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Author(s): Mafas Raheem

Title of the Article: Deep Neural Network to Predict Diabetes: A Data Science Approach

Abstract: Diabetes has become a famous and lethal disease among the low and medium-income countries. People could not overcome this deadly abnormal condition due to the current lifestyle, food habit and the genetic transmittance. Medical practitioners provide advice to prevent the diabetic condition and medications to control as this disease does not have a permanent cure. However, the detection of the disease is being a tidy process and deployment of machine learning predictive models to conduct smart diagnosis/detection is vital in the healthcare domain nowadays. Though several machine learning models were built in this regard, deploying a Deep Neural Network seems less focused. Therefore, a Deep Neural Network model was built with the support of complete preprocessing, class balancing, normalization, feature selection process and hyper-parameter tuning using the cross-validated searching technique. The model achieved 88% of accuracy and 0.88 ROC score and standing out as a promising predictive model in diagnosing/detecting diabetes.

Keywords: Diabetes, Healthcare, Predictive Modelling, Deep Neural Network, Optimization.

References:

Author(s): Retikal Anil Kumar

Title of the Article: Complicity of High-End SOC-FPGA’s for Data Centers

Abstract: As the network traffic increasing significantly due to increase in Data streaming, Big Data Analytics, Cloud Computing, Increasing the load on Data Centers, Which leads to demand for high computational capabilities, low latency, high-bandwidth, power efficient data accelerators. As Re-Configurability of FPGA’s are more flexible for developing customized applications, so the FPGA hardware based data accelerators are the potential devices to achieve low latency and power efficient requirements. The modern FPGA’s are coming up with the embedded communication hard IP’s like PCIe, Ethernet, & DDR based memory controllers, which makes easy for the deployment of network attached FPGA’s in data centers. This paper presents the role of FPGA’s in datacenters and analysis of high-end FPGA’s by various vendors, which are suitable for deployment in data centers.

Keywords: ASIC, Data Center, FPGA, Re-Configurable Logic, EFPGA, Big Data Analytics, Cloud Computing.

References:
Author(s): F Runi Asmaranto, Dian Sisinggih, Ridho Nur Aziz Rastanto

Title of the Article: Fluctuation Effect of Reservoir Water Level on the Seepage of Earth-Fill Dam

Abstract: Lots of dam failures are the result of uncontrolled seepage. The collapse of the Situ Gintung Dam in Tangerang, Banten-Indonesia in 2009 due to heavy rains caused the dam structure to collapse. This is due to increased pore water pressure in the landfill. To anticipate collapse due to uncontrolled seepage, it is necessary to monitor it based on the behavior of changes in rainfall and reservoir water levels. Seepage within the dam body is often monitored using instrumentation tools such as standpipe piezometer (standpipe piezometer) or electric piezometer. But often the piezometer cannot work properly because it is clogged, so it cannot monitor the condition of the seepage. Other instrumentations such as V-Notch are also used to measure seepage discharge. This study aims to determine the behavior of changes in the reservoir water level caused by changes in rainfall and its effect on body seepage of the earth-fill Type dam. By knowing the phenomenon of the behavior of the relationship between reservoir water infiltration and rainfall, it will obtain information on rainfall that endangers the dam which will affect the downstream. In this study, a case study of the Selorejo Dam was taken which has a large enough reservoir capacity of about 31 million m3 which is included in the Brantas River Basin. The results showed that 5 piezometers devices were damaged (SL 1, SL 2, SL 4, SL 6, and SL 7) where they could not read the phreatic water level properly, and 2 piezometers were less sensitive to reading fluctuations in reservoir water levels. namely SL 10 and SL 11 which showed R2 values of 29.78% and 39.4%, respectively. While the maximum seepage discharge is recorded at 1474 liters/minute, this is still below the critical discharge of 1630 liters/minute allowed for this dam, but this needs to be a concern, especially the discharge from toe drain from the left side seepage and C-area which is the leakage from the left support pedestal also contributes a larger discharge than other observation points.

Keywords: Ngancar Reservoir, Erosion And Sedimentation.

References:
Title of the Article: Advanced Lecture for PID Controller of Nonlinear System in Python

Abstract: PID controller is very well known in engineering areas and it has a long history. So, there are many materials such as control knowhow for application, research paper, tuning method proven through a long history. It is important to have an advanced lecture for design and tuning as much as development. However, it is very difficult to find for teaching knowhow. Current teaching style is implementation by MATLAB. However, MATLAB S/W is quite expensive as commercial based business focusing S/W. Advanced country or rich institute can provide site license. However, it is impossible for under developing country or small institute that cannot ready because of price. So, we must find alternative S/W to teach and research for implementation. Currently, many are interested in Python because it is open source and huge communities. This paper provides teaching experience of PID controller to nonlinear system to share knowhow and develop teaching method for teacher and students, effectively.

Keywords: About PID Tuning, Python, Nonlinear Control, Control Lecture.

References:
2. https://www.educba.com/software-development/courses/?source=footer
Tensor Data Imputation by PARAFAC with Updated Chaotic Biases by Adam Optimizer

Abstract: The big data pattern analysis suffers from incorrect responses due to missing data entries in the real world. Data collected for digital movie platforms like Netflix and intelligent transportation systems is Spatio-temporal data. Extracting the latent and explicit features from this data is a challenge. We present the high dimensional data imputation problem as a higher-order tensor decomposition. The regularized and biased PARAFAC decomposition is proposed to generate the missing data entries. The biases are created and updated by a chaotic exponential factor in Adam's optimization, which reduces the imputation error. This chaotic perturbed exponentially update in the learning rate replaces the fixed learning rate in the bias update by Adam optimization. The idea has experimented with Netflix and traffic datasets from Guangzhou, China.

Keywords: Tensor decomposition, PARAFAC, Adam optimization, Data imputation, etc.

References:
15. Ying Hu, Changjun Hu, Shushen Fu, Peng Shi and Bowen Ning, “Predicting the Popularity of Viral Topics Based on Time Series Forecasting”, Volume 210, 2016, pp 56-65
Title of the Article: An Optimization of Feature Selection for Classification using Bat Algorithm

Abstract: Data mining is the action of searching the large existing database in order to get new and best information. It plays a major and vital role now-a-days in all sorts of fields like Medical, Engineering, Banking, Education and Fraud detection. In this paper Feature selection which is a part of Data mining is performed to do classification. The role of feature selection is in the context of deep learning and how it is related to feature engineering. Feature selection is a preprocessing technique which selects the appropriate features from the data set to get the accurate result and outcome for the classification. Nature-inspired Optimization algorithms like Ant colony, Firefly, Cuckoo Search and Harmony Search showed better performance by giving the best accuracy rate with less number of features selected and also fine f-Measure value is noted. These algorithms are used to perform classification that accurately predicts the target class for each case in the data set. We propose a technique to get the optimized feature selection to perform classification using Meta Heuristic algorithms. We applied new and recent advanced optimized algorithm named Bat algorithm on UCI datasets that showed comparatively equal results with best performed existing firefly but with less number of features selected. The work is implemented using JAVA and the Medical dataset (UCI) has been used. These datasets were chosen due to nominal class features. The number of attributes, instances and classes varies from chosen dataset to represent different combinations. Classification is done using J48 classifier in WEKA tool. We demonstrate the comparative results of the presently used algorithms with the existing algorithms thoroughly.

Keywords: Optimization, Meta-Heuristic, Feature Extraction, Deep Learning.

References:
10. Xin-She Yang, Suash Deb, “Cuckoo Search Via Levy Flights”, World Congress On Nature and Biologically Inspired Computing (NaBIC 2009)
Author(s): Farisa T S, Elizabeth Isaac

Title of the Article: Sequence Based DNA-Binding Protein Prediction

Abstract: Protein and DNA have vital role in our biological processes. For accurately predicting DNA binding protein, develop a new sequence based prediction method from the protein sequence. Sequence based method only considers the protein sequence information as input. For accurately predicting DBP, first develop a reliable benchmark data set from the protein data bank. Second, using Amino Acid Composition (AAC), Position Specific Scoring Matrix (PSSM), Predicted Solvent Accessibility (PSA), and Predicted Probabilities of DNA-Binding Sites (PDBS) to produce four specific protein sequence baselines. Using a differential evolution algorithm, weights of the properties are taught. Based on those attained properties, merge the characteristics with weights to create an original super feature. And tensor-flow is used to paralyze the weights. A suitable feature selection algorithm of tensor flow’s binary classifier is used to extract the excellent subset from weighted feature vector. The training sample set is obtained in the training process, after generating final features. The classification is learned through the support vector machine and the tensor flow. And the output is measured using a tensor surface. The choice is done on the basis of threshold of likelihood and protein with above-threshold chance is considered to be DBP and others are non-DBP.

Keywords: AAC, DBP, PSA, PSSM.

References:

Author(s): Matius Irsan Kasau, ST. Aminah Dinayati Ghani

Title of the Article: Discovery of New Theory Analysis of Equilibrium Point Population Versus Food on Theory of Thomas Robert Malthus and Its Development (Case Study of Indonesia)

Abstract: The future of humans on this tiny planet earth has entered a grim beginning in the midst of rapidly growing technological progress. How not, human life whose population is growing fast is not comparable to food as a source of life that grows slowly. This study aims to calculate the cross point or equilibrium point between population and food using the population series and food series of Thomas Robert Malthus original and the results of its development by Matius Irsan Kasau. The data and methods used are types of secondary data sourced from the Indonesian Central Statistics Agency (BPS), which is processed by a mathematical method that compares the population with food in each series. The results of research with Indonesian data in 2010 showed that for the original Malthus theory with the number of children on average per couple of 4 people, the distance between generations 25 years, 75 years of life expectancy, population 237 million, food 66.5 million tons obtained equilibrium point occurred in 2085, namely in the third generation. As for Malthus's theory of development results with an average number of children of 2.6 people, a distance between 23 years generation, and 69 years of life expectancy, the equilibrium point was obtained in 2171, namely the seventh generation of the current generation.

Keywords: Cross Point, Equilibrium Point, Malthus, Matius.

References:
The Role of Bismuth on the Best Red Light Emitting Nanophosphors

Abstract: This paper explains the role of bismuth in the luminescence enhancement of Y2O3:Eu nanophosphors prepared by Combustion method. Bi ions serve as effective sensitizers for visible emitting rare earths for Light Emitting Diodes. From the X-ray diffraction studies, bismuth co-activated nanophosphors exhibit an early crystallization. Bismuth incorporation not only results in the luminescence enhancement at 612 nm, due to 5D0 to 7F2 transition but also reduces the processing temperature for intense photoemission.

Keywords: Bismuth, Doping, Luminescence, Nanophosphor.

References:
Title of the Article: Luminescence Study of Red Light Emitting Y2O3:Sm3+ Nanophosphors and Enhancement by Co-doping with Gadolinium oxide.

Abstract: This work presents the optical and structural properties of samarium oxide doped and gadolinium oxide co-doped yttrium oxide nanophosphors prepared by Combustion method. The photoluminescence emission intensity was maximum for 2wt% Sm3+ doped Y2O3 powders, that results 4G5/2 -6H7/2 transition within Samarium, emits red light at 608 nm under the excitation of 260 nm. In the case of co-dopant, maximum intensity is obtained for 3wt% Gd3+ under the excitation of 255 nm. The Y:Sm:Gd exhibit luminescence intensity of 4.21 times more than that of Y:Sm nanophosphors. These results indicate that the prepared nanophosphors can be used in optoelectronic devices.

Keywords: Bandgap, Co-Doping, Energy Transfer, Nanophosphor.

References:


Author(s): Anjali Jain, Agya Mishra

Title of the Article: Design of IoT based Real-Time Bus Tracking App using HF-RFID

Abstract: Public Transportation is the main means of Bus among people. A recent survey by the National Sample Survey Organization says that about 62-66% of people use the bus as their mode of transport. Public Bus tracking system aims at providing the instant status of the bus to the users via a web or mobile application. This work describes a design of IoT enabled real time bus tracking system. In this work a bus tracking mobile app is developed, using that people can easily locate the bus status and time to bus arrival at bus-stop. This work uses high frequency RFID tags at buses and RFID receivers at bus-stops and with NodeMCU real time RFID tagging (bus running) information is collected and uploaded on cloud. Users can access the bus running and status from cloud on mobile app in real time.

Keywords: Internet on Things, UHF-RFID, Bus-monitoring, NodeMCU, Blynk cloud, FAR, FRR.

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11. Leeza Singla, Dr Parteek Bhatia "GPS Based Bus Tracking System" IEEE International Conference on Computer, Communication and Control (IC4-2015).


Author(s): Salim Raza Qureshi

Title of the Article: An Enhanced Framework To Secure Big Data Based on Hybrid Machine Learning Technique:ANN-PSO

Abstract: With the advancement of smart devices and cloud computing, more and more public health data can be collected from various sources and analyzed in unprecedented ways. The enormous social and academic impact of this development has led to a global buzz for bigdata. Moreover, due to the massive data source, the security of big data in the cloud is becoming an important issue. In these days, various issues have arisen in the field of big data security, such as Infrastructure security, data confidentiality, data management and data integrity. In this paper, we propose a novel technique based on Artificial Neural Network-and Particle Swarm Optimization Algorithm (ANN-PSO) for enabling a highly secured framework. The ANN-PSO method was created to predict health status from a database and its functions were selected from these data sets. The particle swarm optimization algorithm matches the ANN for better results by reducing errors. The results show the potential of the ANN-PSO-based methodology for satisfactory health prediction results. This proposed approach will be tested using large medical data in a Hadoop environment. The proposed work will be carried out in the JAVA work phase.

Keywords: ANN-PSO, Accuracy, Classifier, Error,GOA, Health condition.

References:
2. DongxiaoGu,Jingjing Li, XingguoLi,Changyong Liang,” Visualizing the knowledge structure and evolution of big data research in healthcare informatics”, International Journal of Medical Informatics, Volume 98, Pages 22-32, 2017
16. Liqiang Nie, Meng Wang, Luming Zhang, Shuicheng Yan, Bo Zhang, Tat-Seng Chua,” Disease Inference from Health-Related Questions via Sparse Deep Learning”, IEEE Transactions on Knowledge and Data Engineering, Volume: 27, Issue: 8, 2015
Title of the Article: Crop Yield Prediction using Granular SVM

Abstract: Agriculture is the backbone of the Indian economy. Farming is a major source of income for many people in developing countries. Prediction of yield of crops is desirable as it can predict the income and minimise losses for the farmers under unfavorable conditions. But predicting crop yield is a challenging task in developing countries like India. Conventionally, crop yield prediction is done using farmer’s expertise. The sustainability and productivity of a crop growing area are dependent on suitable climatic, soil, and biological conditions. So, data mining techniques based on neural networks, Neuro-Fuzzy Inference Systems, Fuzzy Logic, SMO, and Multi Linear Regression can be used for prediction. Previous work has performed yield prediction based on crop models considering only some of the environmental factors. This work uses a Support Vector Machine (SVM) to predict the crop yield under different environmental conditions that include soil, climate, and biological factors. Applying granular computing enables dividing the problem space into a sequence of subtasks. So, the hyperplane construction of SVM can be parallelized by splitting the problem space. Testing can also be parallelized. The main advantage is that linear SVM can be used to handle higher dimension space. Time complexity is reduced. Prediction using granular SVM can be parallelized using appropriate techniques like MapReduce/GPGPU. IoT-based agriculture increases crop yield by accurate prediction, automation, remote monitoring, and reducing wastage of resources. IoT-based monitoring systems can be used by farmers, researchers, and government officials to analyze crop environments and statistical information to predict crop yield. This paper proposes an IoT-based system to predict crop yield based on climatic, soil, and biological factors using parallelized granular support vector machines.

Keywords: Yield Prediction, SMO, Granular Support Vector Machines, MapReduce, GPGPU, IoT, Automation, Remote monitoring.

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Author(s): Soumi Ghosh, Devanshu Tyagi, Daksh Vashisht, Abhishek Yadav, Dharmendra Rajput

Title of the Article: A Comprehensive Survey of Personalized Music Identifier System

Abstract: Music occupies a very important space in the heart and life of common people and it is rather subjective and universal nature indeed. Music Identifier System is obviously concerned with providing a very meaningful and personalized recommendation of items i.e. songs, music, playlist according to the mood, emotion, interest and preference of the users or listeners. With the advancement of technologies, rapid development of internet, it has become very common to use the streaming services to listen and enjoy music or songs in more convenient ways. In this paper, an attempt has been made to perform a comparative analysis, systematic research, empirical thorough review on various approaches or strategies proposed and applied by different researchers in the task of designing an effective system for music identification or recommendation. The basic theme of the paper includes music identifier system, its components, and different features along with emphasize on the methods, metrics, general framework and state-of-art strategies proposed during the last two decades or so, have been empirically reviewed. The existing studies were found lacking with systematic research work on the behaviour, requirements and preferences of the users plus poor level of extraction of features and limitations in the area of evaluation of performance of the music identifier systems. Although, the study reveals that systems based on effective, social information, emotional-trait, content, context and knowledge have been widely applied and improved the quality of identification or recommendation of music to a large extent but still it is not enough. In future, more in-depth studies or research work need to be conducted based on enlarging the scope of further development of personalized contextual awareness based music identifier system and generating a continuous and automatic top playlist of music and songs with added tracks matching with profile, mood, emotional traits, and behaviour of the user in a mobile environment.

Keywords: About four key words or phrases in alphabetical order, separated by commas.

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Title of the Article: Evaluating Quality - Measures to Improve NAAC Ranking for Higher Education Institutes

Abstract: Quality in education is imperative and thus it is a matter of great concern for the universities, colleges and institutions to maintain it. There are varied criteria to measure quality and methods to improve it with time. A lot of Higher Education Institutions (HEI) offer courses across streams for the students to pursue. The success of an educational institute depends on the quality of education. Educationalists, policy makers, researchers and scholars across the world are working towards quality management for continuous improvement, student/faculty satisfaction and institutional excellence. The National Assessment and Accreditation Council, NAAC, an autonomous institution has been established by the University Grants Commission with the prime agenda of assessing and accrediting Higher Education Institutes (HEI), facilitating them to work continuously towards improving the quality of education. The assessment process is carried out in three stages, which comprises of, viz., Self Study Report (SSR), Student Satisfaction Survey and the Peer Team Report. In the NAAC’s Self study report seven criterion are used for assessment; among all, criteria II: Teaching, Learning and Evaluation carry a major weightage of 350 points. In this paper, we will be briefly discussing the quality measures that can be taken up by any HEI regarding Teaching, Learning and Evaluation methodologies to improve upon its overall score and ranking. A survey was also conducted amongst graduation level students from various universities asking them multiple research questions related to measures that can be taken up by the colleges to improve quality in teaching, learning and evaluation.

Keywords: NAAC, HEI, Criteria, Key Indicators, Quantitative Measures, Teaching, Learning, Qualitative Measures, Higher Education, Accreditation, A&A.

References:

Author(s): Ali N Alzaed

Title of the Article: The Impacts of Orientation and Building form on Internal Temperature of Visitor Center Building for Moderate and Hot Climate

Abstract: Passive building strategies such as building form, orientation and window ratio can have an essential impact on the indoor temperature. Building form and orientation can obtain heat gains. The designer usually designs buildings with little consideration of heat gains. This study pointed to the influence of building form and orientation in internal temperature in moderate and hot climates. In the present paper, the impact of building orientation on the indoor thermal comfort conditions expressed in terms of internal temperature is numerically investigated. This is motivated by required achievement of the thermal comfort conditions in such buildings located on hot climate regions. Moreover, the moderate climate regions are also incorporated in the present study. The numerical simulation is carried out using the TAS EDSL software to assess the optimum form model for a prefab visitor center. The result, in a moderate climate, showed that the ideal direction was obtained when the visitor center faces the south direction. Different models for building orientations have been studied and the results are presented. The results should that the internal temperature was 37.85°C for the currently model orientation and 37.71°C for the other model (known as model D), where the external temperature was 37.90°C. The worst orientations were the west direction for the case study and the east for the D model. In terms of hot climate, the internal temperature decreased by 1.0°C when west-facing. However, models with openings decreased 0.5°C. There are other passive design strategies that can be installed to models which can lead to improving the thermal comfort. The strategies can be considered for further future research.

Keywords: Building Design In moderate climate, Internal Temperature, Orientation and Visitor Center Building form.

References:

Author(s): Sadashiva M, M. Yunus Sheikh, Nouman Khan, Ramesh Kurbet, T.M.Deve Gowda

Title of the Article: A Review on Application of Shape Memory Alloys

Abstract: SMA has drawn massive interest and hobby in today’s years in a great form of an extensive sort of commercial applications, due to their precise and superior properties, this concern improvement has been bearing with the useful resource of way of improvement and carried out research studies. SMA can heal its original shape at a certain temperature even under maximum loads applied and huge inelastic deformation. In this overview, we describe the primary functions of SMAs, their constitutive models, and their features. We also explained various properties that help to build a device/system. These devices help in cueing health issues such as heart treatment emptying urine so on. SMA has important in reducing the vibration of structures by increasing damping of the materials and this has effective in energy dissipating comparing with other materials. In the aerospace industry wing aircraft, rotorcraft, spacecraft, and micro-electromechanical systems are made up of SMA. In the automobile sector, fuel injectors and thermal valves are constructed with SMA materials. Current work focuses on various applications and properties of SMA, in the field of Medical, Civil structure, Automobile, and Aerospace industry.

Keywords: Shape Memory, Pseudoelasticity, Stents, Catheter, Isolator, Hydroxyapatite, Multi-Functionality, Energy Dissipation.

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Title of the Article: Effect of Well-being on People Surrounding the Airport Corridor using Predictive Analysis on Road Accident Correlation

Abstract: Transportation demands in urban regions continue to upsurge due to population growth and travel modes’ alterations. Due to Bangalore airport location and improper road planning, there is an increase in the traffic volume, which leads to traffic congestion and road traffic accidents in the city. The present study analyses the effect of well-being on the airport corridor residents based on road traffic accidents, traffic volume, and road design. The study collected the traffic accident data from the Traffic Police department for the period from 2014-2015 to 2018-2019, and traffic volume data collected from Essel Devanahalli Tollway Pvt Ltd (EDTPL) for the similar period was analyzed. The study found a significant relationship between improper road planning, increased traffic volume, and road traffic accidents. The study could be used for road planning as well as better traffic management.

Keywords: Airport; Road Traffic Accident; Traffic Volume; Road Planning; Well-Being

References:
Title of the Article: Feasibility of Nitrate Removal using Hydroxylamine Hydrochloride from Sundarijal River Water through a Laboratory Scale

Abstract: Sundarijal River supply drinking water in Kathmandu city, Nepal and to study the nitrate concentration, 10 different sample from different locations of the Sundarijal River was taken. The method for the removal of presence nitrate in River was tested using hydroxylamine hydrochloride dose at 25±20C with 35 minutes contact time. Samples was tested for different dose of hydroxylamine hydrochloride and reduction of nitrate increase with increasing hydroxylamine hydrochloride dosages, up to certain limit. That mean with 0.5g, 0.6g and 0.8g dosages of hydroxylamine hydrochloride, reduction of nitrate was not observed when tested with 10mg/L, 50mg/L and 100mg/L river water, orderly. This tested samples shows the feasibility of nitrate removal from River water, Sundarijal.

Keywords: Kinetic Study; Thermodynamic Parameters; Intraparticle Diffusion; Breakthrough Analysis

References:
Abstract: The nature of electric force and unsettling influences happened in power signal has gotten a significant issue between the electric force providers & clients. For enhancing the force quality constant checking of force is required that is being conveyed at client's destinations. Thusly, recognition of “POWER QUALITY” aggravations, and appropriate characterization of “POWER QUALITY” D is profoundly attractive. The location and characterization of the “POWER QUALITY” D in appropriation frameworks are significant errands for insurance of force conveyed network. The majority of the unsettling influences are non-fixed and temporary in quality thus it needs progressed apparatuses and methods for the evaluation of “Power quality” unsettling influences. In this research a cross breed method is utilized for describing “POWER QUALITY” unsettling influences utilizing wavelet change and fluffy rationale. A no of “POWER QUALITY” is showed in this work before include extrication measure. Two unmistakable highlights basic to all “POWER QUALITY” unsettling influences as Energy and Total Harmonic Distortion (THD) are differently utilises discrete wavelet change and are taken care of as contributions to the fluffy master framework for exact location and order of different “POWER QUALITY” unsettling influences. The fluffy master framework characterizes the “POWER QUALITY” aggravations as well as shows whether the unsettling influence is unadulterated or accommodates music. A neural organization follow PQ Disturbance (“POWER QUALITY” D) location framework is included displayed executing many layer feed forward Neural Network ‘MFNN’. 

Keywords: Power Quality, Wavelet Transformation. Occurrence Power Quality 

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Author(s): Zain Ali, Bharat Lal Harijan, Tuyab Din Memon, Nazmus Nafi, Ubed-u-Rahman Memon

Title of the Article: Digital FIR Filter Design by PSO and its variants Attractive and Repulsive PSO(ARPSO) & Craziness based PSO(CRPSO)

Abstract: Digital filters play a major role in signal processing that are employed in many applications such as in control systems, audio or video processing systems, noise reduction applications and different systems for communication. In this regard, FIR filters are employed because of frequency stability and linearity in their phase response. FIR filter design requires multi-modal optimization problems. Therefore, PSO (Particle Swarm Optimization) algorithm and its variants are more adaptable techniques based upon particles’ population in the search space and a great option for designing FIR filter. PSO and its different variants improve the solution characteristic by providing a unique approach for updating the velocity and position of the swarm. An optimized set of filter coefficient is produced by PSO and its variant algorithms which gives the optimized results in passband and stopband. In this research paper, Digital FIR filter is effectively designed by using PSO Algorithm and its two variants ARPSO and CRPSO in MATLAB. The outcomes prove that the filter design technique using CRPSO is better than filter design by PM algorithm. PSO and ARPSO Algorithms in the context of frequency spectrum and RMS error.

Keywords: Craziness Based Particle Swarm Optimization (CRPSO), Attractive And Repulsive Particle Swarm Optimization (ARPSO), Particle Swarm Optimization (PSO), Lowpass Filter

References:
Author(s): Manju Sharma, Mukesh Kumar Sharma

Title of the Article: Implementing Hybrid Security Mechanism for Cloud Considering Intrusion, Sql Injection and Performance Degradation

Abstract: Considering the demand of cloud services research has considered the issues or problems related to cloud computing. Various approaches adopted by existing research have limited scope and there is need to increase the security of cloud computing environment. The issues of security threat in cloud environment are explained in this paper. There have been several security threats to cloud environment such as Intrusion, brute force, Sql injection, Trojan horse that could affect the security of cloud services. There remains issue of Un-authentic access. Moreover the identity management is becoming a great challenge. Previous researches have proposed cryptographic approach while some provided solution to hacking attempts along with unauthentic external access but these security mechanisms are not sufficient to protect the cloud. Research paper is introducing intelligent system that is capable to trace the intrusion using LSTM based training model. The model is trained in order to categorize intrusion accordingly. The focus of research is to increase the security from intrusion by providing intelligent LSTM approach. This mechanism would classify the transmission in different categories such as Dos-synflooding, MITM ARP spoofing, Mirai-Ackflooding, Mirai-Http flooding, Mirai-Hostbruteforceg, Mirai-UDP Flooding, scan hostport and Normal. Moreover research paper has focused on prevention of Sql injection attacks. In order to increase the security between sender and receiver research has also allowed two way port based hand shaking in order to transmit data more securely. The transmission would be initiated using default port but the actual transmission would be made using random port that would be set for specific time slot.

Keywords: Cloud Computing, IDS, Port, Sql Injection.

References:

Author(s): Hirofumi Maeda

Title of the Article: Automatic Compensation of the Positional Error Utilizing Localization Method in Pipe

Abstract: Since 1965, a numerous number of cities implementing sewerage systems have increased rapidly throughout Japan, and sewerage development is considered to be becoming more widespread in various regions. However, with the increase of management facilities, the aging of facilities for long-term use is becoming more and more apparent. The standard expected durability of these pipes is approximately 50 years, but there is a tendency and a risk that the number of collapsed roads will increase rapidly 30 years after the pipes are laid. Against this background, maintenance of drainage and sewage pipes is critical and must be carried out continuously. Therefore, in recent years, investigation using robots have been actively conducted in order to reduce manual workload of the workers. However, these robots have a large-scale system as a whole, and as a result, they are poorly maintainable and expensive. Therefore, in this research, I have developed an autonomous and portable pipe inspection robot through the know-how on rescue robots which I have studied so far. However, for inspections using a pipe inspection robot, there is always the risk that the robot itself will tip over due to steps or small gaps at the joints of the pipes or slips caused by sludge. Therefore, to prevent tumbles and rollovers of the robot, I propose a localization method only by straight-driving control without relying on hardware. In addition, taking possible slips inside pipes into account, this method utilizes only acceleration sensor. In this study, localization method using only accelerometer mounted on the robot, which focuses on the relation between the pipe and the contact point of the tires, was shown as well as presenting a method using numerical analysis to derive the estimated values. Furthermore, it was confirmed that the estimation was stable as a result of an estimation experiment using autonomous small pipe inspection robot with and without a gradient (approx. 4/100) of a pipe, with a diameter of 189mm.

Keywords: Exploration Robot, Mobile Robot, Water Pipe, Localization, Robot Control

References:

Author(s): Víctor Alcántara Alza

Title of the Article: Effect of Aging and Deformation Treatments on Mechanical Properties of Aluminum AA-6063

Abstract: How the parameters of artificial aging heat treatments, in AA 6063 aluminum samples, previously solubilized and deformed in cold, influence on the mechanical properties of hardness and traction was investigated. The experiments followed the sequence: First, the solubilization treatment was carried out for 2h using prismatic specimens of 10mm thickness; then the samples were cold deformed with area reductions: 30% -60% -80%. Finally, the aging treatment was carried out on all samples, using temperatures: 150-250-350-450 °C, and holding times: 1-10-30-60-90-120 min. After aging the samples were machined according to the standards. The hardness was measured on the Vickers scale (HV) and the tensile tests followed the ASTM E 8M-95* standard. Microscopy was performed at the optical and Electronic SEM level, complemented with an EDS analysis. It was found that the highest hardness values occur at 150 °C. The yield point YS increases as decreasing aging temperature, and decreases with increasing deformation degree. The mechanical strength UTS increases as decreasing temperature and increasing whith deformation degree. Regarding the mechanical properties of traction, the optimal condition is found for the samples deformed at 80% and aged at 250 °C, presenting a (UTS) of 193 MPa, and 15% elongation. The samples with 80% reduction, aged at 450 °C for 120 min are those with the best recrystallization index. It would take a time greater than 120 min for the grains to thicken and the precipitates completely disappear to reach complete recrystallization. EDS analysis indicates the presence of Mg2Si precipitates and the β phase.

Keywords: Exploration Robot, Mobile Robot, Water Pipe, Localization, Robot Control

References:

Author(s): Benjamin Kwakye, Chan Tze Haw

Title of the Article: Theoretical Overview of Sentiment Analysis in the Real Estate Market

Abstract: With the assertion that most empirical studies are underpinned by a theory, this study aims to presents the theoretical underpinnings of sentiment analysis in the housing market. It discussed four main theories namely: the behavioral finance theory, the bubbles theory, the theory of irrational exuberance and the theory of noise traders. To the best of the authors knowledge, this overview is the first in recent past to discuss the theoretical foundations of sentiment analysis in relation to housing prices. The study contributes to the extant literature in the field through the development of theoretical framework and the identification of new research gaps for future research. It has theoretical relevance to researchers and students in the finance fraternity who are beset with or struggling to identify the most appropriate finance theories that underpins their study in real estate sentiment analysis.

Keywords: Sentiment, Real Estate Market, Housing Prices And Stock Market.

References:
Author(s): Hershey R. Alburo, Cherry Lyn C. Sta. Romana, Larmie S. Feliscuzo

Title of the Article: Sentiment Analysis of the Academic Services of ESSU Salcedo Campus using Plutchik Model And Latent Dirichlet Allocation Algorithm

Abstract: The continuous pursuit of quality education has always been a concern of higher institutions. This can be seen in the way university teachers deliver academic services to the students in terms of professionalism, commitment, knowledge of the subject matter, teaching for independent learning, and management of learning. Students as recipients of these services are significant sources of information about their course interaction that takes place in an educational system. Utilizing Latent Dirichlet Allocation (LDA) algorithm and sentiment analysis through NRC emotion lexicons based on Plutchik Model, this study aimed to decipher students’ sentiments of the academic services and reveal commonalities contained in their qualitative responses. Results revealed five latent themes in the students’ responses as: The Disparity of Teaching Assignment to Professors Field of Expertise, Professors’ Expression of Willingness to Help Students in School-Related Matters, Desirable Traits Portrayed by a Professional Teacher, Professor’s Commitment and Dedication to Classroom Instruction, and Enhancement of Teaching Practices to Improve Quality of Academic Services. The results also suggest that majority of the students have a positive sentiments (64.42%), some of were negative (34.62%), and very few were neutral (0.95%). This study aimed to give inputs to any academic interventions undertaken by institution.

Keywords: Lda, Sentiment Analysis, Plutchik, Academic Services, Essu Salcedo, Philippines

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Title of the Article: Implementation of Low-Pressure Water Mist System for Fire Suppression inside a Model of Road Tunnel

Abstract: Previous studies have proven the performance of certain water mist system in general or in suppressing certain tunnel fires. The southern tunnel under the Suez Canal in the province of Ismailia length of 4 kilometers and 800 meters is serving the movement from Ismailia to Sinai through the Suez Canal old and new, while serving the northern tunnel movement from Sinai to Ismailia through the two channels. This tunnel in Ismailia is the largest in the world, with outer diameter of 12.6 meters, the internal 11.40 meters, the length of the tunnel is 4830 meters and reaches 6830 meters with the entrances and exits, the distance between the north and south tunnels 12 meters, and the maximum depth of the tunnel 45 meters down both Suez Canals. Since completing this project in the begin of 2019, this Tunnel did not experimentally test. This paper describes an experimental study of a low-pressure water-mist system (LPWMS) used in a scaled fire test conducted in a section of a scaled down road tunnel. The length, width, and height of the tunnel were 6 m, 2.4 m, and 2 m, respectively, which are in a ratio of 1:4:1 to the dimensions of an actual tunnel. The LPWMS used a pump pressure of 5.5 bar, and the system configuration was designed according to the pressure generated by the pump. Without a ventilation fan, the fire suppression time was 275 s, and amount of water required to fully suppress the fire was 696.67 L. When a ventilation fan was used, the maximum temperature location was moved from the center of the 6 m long tunnel toward the air inlet end of the tunnel (upstream). While this study will find the performance of the LPWMS in suppressing a fire in a small section of the Ismailia tunnel, determining the times spent and the amount of water consumed in the various stages of fire suppression, and in addition to studying the effect of the ventilation fan on These results and the location of the maximum temperature in the tunnel.

Keywords: Ismailia-Sinai Tunnel; Water-Mist; Fire Safety; Froude Scaling

References:

Title of the Article: A Novel Approach for Healthcare Information System using Cloud

Abstract: The main objective of this paper is to outline a Cloud Computing-based Healthcare Information System that helps bridge the gap between various hospitals, patients and clinics by creating a central hub of patient details and health care history that is accessible via two interfaces- either the mobile app or the web application.

Keywords: Cloud Computing.

References:

Author(s): B. Devaneshwar, K.B. Amarthian, M. Yuvanthika Meenakshi, V.M. Saradha

Title of the Article: Calibrating Best Route Based on Battery Percentage and Availability of Charging Station

Abstract: The electric vehicle market is increasing rapidly. Smart cars and AI integrated cars are under development for automatic driving. Embedded software is necessary for an electric vehicle to function properly. Almost all cars have inbuilt software navigation purposes. The user's main concern about electric vehicles is the driving range. Electric cars having an inbuilt navigation system that indicates appropriate charging points suitable for the user. The planning route is essential to reach the destination before the battery dies. The software can provide a solution here by analyzing and optimizing the data which is stored in the cloud. Battery swapping can also be done by booking batteries at charge stations before the time of travel. This solution will promote users to drive electric vehicles for even long travels.

Keywords: Electric Vehicle, Battery, Zero Input Response, Open-Circuit Voltage, Zero State Response, Charge Station, MQ Telemetry Transport.

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Author(s): B. Nadimullla, S. Aruna Mastani

Title of the Article: Adjustable PRPG for Low Power Test Patterns

Abstract: As the power consumption is more in the processes of testing, test vector set compression and controlling of toggling plays a crucial role in reducing the power consumption during test mode. In exploring the controlling techniques of toggling, Pre-Selected Toggling (PRESTO) of test patterns is a technique that can control the toggling of a test patterns in a precise manner in Built-in Self-Test (BIST) architectures. In this paper we modify the architecture of existing Full Version PRESTO that can be used to generate test vectors and in addition binary sequences used as scan chins such that the controlling of sequence of test vectors depends on number of 1’s present in the switch code which is user defined thus reducing the testing time with significant fault coverage, and in addition the optimization is also observed in area and power. The area has decreased by 12.2% and power consumption by 15.43%. The Synthesis and implementation of the architectures are done using Artix7 (xc7a100tcs324-3) FPGA family. The simulation results have been analyzed through Mentor-graphics Questa-sim 10.7C.

Keywords: Pseudo Random Pattern Generator (Prpg), Linear Feedback Shift Register (Lfsr), Pre-Selected Toggling (Presto).

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Author(s): B. Meena Preethi, P. Radha

Title of the Article: Disease Classification and Prediction using Ensemble Machine Learning Classification Algorithm

Abstract: In today’s scenario, disease prediction plays an important role in medical field. Early detection of diseases is essential because of the fast food habits and life. In my previous study for predicting diseases using radiology test report , and to classify the disease as positive or negative three classifiers Naïve Bayes (NB), Support Vector Machine (SVM) and Modified Extreme Learning Machine (MELM) was used to increase the accuracy of results. To increase the efficiency of predicting the disease and to find which disease pricks the society, ensemble machine learning algorithm is used. The huge data from the healthcare industry were preprocessed, categorized and analyzed to find out and predict which patient to be treated and given priority and which hits the society the most. Ensemble machine learning’s popularity in the medical industry is due to a variety of factors the Classifiers used are K Nearest Neighbors, Nearest Mean Classifier, Mean Feature Voting Classifier, KDtree KNN, Random Forest. To reduce the manual processes in medical field automating these processes has become important. Electronic medical records and significant advances in health care have given an opportunity to make find out which patients need to be given more importance. Several methodologies and techniques were used to preprocess the data in order to meet the study's requirements. To improve the performance of machine learning algorithms, feature selections were made using Tabu search. When ensemble prediction is combined with the Random Forest algorithm as the combiner, the results are more reliable. The aim of this study is to create a system to classify Medical records whether it is diseased or not and find out which disease rate has increased. This research will help the society to an individual to get treated easily and take preventive measures to avoid diseases.

Keywords: Machine Learning, K Nearest Neighbors, Nearest Mean Classifier, Mean Feature Voting Classifier, KDtree KNN, Random Forest.

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Author(s): S.Reginold Jebita, Durga Devi P R, Deva Dharshini L, Theerdmah Naga Sai Harika, Vignesh K

Title of the Article: A Comprehensive Review on Protein Isolates from Legumes

Abstract: Legumes play an vital function in human body due to dietary fiber, protein, minerals and vitamins and well-balanced essential amino acid. Legume proteins have gained increasing significance because of preferred functional properties, including gelling and emulsifying properties. Legumes contain anti nutritional compounds like Trypsin inhibitors(TIs), Phytic acid(PA), Tannin, Saponin, Lectins, They are not a major concern

Keywords: Legumes ; Protein isolates ; Extraction techniques ; Protein isolates.

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**Author(s):** Fadare Oluwaseun Gbenga, Adetunmbi Adebayo Olusola, Oyinloye Oghenerukevwe Elohor

**Title of the Article:** Towards Optimization of Malware Detection using Extra-Tree and Random Forest Feature Selections on Ensemble Classifiers

**Abstract:** The proliferation of Malware on computer communication systems posed great security challenges to confidential data stored and other valuable substances across the globe. There have been several attempts in curbing the menace using a signature-based approach and in recent times, machine learning techniques have been extensively explored. This paper proposes a framework combining the exploit of both feature selections based on extra tree and random forest and eight ensemble techniques on five base learners- KNN, Naive Bayes, SVM, Decision Trees, and Logistic Regression. K-Nearest Neighbors returns the highest accuracy of 96.48%, 96.40%, and 87.89% on extra-tree, random forest, and without feature selection (WFS) respectively. Random forest ensemble accuracy on both Feature Selections are the highest with 98.50% and 98.16% on random forest and extra-tree respectively. The Extreme Gradient Boosting Classifier is next on random-forest FS with an accuracy of 98.37% while Voting returns the least detection accuracy of 95.80%. On extra-tree FS, Bagging is next with a detection accuracy of 98.09% while Voting returns the least accuracy of 95.54%. Random Forest has the highest all in seven evaluative measures in both extra tree and random forest feature selection techniques. The study results uncover the tree-based ensemble model is proficient and successful for malware classification.

**Keywords:** Extra-Tree, Random Forest, K-Nearest Neighbors, Extreme Gradient Boosting Classifier, Random Forest Ensemble.

**References:**


Title of the Article: Plant Leaf Disease Detection and Classification using Optimized CNN Model

Abstract: Our economy depends on productivity in agriculture. The quantity and quality of the yield is greatly affected by various hazardous diseases. Early-stage detection of plant disease will be very helpful to prevent severe damage. Automatic systems to detect the changes in the plants by monitoring the abnormal symptoms in its growth will be more beneficial for the farmers. This paper presents a system for automatic prediction and classification of plant leaf diseases. The survey on various diseases classification techniques that can be used for plant leaf disease detection are also discussed. The proposed system will define the cropped image of a plant through image processing and feature extraction algorithms. Enhanced CNN model is designed and applied for about 20,600 images are collected as a dataset. Optimization is done to enhance the accuracy in the system prediction and to show the improvement in the true positive samples classification. The proposed system shows the improvement in the accuracy of prediction as 93.18% for three different species with twelve different diseases.

Keywords: Agriculture, Classification, CNN, Image processing, Optimization

References:
Title of the Article: A Survey on Some Big Data Applications Tools and Technologies

Abstract: Big Data is a broad area that deals with enormous chunks of data sets. It is a word for enormous data sets having huge volume, more diverse structures of data originating from diverse sources are growing rapidly. Many data being generated because of fast data transmission between devices concerning different sectors like healthcare, science, media, business, entertainment and engineering. Data collection capacity and its storage is big concern. Apache Hadoop software is a store of accessible source programs to store big data and perform analytics and various other operations related to big data. Many organizations base their decisions by extracting knowledge from huge and complex data, because of this prime cause of decision making, Big Data has to be accurately classified and analyzed. In order to overcome the complex challenges encountered by Big Data, various Big Data tools and technologies have developed. Big Data Applications, tools and technologies used to handle it are briefly discussed in this paper.

Keywords: Big Data, Veracity, Hadoop, Structured Data, Unstructured Data.

References:

Author(s): Mahassine Bekkari, Abdellah El Fallahi
Title of the Article: Modelling and Analyzing the Employees’ Engagement in Workplace using Machine learning Tools

Abstract: In a new economy where immaterial capital is crucial, companies are increasingly aware of the necessity to efficiently manage human capital by optimizing its engagement in the workplace. The accession of the human capital through its engagement is an efficient leverage that leads to a real improvement of the companies’ performance. Despite the staple attention towards human resource management, and the efforts undertaken to satisfy and motivate the personnel, the issue of engagement still persists. The main objective of this paper is to study and model the relation between eight predictors and a response variable given by the employees’ engagement. We have used different models to figure out the relation between the predictors and the dependent variable after carrying out a survey of several employees from different companies. The techniques used in this paper are linear regression, ordinal logistic regression, Gradient Boosting Machine learning and neural networks. The data used in this study is the results of a questionnaire completed by 60 individuals. The results obtained show that the neural networks perform slightly the rest of models considering the training and validation error of modelling and also highlight the complex relation linking the predictors and the predicted.

Keywords: human resources management, machine learning; Neural networks, Boosting machine learning, logistic regression.

References:

Author(s): Sanniv Shome, Shushil Mhaske, K. Pathak, M S Tiwari

Title of the Article: Mine Waste as Resource: Indian Mining Scenario of Coal and Non Coal Mining Sector

Abstract: Mother Nature has bestowed India with huge resources of coal, iron ore, bauxite, manganese and limestone. India has one of the lowest per capita availability of land due to population of more than 1.3 billion. The transformation from under developed to developed economy warrants enormous increase in mineral production. This will generate additional huge quantities of waste. The industry is already facing problems related to land acquisition and environmental clearances. Sustainable development of Indian mineral industry requires reprocessing, reuse and recycling of mine waste. To achieve this, economic and innovative mineral processing methods are required which will result in least damage to ecology and environment.

Keywords: sustainable development, reprocessing, reuse, recycling.

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Title of the Article: Smart Internet of Things Based Induction Motor Parameter Monitoring and Control System

Abstract: Automation is the use of various control systems for operating equipment such as machinery, processes in industries such as boilers and heat treating ovens, switching on telephone networks, steering and stabilization of ships, aircraft and other applications with minimal or reduced human intervention. This research paper presents advanced approaches using wireless monitoring system for induction motor based on Internet of Things (IoT) for safe and economic data communication. In the first approach, state of the art fault detection strategy is exhibited for induction motor. This research paper depends on the assessment of measured voltage, current, earth leakage, rotor status and speed. Progressed embedded strategy and utilized to isolate and survey the disappointment seriousness. In this procedure, distinctive sensors are associated with the motor, and the quantities are extracted by utilizing a microcontroller. The Graphical User Interface (GUI) with cloud server IoT is used to transmit the data from base station to remote station. This arrangement allows the client to interface with the framework. The proposed research paper based induction motor control system is validated through the simulation in Raspberry Pi 3 environment.

Keywords: Induction Machine, Zigbee Protocol, Wireless Control And Monitoring System.

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Title of the Article: Dielectric Cover Layer Thickness Effect on Circular Microstrip Antenna Parameters

Abstract: This paper studies the effect of dielectric cover layer thickness on circular microstrip patch antenna parameters such as gain, bandwidth, beam-width, radiation patterns, return loss and VSWR. The proposed antenna is designed with 2.4GHz frequency in S-Band region. This operating frequency useful in ISM band applications. Circular patch antenna is designed with cavity model analysis and simulated using HFSS simulation software (Electromagnetic simulator). The coaxial probe fed is used for antenna design. In this paper the effect of dielectric cover layer on antenna parameters studied experimentally and comparing their performance characteristics. The simulation results shows that the antenna without dielectric cover layer obtained gain is 4.11dB and antenna with dielectric cover the gain is reduced to 2.87dB to 5.88dB based on thickness of the dielectric cover layer. The antenna bandwidth obtained without dielectric cover is 3% and with dielectric cover its bandwidth is reduced from 0.012GHz to 0.052GHz based on thickness of the cover layer effect. Similarly other parameters are investigated and compared. This proposed circular patch antenna is used in wireless and Wi-Fi applications.

Keywords: Dielectric Cover Layer, Bandwidth, Radiation Patterns, Vswr Etc.

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