those certainty. In the follow, we formulate the linguistic variable about shape parameter and accuracy of RBF interpolation. Then with numerical result we show, make the decision about the value of this variable, how reliable.

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SPEECHES

Bounded Solution for Cauchy Singular Integral Equation of First Kind by Using a Rational Sequence Function

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In this paper we expand the unknown function of a Cauchy type integral equation of first kind as a linear combination of $1/t + 2$, $1/t + 3$, \dots , $1/t + n$ that is complete in $L^2[-1, 1]$. By using the mentioned basis we convert the integral equation into a equation with some unknown coefficients that can be found by using collocation points. Key words: Complete sequence, singular integral equation, Cauchy type integral equation, function expansion.



SPEECHES

Investment Possibility Set in Portfolio Optimzation

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In the investment policy, evaluation of portfolio performance provides necessary information for investors how effectively invest their money. For this purpose, the nonparametric data envelopment analysis (DEA) method is an appropriate tool to measure the performance. In this study, a technology set as the investment possibility set (IPS) is developed in portfolio like production possibility set in data envelopment analysis. In portfolio optimization, there are two important factors, the risk measure and the mean return. We prove that there exists a direct relationship between the risk measure and the mean return of assets. All points in IPS set are portfolios that we evaluate their performance. Each portfolio is considered as a decision making unit and, we set the risk measure, conditional value at risk as its only input and the mean return as the only output. Moreover, as returns distribution is skewed, leptokurtic and heavy tailed, we introduce a model in mean return-CVaR framework under Variance Gamma (VG) as a popular Lèvy process. Due to the fact that financial assets data may be negative, our model is based on range directional measure (RDM) model. Finally, we demonstrate the validity of our model in a real data set of several top technology companies in the stock market by estimation the VG parameters with moments estimation then simulate the factors by Monte Carlo method.

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SPEECHES

Prediction of Steel Failure in Construction Projects by Using Data Mining Methods

**Z.Fadhil and G.Ulutagay
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Risk detection is critical in the steel manufacturing industry since it can affect the industry's performance as well as the performance of NPP projects. Risk identification entails identifying potential threats to the production process and outcomes. The goal of risk identification is to establish a thorough list of risks based on occurrences that could cause, improve, prevent, degrade, accelerate, or delay the fulfillment of goals. The paper major goal is to design a risk management system for managing steel deformation in buildings. The algorithms show a good accuracy.

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SPEECHES

Prediction of Steel Failure in Construction Projects by Using Data Mining Method

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In this study, the cold start problem in recommendation systems has been solved in a way that can work efficiently in different sectors. As the newly registered user in the system increases the number of interactions over time, the recommendations of the most similar user in the system are used, taking into account the few interactions. In addition to solving the cold start problem with the what-if recommendation system developed, an algorithm has been obtained that will instantly affect the new interactions of users who have been interacting with the system for a long time. Thus, the system will be able to evaluate the last interactions of the user in online applications with a better time complexity instead of being trained with all the data from scratch. Consequently, a new recommendation system algorithm based on clustering, diversity and group voting has been developed, which prevents the recommendation system from constantly recommending the most frequently used ones without any serious loss of accuracy.

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SPEECHES

GoogleNet Framework Deep Model: Exploratory Implementation for Breast Cancer

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Machine learning is helping in early detection of breast cancer. Rapid advancement of machine learning and particularly deep learning leads to increase the interest of the medical imaging community in applying these techniques to improve the accuracy of cancer screening. In this work, the GoogleNet framework deep model is implemented to classify the breast lesions. The dataset used in this study is named Breast Ultrasound Images dataset (BUSI), Dataset splatted into training set and test set, with percentage of 80% and 20%, respectively. The implemented framework shows good performance on the testing set. With test dataset the model achieves a loss of 0.5885 and accuracy of 0.8235

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SPEECHES

Improved Cat Optimization Algorithm: New Metaheuristic algorithm for Solving Optimization Problems

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Solving complex problem is very challenging and takes enormous time for researchers. In this paper, we present a new swarm-based optimization algorithm, namely, Improved Cat Optimization Algorithm (ICOA). The proposed algorithm is derived using the behaviours of cats. The Special lifestyle of cats and their characteristics has been the main and important motivation to derive the optimization algorithm. The proposed algorithm is derived by using the cat behaviours of seeking and tracing. The improved version of the algorithm is compared with the Bat algorithm and particle swarm optimization. The result was tested using the Benchmark function. The experimental result shows the ICOA is better performance than BA and PSO.



SPEECHES

An Application of Neural Networks to Solve Differential Equation based Z-Process

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In this work, we utilize a modified neural network to introduce a new method for solving the differential equation with Z-number initial value estimation. The proposed method consists of a function evaluating Z-numbers, $ZT(t) = (AT(t), BT(t))$ where $AT(t)$ a constraint role while $BT(t)$ has the role of the reliability scale of $AT(t)$. To solve a differential equation based on the Z-numbers (ZDE), we rewrite the $ZT(t)$ function as

$ZT(t) = ((AT1(t), AT2(t)), BT(t))$. The generalized neural network consists of three layers. The first layer contains input, weights of the first layer and bias of the neural network. So that, the number of weights (Corresponding to the number of equations of the main problem) corresponds to the number of inputs. The second layer contains neurons and nonlinear transmission functions. The third layer, which is the same output layer, consists of an output, linear transmission functions and weights of the last layer. Note that an improved neural network inputs are real based on which its weights and outputs are Z-valuation. In this matter, in order to train the improved neural network, we consider the objective function of the neural network to be the same as the sum squared error function. We minimize the target function to obtain the weights of the neural network using an optimization technique. Finally, the value obtained from the proposed method converges to the value of the original solution. In order to prove that the proposed method is a suitable and practical method for the exact solution approximation, we present two numerical examples as well.

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SPEECHES

Analytical-Approximate Solution of Singular Integral Equation with Cauchy Kernel

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In this work we expand density function of the bounded solution of the Cauchy type singular integral equation of the first kind in two ways. First expansion is a Maclaurin series and second Taylor expansion at singular point x . By using these two expansions we found analytical solution of the Cauchy type singular integral equation of the first kind when right side function is a polynomial and approximate solution of the above equation when right side function is not polynomial. Uniform convergence results are established for both methods in the class of function $C^\infty[-1, 1]$. Numerical examples are shown for the validity of the method presented.

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SPEECHES

Fuzzy Fourier Sine Transform for Solution of Wave Equation

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In this paper, we introduce fuzzy Fourier Sine transform (FFST) decomposition as a novel approach to solve the wave equation under the fuzzy initial conditions. As the fuzzy transforms have already been proven to solve several problems in different fields, they encourage us to utilize them as a practical and appropriate way to solve the wave equation. The theorems and properties via their details have been demonstrated and then the efficiency of the proposed approach has been confirmed through solving several examples.

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SPEECHES

Radial Basis Functions for Numerical Solution of Stochastic Langevin Equations

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In this paper, we present a new technique for solving numerically Langevin equation based on Radial Basis Functions. Numerical simulations are presented to illustrate our mathematical findings.

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SPEECHES

On Categories Associated with L-valued Fuzzy Approximation Space

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this contribution, our motive is to unify the categories associated with L-valued fuzzy approximation spaces as a new category GLFRel of generalized L-valued fuzzy approximation spaces, whose morphisms are pairs of L-valued fuzzy relations. Specifically, categories of L-valued fuzzy (reflexive) approximation spaces, L-valued fuzzy pretopological spaces and L-valued fuzzy co-pretopological spaces with the morphisms as pairs of L-valued fuzzy relations between the underlying sets of corresponding objects have intriguing relationships with the category GLFRel. . . .

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SPEECHES

AutoFusion of Feature Pruning via Disciplined Convex Concave Programming

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Fusion of algorithms has recently taken attention in machine learning studies because of its power coming from community decision instead of single decision maker. One of the crucial questions in aggregation of algorithms is that which and how many models should be combined to achieve both best accuracy and low complexity. It is already known in machine learning that as the complexity of the model increases too much, prediction accuracy decreases. There is a trade off between these two features. In order to answer such questions, diversity notion gets involved to overall consensus models. It is also shown that diversity alone does not determine the best ensemble (fusion), so accuracy and diversity together has been taken into account recently in such problems. In this paper, we took in account of those two notions simultaneously so that number of algorithms and which algorithms should be in the ensemble are answered while solving feature selection problem. We have validated our algorithm on different domains of data sets which shows better prediction accuracy values than existing ensemble based feature selection methods.



SPEECHES

Application of Game ,theory on International Relations with a Look to I.R.Iran and Saudi Arabia

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This article examines the relations between Iran and Saudi Arabia after the reign of king Salman and we study major changes in the cabinet, including the Saudi Foreign Ministry and defense. And, using the game theory, we show that likely to be in war between Saudi Arabia and Iran on basis Saudi-Arab air and naval forces. And a ground attack can also take place from ISIL forces around the borders of Iran.

Most of them are Sunnis. Initially, we start with statement of the game Combat Death Hunting, We explore relations and goals between Iran and Saudi Arabia in the region. Then, the situation in Saudi Arabia in Syria, the war in Saudi Arabia and the situation in Saudi Arabia in Yemen. Finally, we look at the relationship between the two countries in the Middle East. Because of the war Iran's Saudi Arabia The whole Islamic world is weakened. Israel can easily reach its destination in the region, using this opportunity to attack Islamic countries like Lebanon, Syria and even Saudi Arabia. Iran uses Hezbollah to fight Israel, Saudi Arabia with Iran and, ultimately, Israel with Iran.

During this period, Iran is constantly seeking to negotiate and find common interests with Saudi Arabia, while Saudi Arabia constantly looking for non-cooperation with Iran. It is not interested in having common interests with Iran. Saudi Arabia seeks to persuade Iran to attack the military. Saudi Arabia continues the game before the completely lifting of Iran's sanctions by European and American nations and eventually a military strike against Iran will begin. There are reasons why the Iranians may be Inhibition in the region from Saudi Arabia, which could provide some attractions for attacking Iran in Saudi Arabia. In this article, we will also examine this charm and, using the game theory, we anticipate the probable time of Saudi invasion of Iran on 2018.

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SPEECHES

Step Size Control in The Runge-Kutta Method for Solving Chaotic Dynamical Systems by Using the Stochastic Arithmetic

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In the computer arithmetic, numerical algorithms that include a stepsize are affected by a global error, which consists of both truncation and round-off errors. In these algorithms as the stepsize decreases, the truncation error also decreases, but the round-off error may increase. The problem is now to find the stepsize which minimizes the global error. In this essay, by using the CESTAC3 method and the CADNA4 library based on the stochastic arithmetic, a procedure is proposed to control the stepsize for Runge-Kutta method of order 4 in solving chaotic dynamical systems. For this purpose, a theorem is proved to show the accuracy of the results. Some numerical experiments are given to show the effectiveness of the proposed procedure and advantages of using the stochastic arithmetic in place of the floating-point arithmetic.



SPEECHES

Impact of Training Scheme on Multi-Agent Deep Reinforcement Learning

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The training scheme is one of the fundamental impacts on multiagent reinforcement learning systems. In reinforcement learning, the agent interacts with the environment, saves its experiences, and learns from these experiences. When it comes to multi-agent systems, many agents interact at the same time competitively or cooperatively. Several challenges arise in the multiagent domain. The training of multiple agents has long been a computational challenge. This article provides a general comparison of the current development training schemes in the field of multi-agent systems. We aim to find the optimal scheme for training multi-agent deep reinforcement learning. We apply three different schemes with two main concepts: Centralized and Distributed. Experiments are conducted in traffic scenarios that require coordination of all autonomous vehicles to show the practical value of multi-agent systems and the impact of training schemes on the self-driving field. Results show that the hybrid model between centralized and distributed achieves the highest performance compared to the singular use of each concept



SPEECHES

A Comparison of Solutions of Fuzzy Linear System Using Different Fuzzy Differences

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This abstract comprises the following points:

Importance of system of linear equations: Many real-life applications are emerging from different areas of science and engineering, like electrical, civil, chemical, nutritional, social sciences, etc. These real-life applications can be modelled in the system of linear equations.

Importance of fuzzy: There may be a possibility of imprecision in creating such a model. The fuzzy setup gives a more realistic approach to handling such possibilistic uncertainty.

Fuzzy Computation: In fuzzy computation, the critical part is the fuzzy difference. How is the fuzzy difference defined in computing? The most popular differences are the Hukuhara, and Generalized Hukuhara differences.

New Idea: This chapter uses two different fuzzy differences to solve the system of fuzzy linear equations. The analytical fuzzy solution obtained using both differences is compared. This research also shows the existence and uniqueness of the fuzzy solution.



SPEECHES

Size and Shape Analysis of Soil Fine Particles by Static Image Processing Method

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The particle size distribution provides important information about other soil engineering properties. Finer particles are usually determined by classical sedimentation methods such as hydrometer or pipette. These methods are based on simplifying assumptions and despite operational complexities, the obtained results are not precise. In this time, the Image Processing Methods were used in different industries to obtain various information's about size distributions and particle shape analysis. The present research suggests the image processing method based on analysis of microscopic images of stable particles (static method) for determining the size and shape distribution of the fine-grained fraction of the soil. The images of fine-grained soil particles prepared with optical microscopes were analyzed to generate information about particle size and shape. By comparing gradation curves obtained with image processing and hydrometric methods, we found that there is more adaptation in the range of 40 to 70 microns of particle sizes. Investigations have shown that in this range, the shape of the particles have less diversity and are closer to the perfect sphere form. This study found that image processing, while reducing costs, could provide more comprehensive information and would be expected to be used in geotechnical laboratories.

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SPEECHES

Spectral Statistics of Financial Systems

**Amir Jalili, Hadi Sabri,
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Random matrix theory (RMT) is used to provide a measure of the chaoticity (q) of calculated results for the spectra for financial time series. The goal is to gain a better understanding of the internal dynamics in play; namely, whether it tracks with regular or irregular (chaotic) behavior as determined through an RMT analysis of financial spectra. In this work, the spectral statistics of financial data such as Apple and Tesla companies are considered by different statistical techniques within the nearest neighbor spacing distribution statistics. The Maximum Likelihood (ML) is employed to estimate the chaoticity degrees of considered systems with high precision. The significant reduction in uncertainties and also a deviation to regular dynamics for systems in which other estimation methods propose more chaotic behavior are interpreted in this approach. By employing the Machine Learning Estimation as a brilliant technique, the spectral statistics of different systems and also comparing the root mean square with KLD on level statistics are analyzed. The investigation of spectral statistics without restrictions caused by different distribution functions and also an exact description of different sequences are considered advantages of this technique. The Machine Learning Estimation suggests lower uncertainties even more than predictions of MLE-based results and also prepare an opportunity to describe the other limits of Random Matrix Theory.

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SPEECHES

Optimized Road Lane Detection Through a Combined Canny Edge Detection, Hough Transform, and Scaleable Region Masking Toward Autonomous Driving

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Nowadays, autonomous vehicles are developing rapidly toward facilitating human car driving. One of the main issues is road lane detection for a suitable guidance direction and car accident prevention. This paper aims to improve and optimize road line detection based on a combination of camera calibration, the Hough transform, and Canny edge detection. The video processing is implemented using the Open CV library with the novelty of having a scale able region masking. The aim of the study is to introduce automatic road lane detection techniques with the user's minimum manual intervention.

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SPEECHES

An Iterative Method for Solving Fuzzy Volterra Integral Equation with Piecewise Kernel

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The aim of this study is to prove the uniqueness of solution theorem and also the error estimation of fuzzy Volterra integral equation with piecewise kernel. The successive approximation method is applied. The importance of this problem is because of its special applications in energy storage systems and load leveling problem in fuzzy case

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SPEECHES

Towards The Theoretical Understanding Of Particle Swarm Optimization (PSO)

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Before introducing particle swarm intelligence, it is very important to have an idea about swarm intelligence. Swarm intelligence is the actually conjoint intellect of a group of the simple agent. The group coordinates a massive number of individual entities to work together by utilizing the self-organized collective behaviour of a group of social insects likes ants, bees and termites. The behaviour can be natural or artificial. A typical example of swarm intelligence is fish schooling, bird flocking, ant colonies and bee swarm and so on The most widely used and thriving optimization algorithm is particle swarm optimization algorithm (PSO) and Ant Colony Optimization (ACO). In PSO the particles are flying in multiple dimension space as well as adapting themselves according to the particle's individual state in every step corresponding to its own knowledge and considering the experience of neighbourhood towards an optimal solution followed by the whole swarm. This is the main reason for calling the PSO a swarm intelligence algorithm

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SPEECHES

Energy Management Of DC Powered Home Systems In Iraq

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Solar energy is mostly important forms of renewable energy, although equipment for exploiting this energy is still very expensive. One of the most important challenges facing solar energy systems is the ignorance of societies about the culture of renewable energy and the ways to benefit from it. The large number of energy conversion processes from one form to another is considered one of the most important causes of energy loss due to the low efficiency of the conversion circuits and the losses that caused by the conversion processes because of the switching operations and thermal loss of the switches. An electrical energy management system has been proposed for a house that is fed by a solar cell array independently of the grid, this house was fed with direct current in order to reduce energy conversion losses. The proposed house suits the climate of Iraq, which is often hot and dusty in many cases. The presence of alternating current loads was taken into consideration, so a high efficiency voltage source converter was added to supply these loads. The results of the system simulation, which was conducted using the MATLAB/SIMULINK program, showed a good performance and high efficiency in the process of exploiting solar energy.

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SPEECHES

New Method for Fuzzy Numbers Ranking using Hyperbolic Tangent Function and Mean Value

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In this paper, we propose a new method for ranking fuzzy numbers based on that of Hyperbolic Tangent function and mean value. Our proposed method was compared with some of the available methods. It was shown with an example that has the same results

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SPEECHES

On Some Integration Problems On Fuzzy Sets

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In the field of representation of spatial regions, we find an interesting area of application of fuzzy sets, since the properties of interest in connection with these regions are subject to errors and imprecision. Thus, the use of levels of precision is highly recommended for a better representation [6]. In the literature, we find different notions for integrals in the fuzzy context [12, 13, 15]. For the estimation of magnitudes related to regions with boundaries that are fuzzily established [2, 7, 9, 14], the development of notions of integrals over fuzzy sets is a relevant topic of study. Taking into account some notions presented in [5, 18], we give some extensions of the concept of integral of a real function to high-dimensional regions with fuzzy boundaries that are determined by the cartesian product of intervals delimited by fuzzy sets.

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SPEECHES

Performance Measures for Two Stage Tandem Queue Model Based On Fuzzy Structured Element

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This paper proposes a new approach for fuzzy two stage tandem queues with blocking models based on fuzzy structured Element theory. Two stage tandem queuing model consists two service stations in which, single server at each station with equal service rates. Due to the uncontrollable factors, both arrival pattern and service pattern of customers follow an exponential distribution with uncertain parameters which are represented by fuzzy structured element. The main feature of this model is to reduce the complexity of fuzzy arithmetic in tandem queue with the aid of fuzzy structured element. Numerical example is presented for all system characteristics with the help of MATLAB software to check the validity of the proposed method.



SPEECHES

Smart Waste Tire Management: Challenges, Trends, and Future Directions

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The vehicle population has grown significantly in recent decades, resulting in a significant increase in the number of waste tires globally. The environment and public health are seriously endangered by the growing amount of waste tires. As a result, considerable effort is being put into the search for viable alternatives for sustainable management. Even though numerous treatments for waste tires have already been tested and proved successful, their continued industrial implementation remains difficult in both everyday life and research efforts. Finding practical, cost-effective, and ecologically friendly ways to manage waste tires is one of the biggest environmental challenges of the 21st century. By focusing on smart tire waste management, this study examines some of the most important, financially viable challenges that support social and environmental sustainability. The main topics of this research are the examination of certain fundamental problems and challenges, as well as some key management strategies for this environmentally unfavorable type of increasing waste. This comprehensive analysis not only identifies significant gaps but also establishes the foundation for addressing some of the most significant issues in waste tire management by providing recommendations for further research in this important and vulnerable area of academic and practical analysis.

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SPEECHES

A Model For Detecting Covid-19 From CT Scan Images Using Deep Learning

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Diagnosis of covid-19 using deep learning on CT scan images can play an important role in helping doctors. In this research, deep transfer learning is used, using the architecture of EfficientNet-B2 and ViT_L_32 neural networks as a base, and by combining these models, the proposed model is built. For evaluation, the con-fusion matrix, precision, accuracy, recall, and F1 score were used. The test results are 0.9838 for validation accuracy, 0.9667 for test accuracy, and 0.9839 for overall accuracy.

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SPEECHES

Predicting Stock Market by Sentiment Analysis and Deep Learning

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The stock market may be unpredictable; understanding when to purchase and sell can greatly assist businesses and individuals in maximizing profits and minimizing losses. Many businesses have previously modified time-series analysis, a data mining technique, to forecast stock price movement. The idea of textual data mining has recently come up in debates about stock market forecasts. In this study, five of the largest firms' historical stock prices were used to train two deep learning models—Long Short-Term Memory (LSTM) and One-Dimensional Convolutional Neural Network (1D CNN)—and then the results of all the models were compared. In order to connect price value fluctuations with the general public, sentiment scores were offered in addition to stock price values by employing natural language processing techniques (TextBlob) to tweets.

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SPEECHES

A computational Iterative Scheme to Solve Nonlinear Fuzzy Volterra-Hammerstein Integral Equations Via Block-Pulse Functions

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In this study, an iterative method has been applied along with block-pulse functions to solve fuzzy Volterra integral equations. In order to establish the applicability and efficiency of the proposed technique, convergence analysis has been provided. An illustrative numerical example is included to indicate the validity of the method and confirm the theoretical result. Numerical calculation in this research has been performed on a personal computer by implementing a program written in Matlab.

The 5th International
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SPEECHES

Common Fixed Point Theorems in Fuzzy Banach Space Using Common Limit Range Property

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The target of this paper is to prove common fixed point theorem using common limit range property in Fuzzy Banach Space. The target of this paper is to improve the role of Common Limit Range Property in the existence of common fixed points and prove our main results for the pair of weak compatible mappings along with Common Limit Range Property.

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SPEECHES

Estimating the Growth or Depreciation on Exchange Rates by Using Sentiment Analysis Method from Social Media Comments

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With the development of the internet and the increase in social media platforms such as Facebook, Twitter, LinkedIn, these platforms have begun to affect every aspect of our lives. According to research by Adobe Creative Cloud Express (2021), Twitter is the fourth most used social media platform in the world, with an average of 300 million monthly users. It continues to be used more especially in the fields of news, business, finance and politics. The global quarantine process, which started with the Covid pandemic period in November 2019, increased the use of the internet and social media. Due to this situation, global economic crises and economic fluctuations began to make themselves felt. While economic fluctuations caused depreciation in various currencies, exchange rates based on export economy started to gain value. In this study, using machine learning algorithms, the changes in the Russian ruble (RUB), British pound (GBP), euro (EUR) and Turkish lira (TRY) for the January 2021 period were analyzed using social media data. Exchange rate data were obtained using the exchange rate search, query and reporting tool provided by the International Monetary Fund portal. Together with modern time series algorithms such as long short-term memory (LSTM), regenerative neural networks (RNN) and gated recursive unit (GRU), Naive Bayes, K nearest neighbor (KNN), decision tree classifier, random forest classifier, logistic regression Social media data was analyzed for the change in exchange rate using tradims such as multilayer perceptrons (MLP) and AdaBoost classifier.



SPEECHES

Analyzing Wind Turbine Efficiency with Fuzzy Inference System

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Energy can be defined as the ability to do work in a system. It has forms such as electrical energy, mechanical energy, chemical energy according to the usage area. Energy is obtained by transforming resources. Some of these resources are renewable whereas others are consumable. Solar, wind, and hydro are examples for renewable resources whereas nuclear and fossil fuels are consumable resources. Consumable resources are limited and their transformation to energy generates waste and pollution. Civilizations mostly relied on consumable resources until recently. It has been predicted that these resources are about to vanish. Therefore, human beings have to turn to clean and renewable energy sources without waiting for the fossil fuel reserves to run out. Renewable energy sources such as sun, wind, water, and biomass, which are unlimited, have been started to gain importance. The research and development studies of giant oil companies, which are aware of this fact, focus entirely on developing these technologies. Consequently, in the very near future, the cost-efficiency of alternative energy source systems will catch up with conventional energy systems. Therefore, the focus in the relevant field is on evaluation of efficiency of energy systems. In this study, we aim to analyze the efficiency of the wind turbines with the fuzzy inference system (FIS). The drivers which affects the efficiency of turbine will be used as the input of the FIS. Fuzzy logic, by its nature, creates the possibility of modeling on undefined data. Fuzzy techniques in the form of approximate reasoning provide decision support and expert systems with strong reasoning capabilities. We first introduce a model for the efficiency of the system under consideration, and then we illustrate the methodology through a numerical study. Speed-length of wind, length of blades, arrangement of the turbines in the farm will be the main inputs of the study as efficiency affected factors. Our findings are going to make a contribution to any decision making process which is related to wind turbine efficiency such as deciding location of wind turbine.

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SPEECHES

Smart City Station

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Smart City Stations is a discovery that helps us to improve the way such as, air quality and noise through use of sensors and others. Smart stations make the city more efficient, improve security for citizens and increase revenue. Smart City Station is a new technology revolution that connects everyday life to the internet. A new future shares various information and communication technology (IoT) and the internet in order to improve everyday life. This project uses sensors in order to predict the weather or share multiple information for everyone to reach. There are many advantages of a smart city, including speed in providing citizens with information, warning of a dust storm or rain, improving quality and reducing costs