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Applying Gravitational Rules for Understanding Knowledge Convergence in Science Databases

Serhat Burmaoğlu¹, Özcan Sarıtaş², Sercan Özcan³

¹ University of Izmir Katip Celebi
² Higher School of Economics
³ University of Portsmouth

Abstract

Availability of data and repositories, increasing computational capability, and improved big data analytics tools help to enhance our understanding of the present phenomena (known) and to explore what is yet to emerge (unknown) with new perspectives. Conventional analysis of convergence has been concerned with the assumption that convergence is driven 'intentionally' through collaborative scientific activities, where conclusions were drawn on the analysis of networks such as co-word, co-authorship and co-citation. This sort of analysis gives a picture of already converged or about to converge 'known' disciplines, where scientists take purposeful initiatives. However, convergence also emerges through external forces stemming from the dynamics of social, technological, economic, ecological, political, and value/cultural systems. On the contrary of intentional convergence, transformations in these systems may require scientific disciplines to converge in an unexpected way. In this 'unintentional' mode of convergence, it is important to understand what dynamics create convergence, and how to detect them so that future convergences can be anticipated. The present research proposal suggests the application of "gravitational rules" to understand the dimensions and dynamics of scientific convergence by using big data repositories. The law of universal gravitation states that: "a particle attracts every other particle in the universe with a force, which is directly proportional to the product of their masses and inversely proportional to the square of the distance between their centers." In this study, the dimensions of gravity between scientific disciplines were calculated by using network centrality measures, and dynamics of scientific disciplines were calculated through a temporal analysis by benefiting from the gravitational rules. After analysis, and making comparisons based on the direction and power of forces, these measures were re-interpreted as means of virtual mass aspects. This analysis will help to detect how scientific disciplines gets closer, or apart, and how 'unintentional' convergence can be detected. In this way, it will be possible to identify early signals of emerging drivers, discover new areas for convergence as well as divergence, make an assessment of opportunities and risks, and finally begin 'intentional' initiatives for convergence research.

Keywords: Gravity, Text Mining, Tech Mining, Science Database, Knowledge Convergence
PinPaper: Web-Based Smart Conference Management System

Hüseyin Gürüler¹, Yasin Yılmaz¹, Onur Karasoy¹, Uğur Ayvaz¹

¹Mugla Sitki Kocman University

Abstract

Conference management systems (CMS) are indispensable tools especially for automated interactions with attendees and blind peer review assignments in academic activities. Scientific event management tools improve cooperation and interaction between all participants of both conferences, symposia, and workshops while alleviating the workload of the event management board. One of the most significant and time-consuming parts of a scientific activity involves processes such as inviting attendees to a conference, program creation, preparation of acceptance letters and activity reports. All these processes should be fulfilled in a limited and simultaneous time period. In this study, a single web application that meets all these tasks was developed. Besides, it makes available an intelligent program creation and a keyword suggestion module. With these additional smart features, the online-management system has become easier for management board and all the participants of the scientific event.

Keywords: Scientific Event Management System, Smart Conference, Web-Based System
Experimental Design and Response Surface Modelling for Optimization of Doxycycline Imprinted Hydrogels Using Two Level Fractional Factorial Design

Dilek Dalgakıran¹, Fatma Seniha Güner²

¹Yalova University
²İstanbul Technical University

Abstract

Molecular imprinting is a technique which is used to achieve molecular recognition of a template with special binding sites, and thus it allows to enhance new materials for separation processes, drug releasing system for controlled release, recognition of molecules, selective adsorbents, solid-phase extraction, and chemical sensors. Molecularly imprinted polymers (MIPs) and non-imprinted polymers (NIPs) were synthesized after experiments were designed by MINITAB in order to screen factors that effect on the drug releasing behavior of molecularly imprinted polymers. Five factors were selected as high impact on the imprinted polymers: monomer type, monomer ratio, crosslinker type, crosslinker ratio and drug ratio. The most important goal is to create representative and informative experiments with a minimum number of experiments. A polymer library was organized by varying the five factors according to two-level fractional factorial design in order to optimize and evaluate molecularly imprinted polymers with controlled drug release mechanism. Doxycycline was used as the template molecule. The statistical results showed that not only functional monomer ratio, but also the crosslinker ratio with drug ratio had a significant impact on the drug releasing pattern of the polymers. Existing drug as template molecule in the pre-polymerization solution gave rise to interactions with other variables which enhanced MIPs drug release performance. The whole factors including main and interactively factors were identified which could enable enhancements in the MIP design and an optimum formulation was offered by using response surface modelling.

Keywords: Drug Release, Design Of Experiment, Response Surface Optimization, Molecular Imprint
DA Motoru Kapalı Çevrim Hız Denetim Sistemindeki PI Parametrelerinin Genetik ve Parçacık Sürü Algoritması Kullanarak Optimizasyonu

Ramazan Bayındır¹, Seyfettin Vadi¹

¹ Gazi University Faculty of Technology Department of Electrical and Electronics Engineering

Özet


Anahtar Kelimeler: DA Motor, Genetik, Parçacık Sürü Algoritması, Optimizasyon

Optimal Setting Using Genetic and Particle Swarm Algorithm of PI Parameters in the DC Motor Closed-Loop Speed Control System

Abstract

In this study, for the first time in the literature, the genetic and particle swarm algorithm have made to simulation for the optimal setting of PI parameters in the DC motor closed-loop speed control system. At the end of the simulation, motor efficiency is increased to improving dynamic response of the system in terms of performance criteria such as settling time, rise time and maximum overshoot. Thus, proposed approach can also be used easily in different control applications, provided that positive results are achieved.

Keywords: DC Motor, Genetic, Particle Swarm Algorithm, Optimization

(Bu çalışmanın genişletilmiş tam metin halı Veri Bilimi dergisi 1. cilt, 2. sayısında yayınlanmıştır.)
ZBTB18 Genindeki Nonsinonim SNP’lerin In Silico Analizi

Tülay Öncü Öner¹, Sultan Cingöz²

¹ Manisa Celal Bayar University, Department of Bioengineering
² Dokuz Eylül University, Department of Medical Biology and Genetics

Özet

ZBTB18 geni; nöronal proliferasyonda, göçte ve gelişmekte olan serebral korteksin farklılaşmasında önemli rol oynamaktadır. Genin kodlanan bölgesinde bulunan non-sinonim SNP’ler, amino asit değişikliği veya prematüre stop kodon oluşumuna neden olarak proteinin yapısını veya fonksiyonunu değiştirebilmeaktedir. Bu çalışmanın amacı Mutation Taster, PROVEAN, I-Mutant ve SNAP veritabanlarını kullanarak, ZBTB18 genindeki non-sinonim SNP’lerin protein üzerindeki potansiyel etkileri veya zararlarını ortaya koymaktır. Ensembl veritabanında bulunan 125 non-sinonim ZBTB18 gen varyasyonu incelenmiştir. Mutation Taster programına göre varyasyonların 122’si hastalık nedenidir (olasılık aralığı:0.575-1) yani muhtemelen zararlıdır; ve 3’ü polimorfizmdir (olasılık aralığı:0.563-0.781) yani muhtemelen zararsızdır. PROVEAN programına göre ise varyasyonların 103’ü nötral (skor>-2.5), 22’si zararlıdır (skor<-2.5). I-Mutant programına göre 110 varyayonda protein stabilitesi düşmekte (ΔΔG<0), 14 varyayonda yükselmekte (ΔΔG>0), 1 varyayonda ise sabit kalmaktadır (ΔΔG=0). SNAP çıktıları 78 varyasyonun nötral ve 47 varyasyonun non-nötral olduğunu göstermiştir. Nükleotid değişikliklerinin bir protein üzerindeki olası etkilerini hızlı bir şekilde belirlenmesini sağlayan in silico teknikler özellikle hayvan denemelerine alternatif olarak geliştirilmiştir. Üstelik bu teknikler maliyet açılarından etkin ve analiz edilmeleri kolaydır. Bazı veritabanları kullanılarak yapılan bu hesaplama tarama sayesinde ZBTB18 genindeki varyasyonların protein üzerindeki etkileri toplu bir şekilde araştırılacaklara sunulmuştur.

Anahtar Kelimeler: In Silico Analiz, Non-Sinonim SNP’ler, ZBTB18 Geni

In Silico Analysis of Non-synonymous SNPs in ZBTB18 Gene

Abstract

ZBTB18 gene plays a significant role in neuronal proliferation, migration and differentation in the developing cerebral cortex. Non-synonymous SNPs in the genetically encoded region can alter the structure or function of the protein by causing amino acid alterations or premature stop codon formation. Aim of this study is to reveal the potential effects or damages on protein of non-synonymous SNPs in ZBTB18 gene using Mutation Taster, PROVEAN, I-Mutant, SNAP databases. 125 non-synonymous variations of ZBTB18 gene available in the Ensembl database have been analyzed. According to Mutation Taster program, 122 of the variations are disease-causing (probability range:0.575-1) so they are probably deleterious;
and 3 of the variations are polymorphism (probability range: 0.563-0.781) which are probably harmless. According to PROVEAN program 103 of the variations are neutral (score > -2.5) and 22 of variations are deleterious (score <= -2.5). According to I-Mutant program, protein stability decreases in 110 variations (ΔΔG < 0), increases in 14 variations (ΔΔG > 0) and remains constant in 1 variation (ΔΔG = 0). The SNAP output shows that 78 variations are neutral and 47 variations are nonneutral. In-silico techniques which allows the rapid identification of possible effects of nucleotide changes on a protein, have been developed particularly as an alternative to animal experiments. They are also very cost effective and easy to analyze. Through this computational screening using some databases, the effects of the variations of ZBTB18 gene on the protein are presented to the researchers in a collective way.

Keywords: In Silico Analysis, Non-Synonymous Snps, ZBTB18 Gene
Model Selection in the Construction of Biological Networks under the Steady-State Conditions

Gül Bahar Bülbül¹, Vilda Purutçuoğlu¹

¹ Middle East Technical University

Abstract

The model selection is a decision problem to choose which variables should be included in a statistical model among all plausible models that could be constructed. There are many applications of this problem in different fields from social to mathematical sciences. Here, we particularly deal with the model selection in the construction of the biological networks when the activation of the systems is described under the steady-state condition. The common features of biological networks are their high dimensions, sparsities and interdependences between networks’ components. Due to these challenges, many model selection criteria such as AIC and BIC cannot be successfully applicable in this field. In this study, as the novelty, we suggest ICOMP (information complexity criterion) and its close alternatives, so-called, CAIC and CAICF, in modelling real biological networks with Gaussian graphical model (GGM) and loop-based multivariate adaptive regression splines (LMARS). GGM is one of the common graphical models in systems biology and LMARS is a recently suggested nonparametric model as an alternate of GGM. In our analyses, we initially derive ICOMP, CAIC and CAICF for these two models and then compare their performances with their major criteria, namely, RIC and STARS in GGM and GCV in LMARS.

Keywords: Model Selection Criteria, Information Complexity Criterion, Gaussian Graphical Model, Loop-Based MARS
Selection of the Threshold Value in the Construction of Protein-Protein Interaction Networks via Graphical Models

Melih Ağraz¹, Vilda Purutçuoğlu¹

¹ Middle East Technical University

Abstract

The description of protein-protein interaction networks can be presented by various approaches depending on the systems’ assumptions. Among many deterministic and stochastic alternatives, the mathematical models which explain steady-state activations of systems are the most common approaches as majority of the available data are suitable for these types of modelling. Under the steady-state conditions of protein-protein interaction datasets, the Gaussian graphical model (GGM) is one of the well-known mathematical models in the construction of biological networks. Basically, GGM uses the conditional independency of nodes, i.e., systems’ elements, under the multivariate normal distribution within the lasso regression. Then, it converts the estimated parameters, i.e., interactions between nodes, into a binary form (0-1) so that an undirected graphical structure of the system can be obtained. Hereby, the performance of GGM can be highly dependent on the selected threshold values applied in the underlying binary transformation. In this study, as the novelty, we suggest different threshold selection criteria such as kappa maximized threshold and maximized sum threshold in the binary form of GGM whose inferences are performed by both graphical lasso and modified maximum likelihood methods. We assess the accuracy of each criterion under different accuracy measures by using simulated and real datasets.

Keywords: Threshold Criteria, Gaussian Graphical Model, Accuracy Measures, Protein-Protein Interaction Networks
Farklı Uzaklık Ölçütlerinin K Ortalamalar Algoritmasının Performansına Etkisi

Ayla Şaylı¹, Kemal Koşuta¹

¹Yıldız Technical University

Özet


Anahtar Kelimeler: Makine Öğrenmesi, K-Ortalamalar Algoritmasi, Uzaklık Ölçütleri
Effect of Different Distance Measures on K-Means Algorithm’s Performance

Abstract

The use of technology is rapidly increasing instantaneously, which increases the number of accumulated data rapidly. As well as growing the volume of the data, the diversity and the reality are also increasing. As a result of these developments, meaningful summarizing of data and making different conclusions have become very important in terms of comprehensibility. Machine learning algorithms are used to make sense of this data. Clustering algorithms are studied under the unsupervised learning topic of machine learning. The main purpose of the clustering is to divide the data set into different sub-sets. Thus, by separating the data set into different sub-clusters, observations with similar characteristics are grouped under the same cluster. The K-means algorithm is the most popular clustering algorithm nowadays and it is easy to implement. The purpose of this study is to show that using different distance measures may be beneficial while using the same algorithm for the same purpose as an alternative to study different models in order to increase the algorithm’s success in the machine learning. In this study, the K-means algorithm was chosen for the above reasons. Different distance measures have been used in this direction. Distance metrics play an important role in cluster analysis. There is no single optimal distance measure for the current clustering algorithms. Choosing an appropriate criterion for the calculation of the distance between the different distance measures and the data may vary according to the data set. Within the scope of this study, the effects of the distance measures on the different sets of data using the R programming language have been determined by finding the maximum success of the K-means algorithms based on the distance measures.

Keywords: Machine Learning, K-Means Algorithm, Distance Metrics

Anahtar Kelimeler: Makine Öğrenmesi, Denetimsiz Öğrenme Algoritmaları, Kümeleme Analizi

Comparing Clustering Algorithms Using Labeled Data

Abstract

The number of collected data in our epoch is increasing rapidly and will continue to increase continuously. Machine learning is a research field that its popularity is growing day by day. Machine learning algorithms allow to build a model based on the data. It is very important to take advantages of the increasing data and to extract its valuable information. Subheadings of this field are called supervised learning algorithms, unsupervised learning algorithms and
association rules. In this study, clustering algorithms belonging to unsupervised learning class are utilized. It is possible to determine the accuracy values of the clusters based on the label numbers and then to compare the accuracy of the clusters composed of the different algorithms successfully by extracting the labels from the existing class label of the work done. The purpose of this study is to evaluate the performances of different clustering algorithms and to compare them. Data preparation steps such as outlier analysis, data scaling, missing observations are completed. Afterwards, the known class tags, which are known as how many different clusters should be separated, are processed with different clustering algorithms. After this step, different clustering algorithms used in the study were applied to various data sets and the results were obtained. The successes of the clustering algorithms are compared between the clustering results and real values. We arrived at the decision of which algorithm should be chosen by the use of the accuracy values to compare the success of the different algorithms effectively.

**Keywords:** Machine Learning, Unsupervised Learning Algorithms, Cluster Analysis
Endüstri 4.0 ve Nesnelerin İnterneti Tabanlı Ödeme Operasyonları İçin Yeni Bir Çözüm Önerisi

İsmail Kırbaş¹, Nihat Yuva¹
¹ Mehmet Akif Ersoy University

Özet

Bu çalışma ile günümüz endüstri devrimi olarak tanımlanan endüstri 4.0 kavramının yapı taşları arasından, cihazların veri iletişimini sağlayan; IoT kavramının detaylı analizi ile birlikte IoT tabanlı ödeme sistemleri araçlarına yönelik ortaya çıkan kripto paraların teknolojik yapısına yeni bir çözüm önerisi sundurulmuştur. Blok zinciri teknolojisi ile oluşturulduan IoT tabanlı ödeme sistemleri uygulanması üzerine durularak, belirli sonuçlara değinilmiştir. Sonraki adımlarda ise IoT tabanlı ödeme sistemleri için teknolojik yapıcı tercihleri karşılaştırmak ve çözüm önerilerinde bulunulmuştur. Bu çalışmanın amacı, endüstri 4.0 ile hayatımıza giren Io’t’yi ve Iot’ta kullanmak üzere ortaya çıkan ödeme sistemlerinin teori ve pratik yapılarının araştırılmasıdır.

Anahtar Kelimeler: Endüstri 4.0, Nesnelerin İnterneti, Blokzinciri

A New Solution Proposal For Industry 4.0 And Iot Based Payment Operations

Abstract

With this study, it is expected that among the building blocks of the industry 4.0 concept, which is defined as today’s industrial revolution, With the detailed analysis of the IOT concept, a new solution proposal was presented to the technological structure of the crypto money that emerged for the IOT based payment system tools. We focus on the application of IOT-based payment system created by block-chain technology, and the specific results are discussed. In the next steps, the technological structure preferences for IOT based payment systems were compared and suggested solutions. The purpose of this work is to investigate the theory and practice of payment systems that have emerged to be used in IOT and IOT, which have entered my life with industry 4.0.

Keywords: Industry 4.0, Internet of Things, Blockchain
Examination of Provinces of Turkey In Terms of Accessing Health Care Services by Using Different Clustering Algorithms

Hasan Yıldırım
Cukurova University

Abstract

The most primary of the basic human rights is to have access to health care services. It is vital that all citizens in a country are able to get these services equally and homogeneously. Despite its importance, providing health services vary both internationally and nationwide for a country. Similarly, it may cause severe disparities and negative effects between individuals in a society. The primary concern of this study is to determine whether there is any difference between Turkey provinces in terms of accessing health care services, or not. Several clustering algorithms including hierarchical clustering, k-means and partitioning around medoids (pam) are applied to the data set including 31 health indicators for the provinces in Turkey. After comparing these algorithms via using some measures for determining the number of clusters and cluster validity, the findings show that there are four distinct and significant clusters based on k-means clustering algorithm. It seems that these clustering results are in a close reciprocal relationship with the economic development and geographical location of provinces. Clustering results are evaluated and interpreted according to these two important findings.

Keywords: Cluster Analysis, Health Services, Hierarchical Clustering, K Means, Cluster Validity
Veri Madenciliği Yöntemleri ile Üretim Kapasitesinin Tahmini

İnci Çıray¹, Yavuz Alperen Çırkan¹, Hümeyyra Karabel¹, Tülin İnkaya¹, Nursel Öztürk¹

¹Uludag University

Özet


Anahtar Kelimeler: Veri Madenciliği, Kapasite Planlama, Kapasite Tahmini, Siparişe Göre Üretim

Production Capacity Prediction with Data Mining Methods

Abstract

Large amount of data are collected in production systems with the Industry 4.0 revolution. Data mining methods become prominent in analyzing these data and contributing to the decision support systems. These intelligent production systems, which integrate modern production technologies with data mining, bring competitive advantages to the companies by providing both an increase in the quality of products and more efficient use of the resources. In this study, the capacity planning problem is considered in a pipe manufacturing company. The factory produces according to the orders of the customers. For this reason, the standard time-based approaches are inadequate for capacity planning. This study aims to make the
monthly capacity plan in a realistic way by using the large amount of past production data. The production capacity is defined as the total amount of welding per month, and it varies according to the specifications of the produced products such as diameter, material and wall thickness. First, determining the variables that may have an effect on the production capacity, attribute selection is performed. Then, the data mining methods such as linear regression and support vector regression are compared in estimating the product capacity, and the method with the highest accuracy is selected. The improvements are presented by comparing the proposed approach with the current capacity plans of the factory. Moreover, a decision support system is designed in order to facilitate the use of the proposed approach in the factory.

**Keywords:** Data Mining, Capacity Planning, Capacity Prediction, Make-To-Order
Property Value Assessment Using Artificial Neural Networks, Hedonic Regression and Nearest Neighbors Regression Methods

Hasan Yıldırım
Cukurova University

Abstract

In this study, hedonic regression, nearest neighbors regression and artificial neural networks methods are applied to the real and up to date estate data set in Adana province of Turkey. Traditionally, hedonic regression methods have been used to predict house prices. Because of the nature of the relationships between the factors effecting house prices are being nonlinear; some alternative methods have been needed. Nearest neighbors regression (Knn) and artificial neural networks (ANN) present both flexible and nonlinear fittings. Classical hedonic approach and its nonlinear alternatives have been employed on a mixed types data set and compared based on some performance measures like root mean squared error (Rmse), R squared and mean absolute error (Mae). Cross validation method has been used to determine the appropriate model parameters for nearest neighbors and ANN. According to the results, ANN is better when compared to others in terms of all measures. Knn regression method also provides reasonable results despite of lower performance than hedonic regression method. Consequently, it has been found that ANN is a powerful tool for predicting house prices.

Keywords: Housing Price, Artificial Neural Networks, Hedonic Regression, Nearest Neighbors Regression

Anahtar Kelimeler: Kukla Kodlama, Basit Etki Kodlaması, Kontrast Kodlama, Yapay Sinir Ağı

Coding of Categorical Variables in Artificial Neural Networks and Their Effect on Performance Metrics

Abstract

While a research problem is being prepared, qualifications may not always be quantified. Not only in social sciences, but also in fields such as health, engineering, computer science, problem input can include categorical variables. In order to analyze categorical data, logit models can be preferred, and also algorithms using quantitative variables can be analyzed by conversion. Artificial neural networks that produce very strong results are a method of machine learning that works with only quantitative data and it is necessary to convert the data so that categorical data can be included in the analysis. There are different coding methods such as dummy coding and effect coding for categorical variables in the literature. In artificial neural network performance metrics, the change caused by the choice of coding method can be considered as a research topic. In this study, in order to apply artificial neural network on 2 databases
containing categorical data; dummy coding, simple effect coding and contrast coding transformations will be performed and performance metrics will be measured and ROC curves will be presented.

**Keywords:** Dummy Coding, Simple Effect Coding, Contrast Coding, Artificial Neural Network
Rulman Hatalarının Yapay Sinir Ağları ile Teşhisi

Ayhan Dükkancı¹, İsmail Kırbaş¹

¹Mehmet Akif Ersoy University

Özet


Anahtar Kelimeler: Kestirimci Bakım, Rulman Hataları, Yapay Sinir Ağları

Diagnosis of Bearing Faults with Artificial Neural Networks

Abstract

Bearings are essential elements in order to work with the minimum of frictional losses and machines used in almost all the moving parts. Bearing life theoretically infinite accepted, the bearings, improper installation, overload, misuse, poor lubrication, entry of foreign substances before their lifetime or may fail for reasons such as abnormal heat generation. Faults; yubarlan route breakage, flaking, scaling, erosion, corrosion, pitting, lattice damage and heat dissipation occurs in the figures. All these types of damage cause additional vibrations on the bearing. These vibrations to speed up the deterioration of the bearings, causing it to consume more power and noise of the machine, as well as other elements on the machine may be adversely affected. The end result is that the machine may stop or cause accidents. Early detection of damage to the bearings to prevent the occurrence of such results is of utmost importance. Different types
of damage to the roller bearings produce vibrations at different amplitudes and frequencies. The measurement and analysis of these can be used to determine what kind of deterioration is to be experienced by the resulting bearing, the degree of deterioration, and even the life of the bearing. In this study, the methods and techniques for the determination of bearing errors by signal analysis have been investigated.

**Keywords:** *Artificial Neural Networks, Bearing Errors, Predictive Maintenance*
Tele Hemşirelik Uygulamalarının Değerlendirilmesi

Şeyda Can¹, Emel Avçin¹, Fatma Kocaağa¹, Gürkan Erdoğan¹

¹Yalova University Thermal Vocational High School

Özet

Tele sağlık, sağlık bakım uygulamaları, tanılama, danışmanlık, tedavi için interaktif görsel-işitsel araçlar kullanarak sağlık verilerinin paylaşılmasıdır. Tele hemşireliğin ise, hemşirelerin telekomünikasyon ağını ve sağlık teknolojilerini entegre kullanmasından doğan bir alan olduğu görülmektedir. Bu çalışma, tele hemşirelik girişimlerini ve bu girişimlerin etkinliğini değerlendirmek amacı ile yapılmış bir sistematik derlemedir.

Yöntem: Çalışma, Pubmed, Cinahl, Science Direct, Medline veri tabanları kontrol edilerek yürütülmüştür. İngilizce anahtar kelime (telenursing) için MeSH (Medical Subject Headings) dizini kullanılmıştır. Son on yılda doğrudan tele hemşirelik girişimlerinin uygulandığı randomize kontrollü çalışmalar (RKÇ) incelenmiştir. Dahil etme ölçütlerine uyan toplam yirmi sekiz makale değerlendirmeye alınmıştır.

Bulgular: Sistematik derleme kapsamında değerlendirmeye alınan çalışma bulgularına göre tele hemşirelik girişimlerinin çoğunluğunun kronik hastalıklar (%42,8), yaşlı bakım (%14,2) ve kanserli bireylerin (%14,2) takibinde kullanıldığı görüldü. Kronik hastalıklar içerisinde kardiyovasküler problemler ve diyabetin ilk sıradayla yer aldığı belirlendi. Tele hemşirelik kapsamında yürütülen çalışmaların büyük çoğunluğunun (%85,7) olumlu sonuçlandığı tespit edildi. Çalışma bulgularına göre tele hemşirelik girişimlerinin telefon (%64,5), uzaktan hasta takip sistemleri (%28,5) ve video görüşmesi (%7) ile yapıldığı tespit edildi. Tele hemşirelik uygulamalarının hastaneye olan yatışların, komplikasyonların ve maliyetin azaltılması, hasta memnuniyeti ve bilgi düzeylerinin artırılması amacıyla kullanıldığı belirlendi.

Sonuç: Tele hemşirelik uygulamalarının maliyeti azaltma, yaşam kalitesini artırma gibi olumlu sonuçları olmasına rağmen bu konuda yapılan çalışmaların niceliksel olarak yeterli olmadığı görüldü. Bu çalışma, çalışma şansının niteliksel ve niceliksel olarak artırılması; uzun süreli bakım ve takip gerektiren hastaların bakım ihtiyacı taburcu olmasında da sürdürülebilmesine, fiziksel koşullar nedenile yaşanan sıkıntıların en aza indirilmesine ve bakımın kalitesinin artırılmasına katkı sağlamasını açısından önemli olduğunu düşündüktedir.

Anahtar Kelimeler: Tele Hemşirelik, Tele Sağlık, Sağlık
The Effect of Telenursing Practices

Abstract

Telehealth is sharing health data using interactive audiovisual tools for health care practices, diagnosis, consultancy, treatment. Telenursing is an area born as nurses use telecommunication network and health technologies in an integrated way. This study is a systematic compilation to evaluate telenursing attempts and the efficiency of these attempts. The study is conducted checking Pubmed, Cinahl, Science Direct, Medline databases. For English keywords (telenursing), MeSH (Medical Subject Headings) list was used. Randomized controlled studies (RCS) in the last ten years, in which direct telenursing attempts were made, have been inspected. A total of 28 items within the inclusion criteria were evaluated.

Findings: According to the evaluated study findings within the scope of systematic compilation, it was seen that most of the telenursing attempts were used in the follow-up of chronic diseases (42.8%), elderly care (14.2%), and cancer patients (14.2%). It was detected that most (85.7%) telenursing endeavours brought successful conclusions. It was detected that telenursing attempts were made with phones (64.5%), remote patient tracking systems (28.5%), and video interviews (7%). It was detected that telenursing was used to reduce hospitalization, complications, and cost; and to increase patient satisfaction and knowledge levels.

Result: Even though telenursing practices have positive results such as reducing cost, increasing life quality, it was seen that studies on this topic are not sufficient quantitatively. It is thought that increasing the studies on this area qualitatively and quantitatively is important to maintain the care needs of patients that require care and follow-up after being discharged, to minimize the problems resulting from physical conditions, and to contribute to increasing the quality of the care.

Keywords: Telenursing, Tele Health, Health
Mobil Telefonlarda Parmak Alfabesi Tanıma

Cemil Gündüz¹, Hüseyin Polat²

¹ Usak University
² Gazi University

Özet


Anahtar Kelimeler: Derin Öğrenme, Evrişimsel Sinir Ağları, Parmak Alfabesi Tanıma, İşaret Dili Tanıma

Fingerspelling Recognition on Mobile Phones

Abstract

Fingerspelling recognition is a key advancement in understanding deaf people. Since they cannot communicate with impaired people via speaking, they use sign languages. But sign language recognition is a hard task for human computer interaction field because of its complex and highly structured characteristics. In this study we aim to recognize 24 fingerspelling letters in American Sign Language (ASL) with mobile phones. We first choose two different Deep Convolutional Neural Network architectures for this task and compare them for accuracy, classification times, memory requirements and train times. Then we choose one and develop a mobile application. The developed mobile app can recognize fingerspelling letters with %98 accuracy rate on RGB images obtained from device camera.

Keywords: Deep Learning, Convolutional Neural Networks, Fingerspelling Recognition, Sign Language Recognition
Kişilik Haklarının Elektronik Ortamda İhlali ve Korunma Yolları

Ensar Baki
Ankara Yıldırım Beyazıt University Faculty of Law

Özet


Anahtar Kelimeler: Bilgi Ve İletişim Teknolojileri, Kişilik Hakları, Sosyal Medya, Hukuki Düzenleme

Violations of Personality Rights in Electronic Medium and Protection Ways

Abstract

The protection of the privacy life is a concept which consists the protection of the privacy of communication and personal data. By the help of the developments in information and communication technologies, internet and social media started to get a big importance in 21th century. For this reason, the relationship between the electronic medium and privacy life became an important study area in legal studies. Internet is not only a sphere which provides virtual communication to the people but also a sphere where many different violations and crimes committed. Processing, storing and transmitting of the personal data without the
permission of the people for commercial, political or advertising aims causes the violation of personality rights. A person whose personal interests have been illegally attacked in electronic medium has many rights about unlawful violation. A person whose personal interests have been illegally attacked in electronic medium may demand to take an action for prevention of violation, prohibition of such threat and determination of unlawful consequences of the violation. A person whose personal interests have been illegally attacked in electronic medium may also request publication or notification of the recovery or the judgment to the third parties and demand compensation of the material and immaterial damages, the transfer of gains incurred from unlawful violation in his/her favor. In this study, violations of personality rights in electronic medium and protection ways will be observed according to the national legal arrangements.

**Keywords:** Information and Communication Technologies, Personality Rights, Social Media, Legal Arrangement
İşçinin Internet Ve E-Posta Kullanımına İşveren Tarafından Müdahale Edilmesi

Ensar Baki
Ankara Yıldırım Beyazıt University Faculty of Law

Özet


Anahtar Kelimeler: İşçi İşveren İlişkileri, Kişisel Veri, Kişilik Hakkı, E-Posta, Bilişim Teknolojileri

Intervention on Internet and E-Mail Use of Employee by Employer

Abstract

Information and communication technologies has developed and spread rapidly in the 21st century. With the development of information technology, the spread of internet and e-mail usage in the workplace causes many different problems in business relation. The use of the Internet and e-mails in the workplace can lead to efficiency reduction, infecting computer systems and revealing trade secrets. For these reasons, employers are interfering with the use of internet and e-mail of employees. Within this intervention, workers' e-mail and internet usage is monitored, controlled and prevented by employers. This means interfering with the right of personality rights and the privacy right which are regulated in turkish constitution and turkish civil code. The preservation of digital personal data of workers is a contemporary legal matter. In this study, the scope of the employer's intervention for the use of
the internet and e-mail of the employees will be observed within the scope of national and international legal regulations regarding the subject.

**Keywords**: Employee-Employer Relations, Personel Data, Personality Right, E-Mail, Information Technologies
Damar Izi Tanımada Histogram Eşitlemenin Etkisi

Aykut Durgut¹, Serdar Biroğlu²

¹Balikesir University
²Duzce University

Özet


Anahtar Kelimeler: Damar, Histogram Eşitleme-Clahe

The Effect of Histogram Equalization on Vein Identification

Abstract

In this study, histogram equalization and adaptive histogram equalization methods were compared in vein tracing images. Vein images used in vessel identification are taken with infrared LEDs. For this reason the images become dark. To clarify the veins, histogram equalization is first applied. The vessels are not recognizable when the histogram is taken in sync with the threshold value view in general. For this reason, the images are divided into pieces and the histograms are synchronized within themselves. The difference between adaptive histogram equalization and normal histogram equalization was tried to be shown in this study. The effect of histogram equalization on person recognition has been examined.

Keywords: Vein, Histogram Equalization, Clahe
Nonilfenol ve C Vitaminin Drosophila Melanogaster Üzerindeki Genotoksik Etkilerinin Belirlenmesi

Fahriye Zemheri
Bartın University

Özet
Nonilfenol (NF), endokrin çevre bozucu kimyasalların başında gelen, çoğu endüstride kullanılan ve tüm canlıların sürekli maruz kaldığı ksenoöstrojen bir maddedir. Askorbik asit olarak da bilinen C vitamini de güçlü bir antioksidan kaynağı olarak bilinir ve günlük alınması gereken önemli bileşenlerden biridir. Çalışmamızda NF’nin günlük alm değerlerinin model organizma olarak bilinen Drosophila melanogaster üzerindeki olası genotoksik etkisi ve C vitamini ile birlikte uygulandığındaki olası koruyucu etkisi “Comet Testi” yapılarak araştırılmıştır. Deney süresi boyunca sineklerin larva oluşumu, döl verimi ve ergin yaşam süreleri gibi verileri de kayıt altına alınarak gruplar arasındaki değişim gözlenmiştir. NF (1mg/L, 10 mg/L) ve C vitamini (25 mg/ml) Drosophila melanogaster’e beslenme yoluyla 40 gün boyunca uygulanmıştır. Çalışmanın sonucuna göre NF uygulanan gruplar arasında doz bağlı olarak DNA hasarında artış olduğu C vitaminin ise bu hasarı hafiflettiği gözlenmiştir. Larva oluşumu, döl verimi ve ergin yaşam sürelerinde de gruplar arasında farklılık olduğu gözlenmiştir. Bu çalışma NF’nin Drosophila melanogaster üzerindeki genotoksik etkilerini ve C vitaminin koruyucu etkisini açıklığa kavuşturmayı amaçlamaktadır.

Anahtar Kelimeler: Drosophila Melanogaster, Genotoksisite, Comet Testi, Nonilfenol, C-Drosophila Melanogaster Vitamini , Genotoxicity, Comet Assay, Nonylphenol, C Vitamini

Determination of Genotoxic Effects of Nonylphenol and Vitamin C on Drosophila Melanogaster

Abstract
Nonylphenol (NP), which is one of the major environment distracting chemicals, is a xeno-estrogen substance that is used in many industrial fields and is constantly exposed to all living organisms. Vitamin C (ascorbic acid) is also known as a powerful antioxidant and is a major component which should be taken daily. In our study, the possible genotoxic effect of the daily intake values of NF and the possible protective effect of the combination with vitamin C were investigated by conducting the "Comet Assay" on the Drosophila melanogaster known as the model organism. Larval formation, fertility and adult survival were recorded and changes were observed among the groups during the experiment period. NP (1 mg/L, 10 mg/L) and vitamin C (25 mg/ml) had been applied for 40 days to Drosophila melanogaster as diet. According to
the results of the study, NF causes an increase in DNA damage observations among applied groups and Vitamin C is observed to alleviate this damage. Larval formation, fertility and adult survival characteristics were also observed to differ between groups. This study aims to clarify the genotoxic effects of NP and the protective effect of vitamin C on Drosophila melanogaster.

**Keywords:** Drosophila Melanogaster, Genotoksisite, Comet Test, Nonilfenol, Vitamin C
Drosophila Melanogaster, Genotoxicity, Comet Assay, Nonylphenol, Vitamin C
Ağ Üzerinden Anlık Veri Aktarımı ile Raspberry Pi Tabanlı Bebek Odası Gözlem Cihazı Geliştirilmesi

Süheyl Karadaş1, M. Şükrü Özdemir1, Serkan Ballı1, Gürcan Çetin1, Ecem Dikmen1

1Mugla Sitki Koçman University

Özet


Anahtar Kelimeler: Raspberry Pi, Algılayıcı Verileri, Raspberry Pi’lar Arası Anlık Veri Aktarımı
Abstract

Today, infant mortalities have fallen into great pains thanks to the technological advances in medicine and the awareness of parents. In addition to advances in the field of medicine, this ratio also plays an important role in ensuring that babies are well looked after and properly trained after birth. Babies are crying out when an event that makes them uneasy happens. These inconveniences for babies are; to make a toilet under the baby and to remain for a long time without being cleaned, hunger, gas, nasal congestion, fever, can be caused by many discomforts. Within a short period of time after the initiation of the first stages of some of these events, the baby may be exposed to consequences which could result in major damage, irritation or death. In such situations, the baby tries to explain the crying trouble. If the crying is not heard, the unrest will intensify and increase, and a situation that parents should control the baby will come into play. Crying is like an alarm system for infants and it is important to check them urgently in some trouble. In this study, a mini computer of Raspberry Pi series equipped with necessary sensors is placed in the baby room. These sensors allow the moisture level and temperature of the room to be transferred to the caregiver's room following the baby's voice and the data received by the camera, or via the wired or wireless line to the parents' room. The collected data is visualized with another Raspberry Pi device placed in the parent or caregiver room for follow-up. The data can be monitored instantaneously with the HDMI monitor plugged into the monitoring device. Other values such as temperature and humidity obtained from other sensors placed in the baby room at the same time can also be monitored via the monitor. If desired, data collected from the room can be transferred to a computer capable of storing data connected to the home network.

Keywords: Raspberry Pi, Sensor Data, Instant Data Transfer Between Raspberries
Aralık Tip-2 Bulanık Kümeler ile Yazılım Yaşam Döngüsü Modellerinin Değerlendirilmesi

Ecem Dikmen¹, Serkan Ballı¹
¹Mugla Sitki Kocman University

Özet


Anahtar Kelimeler: Yazılım Yaşam Döngüsü Modeli, Aralik Tip-2 Bulanık Kümler, AHP, TOPSIS
Evaluation of Software Life Cycle Models with Interval Type-2 Fuzzy Sets

Abstract

Running software projects effectively is a difficult process. This process must be planned and phased in order to be able to execute successfully. One of the important issues in software engineering management is choosing the appropriate software life cycle model that can affect the success of the project. As the needs of the software project are constantly changing and increasing, it is important to consider the phases occurring during both production and use as a continuous loop. For the purpose to be used in a software project, the best choice in terms of software life cycle model is an uncertain decision making problem. In order to solve such problems, multi criteria decision making methods which deal with criteria and alternatives are modeled by using fuzzy logic. In this study, software life cycle models are evaluated by using AHP (Analytic Hierarchy Process) and TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) methods together with interval Type-2 sets in order to model the problem better and obtain more accurate results. In this process, four software life cycle models (Waterfall Model, V Model, Spiral Model, Evolutionary Prototyping Model) are evaluated together with 3 main criteria and sub criteria and a ranking is made according to the calculated indexes. Criteria are considered as people, process and technical. Some of the sub-criteria are ease of management, user participation and feedback, cost, complexity, criticality, testing and integration, and formal reviews. According to the application result, this approach using interval Type-2 Fuzzy AHP and fuzzy TOPSIS is found to be practically applicable and guiding for software life cycle selection for user needs.

Keywords: Software Life Cycle Model, Interval Type-2 Fuzzy Sets, Ahp, Topsis
Destek Vektör Makineleri ile Eğitim Veri Seti Üzerine Bir Sınıflandırma Uygulaması: TIMMS-2015 Türkiye

Enes Filiz¹, Öyküm Esra Aşkın¹, Tugay Karadağ¹, Ersoy Öz¹

¹ Yıldız Technical University

Özet


Anahtar Kelimeler: Makine Öğrenmesi, Destek Vektör Makineleri, Çekirdek Fonksiyonu, Sınıflandırma

An Application of Classification on Education Data Set with Support Vector Machines: TIMSS-2015 Turkey

Abstract

Support vector machines (SVMs) are a machine learning technique and a classification based algorithm on statistical learning theory and structural risk minimization. Finding the most appropriate hyperplane which separates the two classes is a basic principle of SVMs. In this method, linear support vector machines are used if the data can be linearly separated, otherwise nonlinear support vector machines should be used. The nonlinear SVMs transform the original
data to a higher dimension by using a mapping method. In order to transform the inputs, the nonlinear SVMs use a nonlinear kernel and linear SVMs, respectively. Analyzes are made by using kernel functions in nonlinear SVMs. To transform a nonlinear separable data to linear separable data, the data is mapped in the form of a high dimensional feature space using a nonlinear kernel function. TIMSS 2015 dataset was used in this study. From the dataset, the scores of the mathematics achievement for 8th grade students in Turkey were taken as dependent variable and also 37 variables were taken as independent variables. According to success scores, “poly kernel”, “rbf kernel” and “puk kernel” functions of nonlinear SVMs were used as classification algorithms. Analysis were performed with Weka and the results were reported comparatively. It was shown that "poly kernel", "rbf kernel" and "puk kernel" gave 80.3%, 78.9% and 77.8% classification successes, respectively.

**Keywords:** Machine Learning, Support Vector Machines, Kernel Function, Classification
Multi-Controlled Autonomous Vehicle Design

Ayhan Istanbullu¹, Miraç Çakar¹, Yasin Akbaş¹, Cemre Han Erener¹

¹ Balikesir University

Abstract

The aim of this study is to provide control of the vehicle under all conditions and access to the vehicle. The designed vehicle is planned to be operated both by internet and radio frequency remote control and autonomous. In autonomous mode, our vehicle will have the ability to move autonomously without the need for human intervention with various sensors that it has to detect its environment. The design of general purpose vehicle can be used for domestic purposes as well as for industrial purposes. Also, by increasing the number of sensors, our vehicle can be used to map the land structure. Designed vehicle technical components include arduino mega, raspberry pi 3, driver card, 4*dc motor, distance sensor, gas sensor, 12 V battery. The size of our vehicle is 50x20 cm. In our car raspberry pi 3 was used to record data in online communication. Raspberry is set with a control panel via c sharp and raspberry. In this control panel, the vehicle is equipped with five gears for speed control, both forward and reverse. In this way, the vehicle was provided with multiple speed and acceleration controls. If sensors and technical equipment that can be added, our vehicle will be able to provide environmental control and will be able to perform mine discovery if requested. The autonomous vehicle can scan and view 360 degrees by using the hardware camera.

Keywords: Autonomous Vehicle, Microcontroller Application, Raspberry Pi
The Effect of Ownership Concentration and Corporate Governance Characteristics on the Firm Performance

Ayşe Tansel Çetin¹, Mine Aksu²

¹ Yalova University
² Sabancı University

Abstract

In the last decade, the financial scandals throughout the world (for ex: Enron and Worldcom in the US, Parmalat in Italy, Ahold in the Netherlands and Yanguangxia, in China) have increased the need for Corporate Governance. Since then many mandatory and voluntary developments have taken place in several areas of corporate governance, such as the SOX in the US, and Corporate Governance Principles in many countries including Turkey. Because of the lack of mandatory legal regulation related to the issue in Turkey, fundamental base level is still not satisfactory for all parties involved in Turkey. The recently promulgated Turkish Commercial Code could facilitate significant improvement in the area of corporate governance. After these financial scandals, there has been a proliferation of research on association between corporate governance attributes such as ownership structure, ownership concentration, board structure and several firm and country characteristics. The first objective of our proposed empirical study is to investigate the association between CG attributes such as the ownership structure and concentration (proxied by family versus non-family, cross-equity ownership, float rate, foreign or institutional shareholdings) and firm performance in ISE listed firms during the 2002-2008 period by using regression analysis. These independent variables are used as proxies for the most important agency problem in the ISE: the expropriation of minority shareholders by concentrated family owners. Second, we will analyze how these relationships change in the time series of economic upturns and downturns. Third, we propose to explore how this association is affected by a series of voluntary and mandatory accounting and corporate governance reforms that took place during our sample period. As one such accounting and financial reporting reform, we will also explore the impact of the mandatory adoption of IFRS by all listed firms in 2005, the CG Principles Compliance Reports required in the annual reports for the first time in 2004, and the Turkish Commercial Code which covers a broader range of CG mechanisms (if it becomes effective within the term of our project). Limiting the study to a single country and to a series of consecutive reforms within a short time period allows one to control for country-specific institutional, cultural and market based differences and mitigates model validity problems due to structural changes.

Keywords: Ownership Structure, Ownership Concentration, Firm Performance
Mortalitenin Makine Öğrenmesiyle Sınıflandırılması

Pelin Akın¹, Burçin Şeyda Çorba¹, Yüksel Terzi¹

¹Ondokuz Mayıs University Department of Statistics

Özet

Anahtar Kellimeler: Makine Öğrenmesi, Karar Ağaçları, Yapay Sinir Ağılar, Akut Böbrek Hasarı

Machine Learning Classification with Mortality Events in Patients with Acute Renal Failure

Abstract
Machine learning which has being developed in recent years, mathematical inferences and making predictions based on the data contained in the statistical processing system is modelled by computers. In this study, data of 99 patients have been analysed by using machine learning methods. Patients who have been in emergency unit in Hospital of Ankara Numune and were larger than 18 years and have upper gastrointestinal bleeding symptoms and have been done upper gastrointestinal endoscopy have been selected. It were aimed classification of mortality cases of these patients based on 44 variables like other diseases, blood values, gender, age and so on. Machine learning classification techniques like Naive Bayes, Decision Trees, Random Forests, Support Vectors, KNN close neighbourhood algorithms were applied. Back-
propagation artificial neural network that is widely used as artificial intelligence techniques for machine learning have been compared with these methods. In comparison to the accuracy, decision trees algorithms have been found to perform well.

**Keywords:** Machine Learning, Decision Trees, Artificial Neural Network, Acute Renal Failure.
Hava Taşımacılığında Ağ Haritalarının Özelliklerinin İncelenmesi

Serpil Kılıç Depren¹, Fulya Gökalp Yavuz¹
¹ Yıldız Technical University

Özet


Anahtar Kelimeler: Havalimanları, Taşımacılık, Ağ Yapısı, Türkiye

Examining The Maps of Air Transport Network Characteristics

Abstract

Understanding the role of air transportation structure increases the economic and social assets in local and global scale. Identifying that role is required for an effective air transportation management, as well. Different methods are used to visualize, analyze network structures and to better understand complex network features of the air transportation. This study presents social network analysis as a method to extract information about the network through a pattern of individuals and communities. In a general manner, network analysis identifies mapping, measuring and analyzing the connections and interactions in social relationships. The network structure consists of airports as nodes and flight routes as edges within the scope of the analysis. We consolidated 38 airports and 280 routes for the year of 2014 in intercity transport in Turkey. The results indicate one of the airports, which will be terminated soon, as a dominate national...
node in the current calendar. Also, the same analysis results indicate that using main hubs to transport between low traffic airports are nearly mandatory because of the geopolitical situation of the country.

Keywords: Airports, Transportation, Network Structure, Turkey
Makine Öğrenmesi Sınıflandırma Algoritmaları ile Akut Apandisit Tanısı

Ahmet Sabri Öğütlü¹, Hüseyin Cahit Yalçın¹

¹ Harran University

Özet

Akut apandisit (AA), gebelikte en sık görülen, gebelik dışı cerrahi patolojidir. Tanı ve tedavisindeki gecikme, gebe hastanın ve fetusun yaşamını tehdit edebilir. Bu çalışmada, AA ön tanılarıyla apandis ameliyatı yapılan gebe hastaların ameliyat öncesi klinik muayene, laboratuvar ve USG bulguları ile ameliyat sonrası patolojik değerlendirme sonuçları kullanılarak sınıflandırma yapılmıştır. Sınıflandırma algoritmalarının performansını değerlendirme için kesinlik (precision), duyarlık (recall), F-skor (F-measure) ve ROC eğrisi performans metrikleri kullanılmıştır. Ayrıca, AA ön tanısında kullanılan klasik yöntemlerin performansı ile makine öğrenmesi sınıflandırma yöntemlerinin performansı karşılaştırılmıştır.

Anahtar Kelimeler: Sınıflandırma, Sağlık, Tıp

Diagnosis of Acute Appendicitis Using Machine Learning Classification Algorithms

Abstract

Acute appendicitis (AA) is the most common non-pregnancy surgical pathology in pregnancy. Delay in diagnosis and treatment can threaten the life of the pregnant patient and the fetus. In this study, pre-operative clinical examination, laboratory, USG findings and postoperative pathological evaluation results of the pregnant patients who underwent appendectomy with AA pre-diagnosis were classified. Precision, recall, F-measure, and ROC curve performance metrics are used to evaluate the performance of classification algorithms. In addition, the performance of classical methods used in AA frontend and the performance of machine learning classification methods are compared.

Keywords: Classification, Health, Medicine
A Comparative Study of Validity Indices for Fuzzy Clustering

M.Bahar Baştir
Bartin University

Abstract
Fuzzy clustering is one of the effective tools used in data mining. This method provides a particular solution to identify hidden patterns in input data. Fuzzy c-means (FCM) is the well-known and unsupervised fuzzy clustering algorithm. FCM was developed as an optimization problem and has two important information: i) number of clusters (c), ii) order of fuzziness (m). There are various types of the conventional FCM. These algorithms determine the optimal fuzzy partitions to model the uncertainty in any given data. Therefore, it is important to select the optimal (c,m)-pair. There are several validity indices proposed for choosing the optimal (c,m). In this study, the performances of some fuzzy clustering algorithms and their validity indices are investigated. Particularly, two important problems of the validity indices which are related to the geometrical structure of data are analyzed for several multi-dimensional databases, e.g. Iris, Ionosphere, Yeast, Human skin, Crumpled paper. Experimental results are given to show the effect of these problems on the quality of fuzzy partitions. Finally, it is demonstrated how to improve these structural problems of validity indices using ad-hoc implementation.

Keywords: Fuzzy Clustering, Validity Index, Ad-Hoc Implementation
An Extended Technology Acceptance Model for Cryptocurrency

Başak Çetingüç¹, Eyüp Çalık¹, Fulya Gülürk¹

¹ Yalova University

Abstract

Cryptocurrency has become prevalent recently. A white paper written by Satoshi Nakamoto (2008) has changed dynamics of financial technology. Cryptocurrency trend started with bitcoin and by the first quarter of 2017 proceed with more than a thousand cryptocurrency types. Various technologies (blockchain, tangle etc.) has been utilized to create and penetrate in order to use cryptocurrencies. The main purpose of this study is to propose an extended technology acceptance model (E-TAM) for exploring technology adoption process of cryptocurrency. The model consists of trust, perceived ease of use, perceived usefulness, perceived risk, subjective norms, and intention to use. The relationships among these constructs were examined by employing structural equation modelling (SEM). A web-based survey was conducted to obtain data from individuals have not used cryptocurrency before and 87 valid data was analyzed SmartPLS software. The results indicate that except trust all constructs have positive impacts on intention to use cryptocurrency. These findings provide a viewpoint for cryptocurrency developers, financial organization and policy maker in terms of technology acceptance.

Keywords: Cryptocurrency, Technology Acceptance Model, Constructs, Pls-Sem
Araştırma Laboratuvarları için Online Rezervasyon ve Takip Sistemi

Emre Dandil¹, Ali Osman Selvi¹, İbrahim Ersin Yavaş¹

¹ Bilecik Seyh Edebali University

Özet


Anahtar Kelimeler: Java, Rezervasyon, Takip, Araştırma Laboratuvarı, Web

Online Reservation and Follow-up System for Research Laboratories

Abstract

In this study, a web-based reservation system was designed for the people who want to analyze in Universities Central Research Laboratories. JAVA web technologies are used to create the system software. Prepared system is set up to be used at Bilecik Seyh Edebali University. In the current situation, the reservation procedures of the customers who want to analyze are manually recorded and followed up on written documents. This method causes excessive time and loss of work power. It is aimed to make the reservation and following up processes of the customers who will analyze with the created software in a regular manner. The application provides services such as following up latest status of customer analyzes, viewing the analysis results and downloading analysis request forms to the system via the web. Software and information for analysis can be provided to the laboratory staff without coming to the laboratory.

Keywords: Java, Reservation, Follow-Up, Research Laboratory, Web
Göçmenlerin Çalışma İzni Başvurularının Birliktelik Kuralları ile İncelenmesi

Burcu Çağlar Gençosman¹, Tülin İnkaya¹

¹ Uludag University

Özet


Anahtar Kelimeler: Göç Verisi, İşgücü, Birliktelik Kuralları, İlginçlik Kuralları

Analysis of Immigrants’ Work Permit Applications with Association Rules

Abstract

In order to create a growing and competitive economy, immigrants are one of the important stakeholders for the labor market. According to the Migration Administration, as of May 2018, there are approximately 3.6 million Syrian refugees in Turkey, and there is a need to examine the effects of these immigrants on the labor market. In this study, the work permits belonging to the foreigners with Syrian nationality are considered in the database of the Ministry of Labor and Social Security. In this context, the relations among the jobs and cities that foreigners with Syrian nationality apply for, their demographic characteristics and educational status are examined. First, data preprocessing steps are implemented for missing data. Then, the association rules are found by applying the Apriori algorithm to the data. The obtained association rules are evaluated with various interestingness measures such as support, confidence, and leverage. Finally, the strong rules are interpreted with expert opinion.

Keywords: Immigration Data, Workforce, Association Rules, Interestingness Measures
Türkiye’deki Üniversite Öğrencilerinin Gelecek Beklentisi:
Bir Bayesyen Monte Carlo Simülasyon Örneği

Tugay Karadağ¹, Enes Filiz¹

¹Yıldız Technical University, Faculty of Arts and Sciences, Department of Statistics

Özet

Bayesyen yaklaşım, pek çok istatistiksel ve ekonometrik çalışmada uygulanan ve özü Bayes Teoremine dayandırılan bir yaklaşım sistemidir. Özellikle istatistik bilimi gelişiken, temelde Klasik (veya Frekansçı, Berkeley istatistiği) yaklaşım ve Bayesyen yaklaşım olmak üzere iki farklı felsefi yaklaşımın belirginleştiği görülmektedir. Bu disiplinlerin başlangıç aksiyomlarının yorumu yapılırken, pek çok konu ve kavramın analiz edilmesinde bu yaklaşımlar birbirlerine alternatif olmuşlardır. Bayesyen yaklaşımın gelişme süreci göz önünde bulundurulduğunda, kendi disiplini olan ve klasik yöntem alternatif bir yaklaşım olarak ortaya çıkmıştır. Bayesyen istatistikte bir olayın olasılığının, o olaya ilişkin inanç derecesi (ön bilgi, prior) ile denemeden elde edilen sonuçların birleştirilmiş halidir. Dolayısıyla, pek çok istatistiksel kavram bu yaklaşım ile farklı yorumlanabilmektedir Bu çalışmada, Türkiye’deki üniversite öğrencilerinin mezun olduktan sonra olumlu ya da olumsuz bir beklenti içinde olup olmadığı araştırılmıştır. Türkiye çapındaki 16 farklı üniversitedeki öğrencilere çeşitli sorular sorulmuş ve verilen yanıtlara göre olumlu (1) ya da olumsuz (0) olarak veriler kodlanmıştır ve R programı yardımıyla analizler gerçekleştirilmiştir.


Anahtar Kelimeler: Bayesyen Yaklaşım, Prior Dağılım, Posterior Dağılım, Monte Carlo
Future Expectation of University Students in Turkey: A Bayesian Monte Carlo Simulation Example

Abstract

Bayesian approach is an approach system based on Bayes' theorem, applied in many statistical and econometric studies. Especially, as the knowledge of statistics develops, it is seen that two different philosophical approaches, mainly Classical approach (or Frequencyian, Berkeley statistic) and Bayesian approach, become apparent. While interpreting the starting axioms of these disciplines, many approaches and concepts have been analyzed and these approaches have become alternatives to each other. Considering the development process of the Bayesian approach, its discipline and classical methodology emerged as an alternative approach. The probability of an event in Bayesian statistics is the combined state of the belief level (prior knowledge) and the results obtained experimentally. Hence, many statistical concepts can be interpreted differently by this approach. In this study, the future expectation of university students in Turkey has been investigated. As we take into consideration their life after graduation, we want to know that if they have positive or negative expectations after they graduate. Various questions were asked to the students at 16 different universities across Turkey. The data were coded as positive (1) or negative (0) according to the responses given, and analyzes were performed with the help of the R program. In this study, our prior opinion about the students who think positively is %35. Beta Prior distribution hyperparameters have been determined after we have determined that our data is distributed ‘Beta’. Similarly, posterior distribution was determined by using the parameters of the Beta distribution after finding the likelihood function value for the sample of 32 students taken at 16 universities. After forming the posterior distribution, the expected value of the distribution was found to be 0.426. by using the Monte Carlo Simulation, 100,000 p-values were simulated with the help of the R program, and the average of the values were obtained as p=0.428. As a result, according to the posterior distribution of expected values obtained, it can be deduced from the analyzes that : The future expectation of every 428 university students in Turkey out of every 1000 students is positive. From another perspective, it is possible to say that : The 572 students out of every 1000 students have negative expectation about their future in Turkey.

Keywords: Bayesian Approach, Prior Distribution, Posterior Distribution, Monte Carlo
Konaklama İşletmelerinde Hizmet Kalitesinin Müşteri Memnuniyeti ve Müşteri Sadakatine Etkisi

Selme Uyar¹, Ayşe Tansel Çetin¹, Alper Ertürk²

¹ Yalova University  
² Duzce University

Özet


Anahtar Kelimeler: Konaklama Sektörü, Hizmet Kalitesi, Müşteri Memnuniyeti, Müşteri Sadakati

Influence of Service Quality on Customer Satisfaction and Customer Loyalty in Hospitality Businesses

Abstract

With increased competition in hospitality businesses, in order to achieve a sustainable success and have a competitive advantage by creating loyal customers, hotels have to adopt an approach aiming to satisfactorily respond to changing customer demands and to have customers be satisfied with the services of the hotel. Hence, the purpose of this study is to examine the influence of service quality offered in the hotel operations on customers’ satisfaction and loyalty.
To reach our purpose, data were collected using a structured questionnaire from a total of 150 guests, consisting of 106 Turkish and 44 foreign guests staying in an international 5-star hotel located in Gemlik. To test the hypotheses, exploratory factor analysis, correlation and regression analyses were employed. As a result of analyses, it is concluded that all sub-dimensions of service quality, with the exception of reliability, have meaningful influence on customer satisfaction, while no significant link was found between reliability and satisfaction. In other words, as the quality of service improves, customer satisfaction is expected to increase. Results also yielded a positive and significant relationship between customer satisfaction and loyalty. When the effect of service quality on loyalty is examined, results revealed that service quality dimensions have positive and significant influence on loyalty, with the exception that responding to the demands did not have any significant relationship with customer loyalty. In other words, as the service quality increases, customer loyalty is also expected to increase.

**Keywords:** Hospitality Industry, Service Quality, Customer Satisfaction, Customer Loyalty
Özet


Anahtar Kelimeler: Oksin, Organik Stimulat, Çelik, Köklenme

Effects of Auxin (Toniroot) and Organic-Based Stimulants (Albit) on the Rooting of Arabian Jasmine (Rhyncospermum jasminoides) Cuttings

Abstract

Auxins are chemicals that have been used for a long period of time to stimulate propagation of plant cuttings. IBA, NAA and IAA are the most commonly used plant growth regulators from this group. As a result of increasing environmental awareness, nowadays the use of organic based natural stimulants (Albit) have become more popular. In this study a comparison has been
made between a commercially used synthetic propagation mixture that include chemicals from the auxin group and the effects of an organic-based mixture on stimulating rooting on plant cuttings. The comparison has been applied on Arabian jasmine (Rhyncospernum jasminoides), which is an increasingly popular climbing plant. Its evergreen nature, potential of ornamental application in many different forms, and the pleasant aroma that comes from its blooming summer flowers are some of the factors that make this plant stand out. The experiment has been conducted in Yalova University’s Vocational Schools greenhouse by three repetitions in every 100 cuttings. The statistical evaluations were reached by using the ‘Jump’ statistical program. By supplementing synthetic chemicals with natural and organic based mixtures this study will make a contribution to the protection of the natural environment as well as to the procurement of organic-based materials for organic agricultural activities.

**Keywords:** Auxin, Organic Stimulant, Cutting, Rooting
Göğüs Kanseri Teşhisinde Karar Ağacı ile Sınıflandırma Ve Budama Uygulaması

Pelin Akın1, Yüksel Terzi1

1 Ondokuz Mayıs University

Özet


Anahtar Kelimeler: Karar Ağaçları, Göğüs Kanseri, Ön Budama, Son Budama

Diagnosis of Breast Cancer Using Decision Tree and Pruning

Abstract

Machine learning, which is a new and promising sub-field of algorithmic data analysis, has been rapidly progressing in recent years. Decision trees, which are one of the most widely used techniques in machine learning, are the preferred method because they are easy to understand. One of the problems of decision tree algorithm, pruning is applied in order to eliminate the negative effects caused by over-learning. In this study, decision trees algorithms were used to classify the tumors of the Wisconsin Breast Cancer data obtained from the machine learning store (UCI Machine Learning Depository) as benign (non-cancerous) and malignant (cancerous), using preliminary pruning and final pruning. Rpart (Recursive partitioning for classification) was used in the decision tree algorithm. In the data set, classification was made according to the 30 properties obtained from the cell nucleus of 212 cancer patients without 357 cancer. The results obtained from different education and test data were compared according to
the accuracy rates. The findings show that the pruning procedure in the decision tree algorithm is applied to make the tree diagrams formed rather than increase the accuracy.

**Keywords:** Decision Trees, Breast Cancer, Pruning, Final Pruning
Yeni Bir Dinamik Tutarlı Bilgi Kriteri Önerisi ve Regresyon Analizi Uygulaması

Emre Dünder
Ondokuz Mayıs University

Özet


Anahtar Kelimeler: Bilgi Kriteri; Model Seçimi; Veri Bilimi

Application of A New Dynamic Coherent Criterion and Regression Analysis

Abstract

Information criteria have an important place in data science. The most basic criteria used in the selection of the most appropriate statistical model are information criteria. Depending on the punishment terms included in the information criteria, the model selection algorithms vary in their performance. In particular, the success of the information criteria increases as a result of the corrections made on the punishment terms. In this study, by adding a dynamic term to the term of the sentence, an information criterion with Akaike type and consistency is proposed. This criterion includes a dynamic penalty parameter. An approach based on the complexity function for the selection of the dynamic penalty parameter is also proposed with the criterion. The proposed criterion and punishment term selection approach were applied in regression analysis. As a result of simulation studies and real data set analysis, it was determined that the criterion was more successful than the current criteria.

Keywords: Information Criterion; Model Selection; Data Science
Örgüt Kültürü’nün İş Performansına Etkisinde Örgütsel Bağlılığın İncelenmesi

Gözde Mert
Nisantasi University

Özet


Anahtar Kelimeler: Taahhüt, İş Performansi, Kültür, Örgütsel Kültür, Örgütsel Bağlılık, Performans

The Role of Organizational Commitment in the Impact of Organizational Culture on Business Performance

Abstract

Organizational culture influences all processes and procedures. Achieving job loyalties and increasing work performance is an important issue for all organizations. In the context of this research, it is suggested that organizational culture has an intermediary role in the influence of organizational culture on business performance. To this end, the survey was administered to managers and employees operating in the banking sector in Turkey in 2018. Since the number of main masses is known in the study, the sample is calculated and it is aimed to reach a minimum of 400 participants. In the analysis of the data, the results will be revealed using the AMOS program and the Structural Equation Model.

Keywords: Commitment, Business Performance, Culture, Organizational Culture, Organizational Commitment, Performance
Makine Öğrenmesinde Kayıp Veri Probleminin İncelenmesi ve Tiroid Hastalığı ile İlgili Bir Uygulama

Senem Koç¹, Leman Tomak¹

¹ Ondokuz Mayıs University University Faculty of Medicine, Department of Biostatistics and Medical Informatics

Özet


Anahtar Kelimeler: Kayıp Veri, Değer Atama, Destek Vektör Makineleri

A Study of Missing Value Problem in Machine Learning and An Application of Thyroid Disease

Abstract

Today machine learning algorithms are used for analysis of clinical data. However, in clinical data, missing data is an important problem and some methods of machine learning fail to perform when there are missing data. Various methods have been developed in order to overcome missing data problem. This study determined the most effective method by using sensitivity and specificity to overcome missing data problem in comparing tree different methods. First missing data were deleted in order to perform the analysis. Secondly, missing data were imputed by the mean which is a measure of central tendency. Finally the missing data were imputed by Multiple Imputations by Chained Equations. The missing categorical
data were omitted. The hypothyroid disease dataset of the UCI Machine Learning Repository was taken. The data includes 499 patients with 21 attribute values like age, gender and laboratory test results. The analyses were conducted by a popular machine learning algorithm the support vector machines and the results were compared based on performance measure: sensitivity and specificity. MICE imputation showed better predictive performance.

**Keywords**: Missing Value, Imputation, Support Vector Machine.
Yalova Florasında Bulunan Süs Bitkisi Potansiyeli Olan Bazı Endemik Türlerin Çimlenme Yüzdelerinin Belirlenmesi

Gül Yücel¹, Kamil Erken²

¹Yalova University, ²Bursa Technical University

Özet

Günümüz dünyasında ülkelerin sahip olduğu biyolojik zenginlikler geçmişe göre çok daha fazla önem kazanmıştır. Özellikle doğada oluşan bilinçli ya da bilinçsiz tahribatlar var olan biyolojik zenginliklerin korunmasını ve türlerin izlenmesini zorunlu kılmaktadır. İşte Yalova ili de biyolojik çeşitliliğin zenginliği ile Marmara bölgesi için önemli bir kenttir. Bu çalışmada Yalova florasına ait endemik bitkiler arasından tespit edilen ve süs bitkisi potansiyeli olan beş tür (Rhaponticoides wagenitziana (Bancheva& Kit Tan) M.V.Agab. & Greuter, Stachys cretica L. subsp. Anatolica Rech. f., Papaver pilosum Sibth. & Sm.subsp. pilosum,Verbascum bombyciferum Boiss, Scrophularia cryptophyla Boiss.) belirlenmiş ve bu türlerin çimlenme özellikleri incelenmiştir. Bu amaçla; beş türe ait tohum örnekleri, Yalova florasından toplandı, çimlendirme kabininde, 20°C ve %70 nemde, 12/12 karanlık/aydınlık ışık rejiminde tohum çimlendirme denemeleri yürütülmüştür. Çimlenme yüzdeleri R. wagenitziana’da%24.25, S.cretica,’da% 34.75 P.pilosum’da %58.25 V. bombyciferum’da%74.25 S.cryptophyla’da% 80.5olarak belirlenmiştir.

Anahtar Kelimeler: Endemik, Papaver, Verbascum, Tohum, Çimlenme

Identifying the Germination Percentages of Some Endemic Species With Ornamental Plant Potentials of Yalova Flora

Abstract

Nowadays, biological riches of countries have gained more importance in comparison to the past. Especially the deliberate or unintended destructions that occur in nature necessitate the biological diversity to be protected and the species to be observed. Hence, Yalova stands out as an important city of the Marmara Region in terms of its biological diversity and riches. This study focuses on five types of endemic plants (Rhaponticoides wagenitziana (Bancheva & Kit Tan) M.V.Agab. & Greuter, Stachys cretica L. subsp. anatolica Rech.f., Papaver pilosum Sibth. & Sm.subsp. pilosum,Verbascum bombyciferum Boiss, Scrophularia cryptophyla Boiss.) which carry ornamental plant potentials have been identified in Yalova flora. Additionally, their germination properties have been examined. For this purpose, the seed samples from those five species were collected from Yalova flora. These experiments have been carried out in the germination cabin in 20 C and 70% humidity, 12/12 lighting/dimming regime. The germination
percentage have been identified as 24.25% for *R. wagenitziana*, %34.75 for *S. cretica*, 58.25% for *P. pilosum*, 74.75 for *V. bombyciferum*, %80.5 for *S. cryptophyla*.

**Keywords:** Endemic, Papaver, Verbascum, Seed, Germination

**MR Görüntülerinden Beyin Tümörlerinin Konvolüsyonel Sinir Ağları ile Teşhisi**

Enes Vardar¹, Kaplan Kaplan¹, Hüseyin Metin Ertuğ¹

¹ Kocaeli University

**Özet**

Manyetik Rezonans Görüntüleme (MRI), beyin tümörü tanısı için bilgilendirici veriler sağlayan yaygın olarak kullanılan tıbbi görüntüleme yöntemlerinden biridir. MRI verilerini kontrol etmek ve teşhis etmek doktorlar için önemli miktarda zaman almaktadır. Bu çalışmanın amacı, bir hastanın MR görüntülerinden tümör tipini tanımaktır. MRG görüntülerini sınıflandırmak için Convolutional nöral ağlar (CNNs) adlı bir derin öğrenme yöntemi geliştirilmiştir. Günümüzde çoğu görüntü sınıflandırma problemi, diğer mevcut algoritmalarına göre daha fazla hassasiyet ve doğruluk oranını sağladığından CNN'yi kullanmaktadır. Çalışmada tasarlanan CNN modeli, denetimli öğrenme yöntemi kullanarak MATLAB ortamında Beyin MRG'si ile eğitilmiştir. Eğitilen model veri setleri ile test edilerek % 84 doğruluk elde edilmiştir.

**Anahtar Kelimeler:** Beyin Tümörleri, MRI Görüntüleri, Derin Öğrenme, Konvolüsyonel Sinir Ağları

**Diagnosis of Brain Tumours from Mr Images by Using Convolutional Neural Networks**

**Abstract**

Magnetic Resonance Imaging (MRI) is one of the widely used medical imaging technique that provides informative data for brain tumour diagnosis. Checking up and diagnosing MRI data takes a considerable amount of time for doctors. The purpose of this study is to recognize the type of tumour from a patient's MRI images. A deep learning method named Convolutional Neural Networks (CNNs) has been developed in order to classify MRI images. Nowadays, most image classification problems utilize CNN since they provide more sensitivity and accuracy rate compared to other existing algorithms. The CNN model designed in the study is trained
with Brain MRI in the MATLAB environment using supervised learning method. The trained model was tested with data sets and the images are classified with the 84% accuracy.

**Keywords:** Brain Tumours, MRI Images, Deep Learning, Convolutional Neural Networks
Mobil Robotların Konumlandırılması için BLE ve UWB Tabanlı Teknolojilerin Karşılaştırılması

Barış Karamustafa¹, Gürkan Küçükyıldız², Suat Karakaya¹, Hasan Ocak¹

¹Kocaeli University
²Usak University

Özet

Mobil robotların konumlandırılması karmaşık bir konudur. Bir mobil robotun konumunu belirlemek için çeşitli konumlandırma teknolojileri (manyetik şerit, rfid tag, vb.) kullanılır. BLE (Bluetooth Low Energy) ve UWB (Ultra-Wideband) tabanlı konumlama sistemleri kullanılarak GPS (Global Positioning System) teknolojisinin çalıştığı kapalı alanlarda konumlama yapılabilir. BLE tabanlı konumlama sistemlerinde beacon cihazlarından alınan sinyalin gücü (RSS) logaritmik bir fonksiyon kullanılarak mesafeye dönüştürülür. UWB tabanlı konumlama sistemlerinde ise alıcı ve verici arasındaki haberleşme süresi (Time of Arrival) mesafeye dönüştürülür. Farklı referanslardan elde edilen bu mesafe bilgileri ile robotun konumu hesaplanabilir. Bu çalışmada UWB ve BLE tabanlı konumlama teknolojileri kullanılarak bir mobil robotun kapalı ortamda konumlandırılması yapılmıştır. Bu iki teknolojinin birbirlerine ve diğer konumlandırma teknolojilerine göre avantaj ve dezavantajları belirtilmiştir.

Anahtar Kelimeler: İç Mekan Konumlandırma, Ultra Geniş Bant, Bluetooth Düşük Enerji, RSSI, Varış Zamanı

Comparison of BLE and UWB Based Technologies for Mobile Robot Positioning

Abstract

Positioning of the mobile robots is a complex issue. Various positioning technologies (magnetic stripe, rfid tag, etc.) are used to determine the position of a mobile robot. BLE (Bluetooth Low Energy) and UWB (Ultra-Wideband) based positioning systems can be used to position in closed areas where GPS (Global Positioning System) technology does not work. In BLE-based positioning systems, the power of the signal received from the beacon devices (RSS) is converted to a distance using a logarithmic function. In UWB-based positioning systems, the Time of Arrival is converted to the distance between the receiver and the transmitter. With this distance information obtained from different references, the position of the robot can be calculated. In this study, a mobile robot is positioned in the interior using
UWB and BLE based positioning technologies. The advantages and disadvantages of these two technologies compared to each other and other positioning technologies are mentioned.

**Keywords:** Indoor Positioning, Ultra-Wideband, Bluetooth Low Energy, RSSI, Time of Arrival
Beacon Tabanlı Konumlandırma Sistemleri için Hızlı Kurulum Algoritması

Barış Karamustafa¹, Gürkan Küçükyıldız,² Suat Karakaya¹, Hasan Oacak¹

¹ Kocaeli University
² Usak University

Özet


Anahtar Kelimeler: İç Mekan Konumlandırma, Ultra Geniş Bant, Bluetooth Düşük Enerji, RSSI, Varış Zamamı

A Fast installation Algorithm for Beacon Based Indoor Positioning Systems

Abstract

Indoor positioning systems are used for mobile robot navigation in areas where GPS (Global Positioning System) technology does not work. Wi-Fi, BLE (Bluetooth Low Energy) and UWB (Ultra-Wideband) based systems are widely used indoor positioning methods. In these systems, the distance between the receiver and the beacons is calculated according to the signal power from the beacons placed on the field or the transmission time of this signal. In this study, a new method is proposed to determine the position of beacons placed on the field. Thus, the installation time is reduced.

Keywords: Indoor Positioning, Ultra-Wideband, Bluetooth Low Energy, RSSI; Time of Arrival.
Özgün ve Verimli bir Hexapod Sistemi: Robocek

Tuğberk Dilaver¹, Gizem Deniz Karakaya¹, Kaan Sali¹, Mehmet Dönmez¹, Suat Karakaya¹, Hasan Ocak¹

¹ Kocaeli University

Özet


Anahtar Kelimeler: Hexapod, 3 Boyutlu Yazıcı, Mekanik Tasarım

A Novel and Efficient Hexapod System: Robocek

Abstract

In this study, a six-legged robot was designed. Each leg consists of 4 joints. There are 4 servo motors on each leg including body and connection point. Increased number of joints and reduced body weight increase the freedom of movement and torque capacity compared to conventional mechanisms. The leg joint has the ability to climb tree-like objects and drag an object in front of it. The creep height can be defined over a wider range, widening the view of the camera on it. The camera is fixed on a pan-tilt mechanism and can move in 3 axes. Image acquisition from a remote computer via a Wi-fi can be performed easily in hard-to-reach areas. The radio frequency remote control is used for back-forward, descent-elevation and left-right movements. The Robocek is efficient compared to its peers with an average working time of 5 hours due to its ABS material produced in 3d printer.

Keywords: Hexapod, 3D Printer, Mechanical Design
PSM'ye XML Tabanlı Dönüşüm Yöntemi: BPMN Formatından Bankacılık İş Akışı Sistemeine

Hüseyin Karadağ¹, Halife Kodaz²

¹Kuveyt Türk Katılım Bank
²Selcuk University

Özet


Anahtar Kelimeler: BPMN, XML, XSLT, BPM, MDA, PSM, Model Dönüşümü, İş Akışı

XML Based Transformation Method To PSM: From BPMN Format To Banking Workflow System

Abstract

During the development and modeling of work processes in companies, it is very important for the successful integration of business units and information technology teams as well as other business partners for successful and productive progress. BPMN (Business Process Model and
Notation) developed by OMG is a widely used standard in modeling business processes. BPMN also provides a graphical language to visualize business processes, bringing together partners involved in the business process. At this point, it communicates processes quickly and efficiently between business partners, corporations and wider masses. A workflow is a process management that consists of components such as state, action, rule created for processes that contain user approval. Basically, workflow is defined as automation of a business process in full or in part. The workflow that connects employees, process steps and data is important in all business processes so that firms, especially banks, can work efficiently. It is a need to transfer the common business process models determined by business units, business process developers or business partners from different locations and workplaces to the workflow systems of a bank in a fast, lossless manner without breaking the existing processes, and breaking the existing ones. In this study, it is aimed to transfer a business process model prepared in BPMN format to PSM. In this work, we have tried to develop a transfer method to link the MDA approach and outputs with two different XML formats. The XML-based model transfer here is implemented using XML metadata exchange notation and XSLT.

**Keywords:** BPMN, XML, XSLT, BPM, MDA, PSM, Model Transformation, Workflow
Twitter Üzerinde Konu Bazlı Sınıflandırma

Eyüp Arslan¹, Fatma Zehra Koçak¹, Sait Ali Uymaz¹

¹ Selçuk University

Özet


Anahtar Kelimeler: Veri Madenciliği, Büyük Veri, Twitter, TF-IDF, Text Mining, NoSQL, Cassandra

Topic-Based Classification on Twitter

Abstract

Along with the progress of technology and the development of the internet, the power of knowledge has come to the forefront nowadays, and many cases in the internet world have come to be known as Information Warehouse. Software companies who think that meaningful data can come out of this trash can also find out what we call Big Data by doing AR-GE work in this sense. All these obtained from different sources such as Big Data, social media sharing, photo archives, and 'log' files that we continuously record are transformed into meaningful and processable. In this study, the social media platform, which has 218.3 million active users, was classified with tweets that were obtained via Twitter. In the Python
environment, the classification areas and the amount of data determined when creating data sets are in the form of Education 2000 tweets, Entertainment 2000 tweets, Fashion 2000 tweets, Health 2000 tweets, Law 2000 tweets, Nature 2000 tweets, Politics 2000 tweets, Sport 2000 tweets, Technology 2000 tweets and Travel 2000 tweets used. During the classification process, the relevant keywords are used for each class information and the data sets are prepared for preprocessing. The data prepared after the preprocessing step was transferred to Cassandra, the NoSQL database. After obtaining the test data in the specified classes, the classification results of the data were obtained by using the TF-IDF and Similarity algorithm. In total, 20000 training and 6000 test data were obtained and the success rate of the system was 85%. The acquired data has been made available to the users in the developed web interface.

**Keywords:** Big Data, Data Mining, Twitter, TF-IDF, Text Mining, Nosql, Cassandra

**Anahtar Kelimeler:** Peptit, Mikrobiyal, Kompozisyon Moment Vektör, Temel Bileşen Analizi, Doğrusal Destek Vektör Makineleri, Sınıflandırma

Identification of Antimicrobial Peptides Using a Machine Learning Model

Abstract

Antimicrobial peptides are peptide antibiotics that are a field of broad antimicrobial activity. In this regard, antimicrobial peptides are promising candidates in the fight against many resistant pathogens due to their wide spectrum of activity. Estimation of the activity of the amino acid sequences of the antimicrobial peptides has a great influence. In this work we have conducted, we estimated antimicrobial peptides with a machine learning model. We have narrowed the size of the protein sequences, which were coded by Composition Moment Vector method, with Principal Component Analysis and classified them with various classifier algorithms. According to this, the best performance gave a Linear Support Vector Machines method with 92.93% class accuracy and 84.33% sensitivity value.

**Keywords:** Peptide, Microbial, Composition Moment Vector, Basic Component Analysis, Linear Support Vector Machines, Classification
Türkçe Tweetler Üzerinde Otomatik Soru Tespiti

İ Mayda

Bilgisayar Mühendisliği Bölümü, Fen Bilimleri Enstitüsü, Yıldız Teknik Üniversitesi, Davutpaşa, İstanbul, Türkiye

Özet


Anahtar Kelimeler: Twitter, Türkçe Tweetler, Soru Tespiti

Automatic Question Identification on Turkish Tweets

Abstract

In this work, it was tried to identify which are includes question from the tweets written in Turkish shared in Twitter, with a rule-based approach. As a data set, tweets that are shared with a certain hashtag are used instead of randomly sampled tweets. The reason for this, it is aimed to identify the questions asked for a specific focus in this study. For the experiments, 354 tweets were collected, shared with the hashtag that was created in order to contribute of the audience to the program by asking the questions while a historical topic was being spoken in the program broadcast live on a television channel. The Zemberek library has been used to fix typos in these tweets. Then, according to the Turkish question sentence structure, 3 simple rules are defined aiming at keeping the precision value or the sensitivity value high and each one is applied as a separate method. As a result of experiments, 100% precision, 96.48% sensitivity and 0.929 F-score values were recorded as the most successful performances.

Keywords: Twitter, Turkish Tweets, Question Identification

(Bu çalışmanın genişletilmiş tam metin halı Veri Bilimi dergisi 1. cilt, 1. sayısında yayınlanmıştır.)
Uydu Görüntülerinden Zincir Kod ve En Uzun Ortak Alt Küme Yöntemleri ile Yarı Otomatik Yol Bulma

M Tekin¹ ve M Çetin¹

¹ Bilgisayar Mühendisliği Bölümü, Yalova Üniversitesi, Yalova

Özet

Bu çalışmada uydu resimlerindeki yolların tespitinde yeni bir yarı otomatik ön işlem yöntemi geliştirilmeye çalışılmıştır. Sistem dört ana aşamadan oluşmaktadır. İlk aşama, uydu görüntüüsündeki kenarlıkların ortaya çıkarma işlemidir. İkinci aşama, zincir kod yönteminin (chaincode) kenar nesnelerine uygulanarak her bir kenar nesnesine ait zincir kodun elde edilmesidir. Üçüncü aşama, en uzun ortak alt kümeye (longest common subsequence) yöntemi ile zincir kod benzerlikleri karşılaştırlarak birbirine benzer kenarların otomatik tespit edilmesidir. Son aşama ise, belirlenen yol kriterlerine ve istatiksel parametrelerden faydalanarak hatalı piksellerin eliminasyonu edilmesidir. Önerilen yöntemin usage samples kullanılarak üç adet örnek uydu görüntüüsünde denemeler yapıldığında sırasıyla duyarlılık (sensitivity) %60’lar civarında, belirginlik (specificity) değeri %90 üzerinde, doğruluk (accuracy) ise %80 civarı olduğu görülmüştür. Bu sonuçlar önerilen sistemin düşük hata oranı ile kullanılabilir bir ön işlem yöntemi olduğunu göstermiştir.

Anahtar Kelimeler: Uydu Görüntüleri, Yol Tespiti, Zincir Kod, En Uzun Ortak Alt Küme, Görüntü İşleme

A Semi Automatic Road Detection from Satellite Images Using Chain Code and Longest Common Subsequence

Abstract

In this study, a new semi-automatic preprocessing method was developed to detect the paths in satellite images. The system consists of four main stages. The first stage is the process of exposing the borders in the satellite image. The second step is to apply the chaincode method to the edge objects to obtain the chain code for each edge object. The third step is the automatic identification of similar edges by comparing the chain code similarity with the longest common subsequence method. The final stage is to eliminate the defective pixels by using the determined path criteria and statistical parameters. When three sample satellite images were tested using
the proposed method, the sensitivity was found to be around 60%, the specificity value was above 90% and the accuracy was around 80%. These results show that the proposed system is a usable preprocessing method with low error rate.

**Keywords:** Satellite Images, Road Detection, Chain Code, Longest Common Subsequence, Image Processing
Determination of Partial Shade Panels in Solar Panels Using Minkowski Theorem

S Bulut¹, F B Gürbüz¹, S Vadi², R Bayındır¹

¹ Gazi University, Faculty of Technology, Electrical and Electronics Engineering Department, Ankara, Turkey
² Gazi University, Vocational School of Technical Sciences, Electronics Department, Ankara, Turkey

Abstract

Factors affecting the efficiency of solar power generating systems include factors such as partial shading (contamination, module positioning, weather conditions, cell damage), reflection, cable losses, and extreme temperature. In order to increase productivity: solar tracking systems, maximum power point tracking (MPPT), cooling systems are used. In these methods, in the event of a fault in any panel in the solar panel, all panel belonging to that series are disabled and the efficiency of the system is decreasing. In this study, to solve the problem of shadow that is one of the biggest problems of solar power plants, Minkowski theorem that is a mathematical model, detects the faulty panel or the low current panel and disables the detected panel or panels. In this way, both rapid malfunction detection and system efficiency can be increase.

Keywords: Solar Energy, Minkowski Theorem, Partial Shading
Atkı İplik Numarası, Atkı Sıklığı Ve Örgü Tipinin %100 Akrilik Dokuma Kumaşların Hava ve Su Buharı Geçirgenliğine Etkisi

Arzu Yavaşcaoğlu¹, Recep Eren² ve Gülcan Süle²

¹ University of Yalova, Yalova Vocational School, Textile, Clothing and Leather Shoes, Turkey
² Bursa Uludag University, Faculty of Engineering, Textile Engineering, Turkey

Özet

Bu çalışmada %100 akrilik dokuma kumaşların hava ve su buharı geçirgenliği özelliklerine atkı iplik numarası, atkı sıklığı ve örgü tipi değişiminin etkisi incelenmiş ve istatistiksel olarak değerlendirilmiştir. Çalışmada iki farklı numara atkı ipliği ile üç farklı örgüde kumaş üretilerek iplik numarası ve örgü tipi değişiminin etkisi, bezayağı örgülü kumaş yapılarında 3 farklı atkı sıklığı kullanılarak atkı sıklığı değişiminin etkisi değerlendirilmiştir. Çalışma sonucuna göre, akrilik dokuma kumaşlarda atkı sıklığı arttırca hava ve su buharı geçirgenliği azalmaktadır. Bezayağı örgünün hava geçirgenliği dimi ve satin örgülü kumaş yapılarına göre düşüktür. Kalın atkı ipliği kullanılan kumaşlarda su buharı geçirgenliği daha fazladır.

Anahtar Kelimeler: Akrilik, Dokuma, Hava Geçirgenliği, Su Buharı Geçirgenliği, SPSS

The Effects of Weft Density, Weft Yarn Count and Weaving Type on Air and Water Vapor Permeability on 100% Acrylic Woven Fabrics

Abstract

In this study, the effects of weft yarn count, weft density and weaving type on the air and water vapor permeability properties of 100% acrylic woven fabrics were examined and evaluated statistically. Fabrics were produced with two different weft yarns (Ne 20/1 and Ne 16/1), three different weft density (13, 15 and 17 threads/cm) and three different weave types (plain, twill and satin). According to the result of the study, the air permeability and water vapor permeability decreased when weft density was increased. Air permeability values of fabrics
woven with plain weave were lower than those of satin and twill weaves. Water vapor permeability values of fabrics woven with thick weft yarn were greater.

**Keywords:** Acrylic, Weave, Air Permeability, Water Vapor Permeability, SPSS
Makine Öğrenmesi Algoritmaları ile Kompakt Isı Değiştirici Performans Parametrelerinin Tahmin Edilmesi

Sinan Uğuz¹, Osman İpek¹
¹Suleyman Demirel University

Özet
Metal eklemeli imalat (MAM) teknolojisi, özgün tasarımlarının üretilmesi ve üretim zamanının kısaltılması açısından önemli avantajlara sahiptir. Bu nedenle geleneksel yöntemlerle üretilmeyen kompakt ve karmaşık geometrilğe ısı değiştiricilerin üretilmesi için de güncel bir metottur. SUNulan bu çalışmada, MAM teknolojisyle üretilmiş inovatif tasarımli kompakt ısı değiştirici (CHE)’nin sıcak ve soğuk su çıkışlarını belirlemek için analiz ve test aşamasında bazı deneyler gerçekleştirilmştir. Deney sayısıının artırılmasının zaman ve maliyet bakımından olumsuz bir etki oluşturmaktadır. Bu yüzden gerçekleştirilemeyen deneylere ait sonuçları tahmin etmek için makine öğrenmesi algoritmaları kullanılarak çeşitli modeller geliştirilmiştir. Bu çalışmada, Artificial Neural Networks (ANN) ve Multivariable Linear Regression (MLR) metodları kullanılarak elde edilen modelleri test etmek için deneySEL verileri %30’u, eğitmek için ise %70’i kullanılmıştır. MLR modellerinin eğitim sürecinde en yüksek R^2 degeri 0.977 iken, en düşük hata değerleri ise MAE, MSE ve MedAe için sırasıyla 0.109, 0.024 ve 0.097 olarak bulunmuştur. ANN modelleri için en yüksek R^2 degeri 0.992 iken, en düşük hata değerleri ise MAE, MSE ve MedAe için sırasıyla 0.020, 0.000 ve 0.016 olarak bulunmuştur.

Anahtar Kelimeler: Artificial Neural Networks, Multiple Linear Regression, Machine Learning, Compact Heat Exchanger

Prediction of Compact Heat Exchanger Performance Parameters With Machine Learning Algorithms

Abstract
Metal additive manufacturing (MAM) technology presents considerable advantages in the manufacture of original designs and shortening production time. Therefore, it can also be used as an innovative technology for the manufacture of complex heat exchangers, which cannot be produced by traditional methods. Some experiments were carried out to determine the hot water and cold water outlet temperatures of an innovative compact heat exchanger (CHE) produced using MAM technology, the original design and analysis of which is discussed in our previous studies. An increase in the number of experiments conducted on the CHE will inevitably have a negative effect on its manufacture time and cost. Thus, various models were developed to predict the results of unperformed experiments using machine learning algorithms. In this study, 30 % of the experimental data were used to test the models obtained
using the Artificial Neural Networks (ANN) and Multivariable Linear Regression (MLR) methods, while 70% of the data were used to train the models. In the MLR models’ training stage, the highest $R^2$ value was 0.977, while the lowest error values were found to be 0.109, 0.024 and 0.097, for MAE, MSE and MedAe, respectively. Meanwhile, for the ANN models, the highest $R^2$ value was 0.992, while the lowest error values were found to be 0.020, 0.000 and 0.016, for MAE, MSE and MedAe, respectively.

**Keywords:** Yapay Sinir Ağları, Çoklu Doğrusal Regresyon, Makine Öğrenmesi, Kompakt Isı Değiştirici
Türkiye’nin 2020 Yılı Üretim ve Ulaşım Sektörü Kaynaklı Sera Gazı Emisyon Değerlerinin Yapay Sinir Ağları Tekniği ile Tahmin Edilmesi

Sinan Uğuz
Süleyman Demirel University, Faculty of Technology, Department of Software Engineering

Özet

Küresel ısınmaya neden olan karbondioksit (CO2), Nitröz oksit (N2O) ve Metan (CH4) çeşitli sektörler tarafından oluşturulan sera gazlarıdır. UNFCCC (Birleşmiş milletler iklim değişikliği çerçeve sözleşmesi) gereğince Türkiye’nin de içinde olduğu ülkelerin çeşitli sektörleri tarafından oluşturulan sera emisyon değerleri kayıt altına alınarak takip edilmektedir. Ülkelerin oluşturdukları sera emisyon değerleri zaman içinde birçok etkene göre farklılık oluşturabilir. Bu yüzden bu değerin tahmin edilmesi ülkeler açısından önemlidir. Bu çalışmada UNFCCC_V19 olarak adlandırılan büyük bir veri tabanından Türkiye’deki üretim ve ulaşım sektörüne ait 1990-2014 yılları arasındaki sera emisyon değerleri elde edilmiştir. Yapay sinir ağları (YSA) tekniği ile veri seti eğitilmiştir. YSA eğitim safhasında üretim sektörü için en yüksek R2 değeri CO2, N2O ve CH4 için sırasıyla 0.82, 0.84 ve 0.86 olarak elde edilmiştir. YSA eğitim safhasında taşıma sektörü için en yüksek R2 değeri CO2, N2O ve CH4 için sırasıyla 0.91, 0.79 ve 0.95 olarak bulunmuştur. 2020 yılı için üretim sektörünün oluşturacağı emisyon değeri sırasıyla 61.83 Gg, 0.75 Gg ve 4.59 Gg olarak tahmin edilmiştir. 2020 yılı için taşıma sektörünün oluşturacağı emisyon değeri sırasıyla 72193 Gg, 3.84 Gg ve 14.15 Gg olarak tahmin edilmiştir.

Anahtar Kelimeler: Sera Gazı Emisyonu, Yapay Sinir Ağları, Üretim Sektörü, Ulaşım Sektörü

Prediction of Greenhouse Emissions Originating From Turkey’s Manufacturing and Transport Sector Using Artificial Neural

Abstract

Carbon dioxide (CO2), Nitrous oxide (N2O) and Methane (CH4), which cause global warming, are greenhouse gases generated by various sectors. In accordance with the UNFCCC (The United Nations Framework Convention on Climate Change), greenhouse gas emissions generated by different sectors of the country including Turkey are followed by recording. The emission values of greenhouse gases emitted by countries can vary over time depending on many factors. Therefore, prediction of this value is important for countries. In this study, greenhouse emissions of the manufacturing and transport sectors in Turkey were obtained from a large database called UNFCCC_V19 between 1990 and 2014. The dataset was trained by artificial neural networks (ANN) technique. In the ANN models’ training
stage, the highest \( R^2 \) values in manufacturing sector were found to be 0.82, 0.84 and 0.86, for CO2, N2O and CH4, respectively, while it was 0.91, 0.79 and 0.95 in transport sector. The emission value of the manufacturing sector for 2020 were predict to be 61.83 Gg, 0.75 Gg and 4.59 Gg, respectively, while it was 72193 Gg, 3.84 Gg and 14.15 Gg in transport sector.

**Keywords:** Greenhouse Gas Emission, Artificial Neural Networks, Manufacturing Sector, Transport Sector
Development of A Wi-Fi Based Indoor Location System Using Artificial Intelligence Techniques

İsmail Kırbaş¹, Ayhan Dükkancı¹

¹Mehmet Akif Ersoy University

Abstract

The main aim of this study is to resolve the problem of indoor positioning in closed areas, which has become a growing need nowadays, by using existing hardware solutions. Although the use of the GPS system, which requires satellite communication as an open space location solution, is very common, it cannot provide a solution for indoor. It is a well-known metric to measure signal strengths to determine distances between wireless nodes. However, the signal strength is affected by many external influences and causes erroneous measurements. With the developed approach, the transmission powers of the signals received from more than one transmitter located within a certain closed area are measured and given as an input to an artificial neural network. It has been seen that the outputs produced by the trained neural network are much more successful and reliable than the path-loss calculation.

Keywords: YSA, Wi-Fi - ANN, Artificial Intelligence, Indoor Positioning, Wi-Fi.
2- (2-Hidroksi-5-Metoki-3-Nitrobenziliden)-N-Metilhidrazin-1-Karbothioamid Molekülünün Kuantum Kimyasal Hesaplamalar ile Yapılan Teorik Hesaplamaları

Hacer GÜMÜŞ
Kocaeli University

Özet
2-(2-hidroksi-5-metoksi-3-nitrobenziliden)-N-metilhidrazin-1-karbothioamid molekülünün sentezlenmesi, X-ışını kırınımı kullanılarak karakterize edilmesi, NMR, IR ve UV görünür spektroskopi ile deneySEL olarak aydınlanması A. Arafath ve arkadaşları tarafından yapılmıştır fakat teorik özelliklerinin incelenmediği gözlemmiştir. Bu çalışmada; kuantum kimyasal hesaplamalar yardımı ile 2-(2-hidroksi-5-metoksi-3-nitrobenziliden)-N-metilhidrazin-1-karbothioamid molekülünün teorik olarak moleküler geometrik parametreleri (bağ uzunlukları ve bağ açıları) elde etmek için Gaussian 09W programı kullanılmıştır. Daha sonra, molekülün teorik harmonik titreşim dalgaları ile NMR ve UV görünür spektrumları hesaplandı. Hesaplanan teorik veriler deneySEL verilerle karşılaştırıldı ve verilerin birbirine uyumlu olduğu gözlemlendi. Son olarak, doğrusal olmayan optik (NLO) analiz, elektronik özellikleri, Mulliken ve APT atom yükleri, moleküler elektrostatik potansiyel (MEP) yüzey analizleri ve termodinamik parametreleri hesaplandı. Bütün bu teorik hesaplamalar yoğunluk fonksiyoneli (DFT) metodunda B3LYP ve HSE1PBE sevilerinde LanL2DZ baz seti ile gaz fazında ve taban durumunda hesaplandı.

Anahtar Kelimeler: IR, NMR, UV, DFT Ve MEP

Theoretical Calculations of 2- (2-Hydroxy-5-Methoxy-3-Nitrobenzene) -N-Methyl Hydrazine-1-Carbothioamide Molecule by Quantum Chemical Calculations

Abstract
Expression of 2- (2-hydroxy-5-methoxy-3-nitrobenzylidene) -N-methylhydrazine-1-carbothioamide molecule, characterization using X-ray diffraction, experimental illumination with NMR, IR and UV visible spectroscopy A. Arafath et al. but its theoretical properties have not been studied. In this study; In order to obtain the theoretical molecular geometric parameters (bond lengths and bond angles) of the 2- (2-hydroxy-5-methoxy-3-nitrobenzylidene) -N-methylhydrazine-1-carbothioamide molecule with quantum chemical calculations, Gaussian 09W program was used. Then, NMR and UV visible spectra were calculated by theoretical
harmonic vibration waves of the molecule. The calculated theoretical data were compared with the experimental data and the data were consistent with each other. Finally, nonlinear optical (NLR) analysis, electronic properties, Mulliken, and APT atomic loads, molecular electrostatic potential (MEP) surface analyzes and thermodynamic parameters were calculated. All of these theoretical calculations were calculated in the gas phase and base state with 6-311 ++ G (d, p) base set in B3LYP and HSEH1PBE levels in density function (DFT) method.

**Keywords:** Vibration (IR) Frequencies, NMR, Electrical and Electronic Properties, Molecular Electrostatic Potential (MEP).
Automatic Speaker Recognition Using Mel Frequency Cepstral Coefficients (MFCC) for Turkish Speakers

U Ayvaz\textsuperscript{1,2}, H Gürüler\textsuperscript{1}

\textsuperscript{1} Department of Information Systems Engineering, Mugla Sitki Kocman University, Turkey
\textsuperscript{2} Department of Computer Engineering, Istanbul Technical University, Istanbul, Turkey

Abstract

Automatic speaker recognition (ASR) systems are widely used in Human-machine interactions. Voice signals contain large-scale information. Scientists have been using feature extraction and feature matching methods to analyze and synthesize these signals. One of the most commonly used methods for feature extraction is Mel Frequency Cepstral Coefficients (MFCCs), which are successful in voice signal processing with high accuracies. MFCCs represent a sequence of voice signal-specific features. In this study, an experimental analysis was carried out to distinguish Turkish speakers by extracting MFCCs from their speech recordings. Since the human perception of sound is not linear, after the filterbank step in the MFCC method, we converted the obtained log filterbanks into decibel (dB) features-based spectrograms without applying the Discrete Cosine Transform (DCT). Each spectrogram converted into a 2-D array and a new dataset created. Several learning algorithms implemented with 10-fold cross validation method to detect the speaker. The highest accuracy of 90.2\% was achieved using MLP with tanh activation function.

Keywords: Automatic speaker recognition (ASR), MFCC, Turkish voice dataset, Voice data mining
Bulut Üzerinde Bir Nosql Veritabanına Mantıksal Anahtar Hiyerarşisi Uygulaması

H Bodur¹, R Kara¹

¹Bilgisayar Mühendisliği Bölümü, Mühendislik Fakültesi, Düzce Üniversitesi, Konuralp, Düzce

Özet


Anahtar Kelimeler: Bulut Bilişim, Mantıksal Anahtar Hiyerarşisi, Nosql.

Implementation Logical Key Hierarchy to a Nosql Database in Cloud Computing

Abstract

Cloud computing, which is constantly increasing in usage rate and importance day by day, is an information system that enables users to receive services from the place in which they are without needing any device, infrastructure or software. With the rapid growth of the internet, broadcast communication has become an important issue for many different areas and applications. In short, broadcast communication is that the broadcast center sends a message to all or part of its users. Various schemes have been developed for transmitting data from one center to multiple users. One of the most widely used schemes is the Logical Key Hierarchy (LKH). In this paper, two applications have been developed that describe how to integrate the LKH structure into a Nosql database on cloud computing, one of which is the publishing center and the other is the user application.

Keywords: Logical Key Hierarchy, Cloud Computing, Nosql
A Comparison on Broadcast Encryption Schemes: A New Broadcast Encryption Scheme

Abstract

In a broadcast communication method, the schemes in which encryption methods are used are often used to transmit messages from a source to multiple users. These schemes are divided into central and de-central in terms of key server operations. In this work, two central methods which are widely used nowadays are mentioned: Logical Key Hierarchy (LKH) and One Way Function Tree (OFT) schemes. A scheme for broadcast communication is proposed and compared with the existing schemes in terms of key generation time, encryption time, number of keys in the user and total number of keys.

Keywords: Broadcast Communication, Logical Key Hierarchy, One-way Function Tree
Influence of Heat Flux Anomalies at Mediterranean Air-Sea Interface on Rainfall and Temperature Variability in Northern Algeria: Application to Seasonal Climate Prediction

N E I Bachari¹, L Nacef¹, A Bouda¹,²

¹ LOBEM, Houari Boumediene University of Science and Technology (USTHB), El-Alia, POBox32, 16111, Algiers, Algeria.
² National Maritime Superior Institute, SETRAM Laboratory, Tipaza Algeria.

Abstract

The principal goal of this study was to examine statistical causality relationships between latent and sensible heat fluxes at the Mediterranean air-sea interface and rainfall and temperature variability in northern Algeria. In addition, to quantify the significant relationships. The introduction of the concept of Granger causality allowed us to examine the influence of seasonal anomalies of these fluxes on seasonal precipitation and temperature anomalies in northern Algeria and to select Mediterranean regions that have a maximum influence on our region’s climate. Results show that flux anomalies in these selected regions can reduce unexplained variance in rainfall by 19 to 36% and in temperatures, by 12 to 41%. They also show that the response of rainfall and temperature anomalies to latent and/or sensible heat flux anomalies varies according to region and season. These relationships rarely persist beyond two seasons. By applying the technique of composite analysis, seasonal anomalies of latent and/or sensible heat fluxes in the selected Mediterranean regions used as predictors to develop seasonal probability forecasts for precipitation and temperature, for each of the regions in northern Algeria. A forecast quality evaluation revealed that probability forecasting based on a composite analysis of latent and/or sensible heat fluxes at the Mediterranean air-sea interface provides better results than forecasting based on climatology (chance) and improves seasonal forecasting by 11 to 14% for our region.

Keywords: Mediterranean Sea; Northern Algeria; heat fluxes anomaly; precipitation and temperature anomalies; causality analysis; Probabilistic forecast.
Development of New Clustering Algorithm Based on Firefly Optimization

Mina Alabd Alrahman¹*, Hasan Erdinc Kocer²

¹Msc student in Computer Eng., Selcuk University Natural & Applied Science, Konya
²Assoc.Prof.Dr. in Selcuk University Technology Faculty, Konya

Abstract

Clustering is an unsupervised classification, is a group of clustering method, the clusters in the same group are very similar and the clusters in the other group are different. This clustering can be done with many clustering algorithms, it is important to find the best cluster centers among the data. In this study, the fire optimization algorithm, which is a global search capability and used to solve many difficult problems, is used to find optimum cluster centers. The proposed clustering algorithm was tested on 12 data sets from UCI data warehouse. The test results of the proposed clustering algorithm are compared with the clustering algorithms of SFLA, ABC, PSO, Bayes Net, Mlp ANN, RBF, KStar, Bagging, Multi Boost, NB Tree, Ridor and VFI clustering algorithms. It has performed better than many clustering algorithms in many datasets.

Keywords: Clustering, Clustering By Firefly, Clustering Methods, Firefly Optimization.
Yapay Sinir Ağları ile Reklam Sektöründe Kullanıcı Profili Çıkarma Uygulaması: Çin-Türkiye Örneği

İbrahim TOPAL, Muhammed Kürşad UÇAR

1Computer Technology Department, Naval Petty Officer Vocational School, National Defense University, Yalova, Turkey
2 Sakarya University

Özet


Anahtar Kelimeler: Pazarlama, Tutundurma, Kullanıcı Profili, Türkiye Turizm Yılı, Çin Turizmi, Yapay Sinir Ağları

In the Advertising Industry with Artificial Neural Networks Application Extraction User Profile: China – Turkey Case

Abstract

Turkey which is an important tourist spot in the world has various attempts to increase market share. In addition to, 2018 is announced as "Turkey Tourism Year" in China which is the most populous country in the world. It has various opportunities in China which has sent fewer tourist
according to its available capacity to Turkey. Turkey's accomplished promotion activities can improve its share in $110 billion China market. With this study it has aimed to support Turkey's promotion activities by find out Chinese tourist profiles who has expected to prefer Turkey. Chinese tourists routes, include domestic and all other countries, were gathered from the TripAdvisor site, which is intensively used by consumers. With this study, it has determined Chinese tourists Turkey preferences potential with artificial neural networks, in case of go abroad. In this context, firstly, the developed model was tested with different performance criteria. Performance evaluation criteria are: accuracy rate, specificity, sensitivity, kappa coefficient, F-measure. with high accuracy in the result of the study, it has been shown that can be determine Chinese who will prefer Turkey for travel. In this way, it has been contributed to answer of "the right person" which is an important question in Turkey's promotion activities in China.

**Keywords**: Marketing, Promotion, User Profile, Turkey Tourism Year, China Tourism, Artificial Neural Networks
Bir Öğrenci Bilgi Sisteminin Kullanılabilirliğinin Makine Öğrenmesi Teknikleriyle Tahmin Edilmesi

D Demirkol¹, E Kartal², Ç Şeneler³ ve S Gülseçen²

¹Yönetim Bilişim Sistemleri Bölümü, Söke İşletme Fakültesi, Adnan Menderes Üniversitesi, Aydın, Türkiye
²Enformatik Bölümü, İstanbul Üniversitesi, İstanbul, Türkiye
³Yönetim Bilişim Sistemleri Bölümü, Ticari Bilimler Fakültesi, Yeditepe Üniversitesi, İstanbul, Türkiye

Özet

Sistem kullanılabilirliği, bir sistemin özellikle tasarım ve test aşamalarında odaklanılması gereken unsurlardan biridir, çünkü sistemin daha iyı hale getirilmesi için sistem yöneticilerine geri bildirim sağlamaktadır. Literatürde, sistem kullanılabilirliğinin değerlendirilmesi için Sistem Kullanılabilirlik Ölçeği (System Usability Scale-SUS) altın standart yöntem olarak yaygın şekilde kullanılmaktadır. Bunun yanı sıra günümüzde yapay zekânın alt çalışma alanlarından biri olan makine öğrenmesi de sistem kullanılabilirliğinin değerlendirilmesi konusunda araştırmacılarla yeni ufuklar sağlamaktadır. Bu çalışmada, bir öğrenci bilgi sisteminin (ÖBS) kullanılabilirliğinin makine öğrenmesi teknikleriyle tahmin edilmesi hedeflenmiştir. Çalışma yönteminde; Veri Madenciliği için Çapraz Endüstri Standard Sürec Modeli (CRoss-Industry Standard Process for Data Mining–CRISP-DM) kullanılmıştır. Analizler; Türkiye’deki bir vakıf üniversitesine ait bir ÖBS’yi kullanan 324 öğrencinin SUS’un Türkçe versiyonuna (SUS-TR) verdiği yanıtların bulunduğu “sus1” adlı veri seti ile “sus0” adlı veri setleri üzerinde gerçekleştirilmiştir. C4.5 Karar Ağacı Algoritması, Naive Bayes Sınıflandırıcı ve k-En Yakın Komşu Algoritması ile farklı modeller kurularak performans değerlendirilmesi yapılmıştır. %80’e %20’lik Hold-out ayrırmıyla gerçekleştirilmiştir analizlerde en iyi performans, k-En Yakın Komşu Algoritmasıyla “sus0” veri seti üzerinde elde edilmiştir (k=20 için doğruluk = 0.698, F-ölçütü = 0.796).

Anahtar Kelimeler: Danışmanlı Öğrenme, Kullanılabilirlik, Makine Öğrenmesi, Öğrenci Bilgi Sistemi, Sistem Kullanılabilirlik Ölçeği

Predicting Usability of a Student Information System by Using Machine Learning Techniques

Abstract

System usability is one of the key elements that should be focused on, especially during the design and test phases of a system, because it provides feedback to system administrators in order to improve the system. In the literature, System Usability Scale (SUS) is widely used as the gold standard method to evaluate system usability. Today, machine learning, which is one of the subfields of artificial intelligence, also provide new perspectives on the evaluation of
system usability. In this study, it is aimed to predict usability of a student information system (SIS) by using machine learning techniques. In the study method, the Cross-Industry Standard Process for Data Mining (CRISP-DM) steps have been followed. Analysis are performed on two different dataset namely “sus1” and “sus0”. “sus1” dataset is consisted of demographic characteristics (age, gender, department) of 324 students using a SIS of a foundation university in Turkey, also their responses to the Turkish version of the SUS. “sus0” includes only responses to the Turkish version of the SUS. C4.5 Decision Tree Algorithm, Naive Bayes Classifier and k-Nearest Neighbor Algorithm have been used to establish performance models. The best performance was obtained on the “sus0” data set with 80% to 20% hold-out method (accuracy = 0.698, F-measure = 0.796 for k = 20).

**Keywords:** Supervised Learning, Usability, Machine Learning, Student Information System, System Usability Scale

(Bu çalışmanın genişletilmiş tam metin halı Veri Bilimi dergisi 1. cilt, 2. sayıısında yayınlanmıştır.)
Test Sınavlarına Yönelik Web Tabanlı Optik Form Kodlama ve Doğrulma Sistemi

Ali Osman Selvi¹, Emre Dandil¹, Süleyman Uzun¹, Samet Aydın¹, Halil Öztürk¹

¹ Bilecik Seyh Edebali University

Özet


Anahtar Kelimeler: Optik Form, Kodlama, Web, Mobil

Web Based Optical Form Coding and Verification System for Test Exams

Abstract

One of the most frequently used methods in the examination of students is the test method. Major challenge of this test method is to read the optical forms without errors and to extract the necessary statistical information. The exams of students who make coding mistakes in the exams can not be evaluated. This situation negatively affects the measurement value of the examination independently of the examination. In this study, a web-based software was developed for the students to minimize the marking errors on the optical forms in the test exams. This software is designed to be web-based because of the development of mobile technology and the widespread use of internet. Information on the students who will enter the examination
is printed on the relevant fields on the optical form with the application. Due to the different optical form designs, different forms can be defined on the system. The software will allow the changes to be made on the optical form, depending on the type of data to be printed. The output format is generated as .pdf so that the program output can be used in every platform.

**Keywords:** Optical Sheet Marking, Php, Mysql, HTML, CSS, Jquery, Web
Movie Success Prediction by Using Logistic Regression Analysis

S Yıldız¹, S A Uymaz¹

¹ Department of Computer Engineering, Konya Technical University, Konya, Turkey

Abstract

Suggestion systems to ensure the satisfaction of users are a field that is being studied extensively. It has become important to provide information about movies that have shortened the user's time to search for movies, movies that he has not watched before, and new or untracked movies based on previous favorites. In this paper, a classification was made for estimating score of a particular film by considering the ratings of the users. Logistic regression was used for classification process. The data in the dataset used is given as binary and binary values were obtained as the result of the classification. It was used movie ratings data provided by Netflix for movie rating estimation by user. Dataset contains rating values of 2150 users for 30 movies.

Keywords: Logistic Regression, Classification, Netflix Datasets
Genetik Algoritmalar ile Eğitilen Doğrusal Görüntü Filtre Kalitesinin Bir Analizi

Süleyman Uzun¹, Devrim Akgün²

¹Bilecik Seyh Edebali University
²Sakarya University

Özet

Görüntü işlemede kullanılan doğrusal filtrelerin başarımı, filtre davranışını belirleyen maske ağırlıkları ile yakından ilişkilidir. Sunulan çalışmada, doğrusal görüntü filtrelemede kullanılan maske ağırlıkları bir eğitim görüntüsü üzerinden genetik algoritmalar ile eğitilerek belirlenmiştir. Elde edilen maske ağırlıkları, Gaussian gürültüsü eklenmiş test görüntülerini filtrelemede kullanılmış ve başarımları hesaplanmıştır. Hesaplanan ağırlıklar ve Gaussian fonksiyonu ile belirlenen ağırlıkların görüntü filtrelemedeki başarmları karşılaştırılmıştır. Elde edilen sonuçlarda, eğitim ile elde edilen katsayıların sağladığı başarım genelde Gaussian ile elde edilene yakın veya daha iyi olduğu görülmüştür.

Anahtar Kelimeler. Gaussian filtreler, Doğrusal filtreler, Genetik algoritmalar

An analysis of the Quality of Genetic Algorithms Trained Linear Image Filter

Abstract

The performance of the linear filters used in image processing is closely related to the mask weights that determine the filter behavior. In the present study, the mask weights used in linear image filtering were determined by training with genetic algorithms via training image. The obtained mask weights were used in filtering Gaussian noise-added test images and their performance was calculated. Performance of the computed weights and the weights determined by Gaussian function in image filtering are presented comparatively. In the results obtained, it is seen that the performance obtained by the coefficients obtained by the training is generally close to or better than that obtained with Gaussian.

Keywords: Gaussian Filters, Linear Filters, Genetic Algorithms

(Bu çalışmanın genişletilmiş tam metin halı Veri Bilimi dergisi 1. cilt, 1. sayısında yayınlanmıştır.)
Estimating Poverty Using Aerial Images: South African Application

V H Maluleke\textsuperscript{1}, S Er\textsuperscript{1}, Q R Williams\textsuperscript{2}

\textsuperscript{1}PD Hahn Building (South Entrance) Level 5, Upper Campus, Statistical Sciences Department, University of Cape Town, Cape Town, South Africa, 7700
\textsuperscript{2}Meraka, CSIR, Meiring Naude Road, Pretoria, South Africa, 0001

Abstract

Policy makers and the government rely heavily on survey data when making policy-related decisions. Survey data is labour intensive, costly and time consuming, hence it cannot be frequently or extensively collected. The main aim of this research is to demonstrate how deep learning in computer vision coupled with statistical regression modelling can be used to estimate poverty on aerial images supplemented with national household survey data. This is executed in two phases; aerial classification and detection phase and poverty modelling phase. The aerial classification and detection phase use convolutional neural networks (CNN) to perform settlement typology classification of the aerial images into three broad geo-type classes namely; urban, rural and farm. This is then followed by object detection to detect three broad dwelling type classes in the aerial images namely; brick house, traditional house, and informal settlement. Mask Region-based CNN (Mask R-CNN) model with a resnet101 backbone model is used to perform this task. The second phase, poverty modelling phase, involves using National Income Dynamics Survey (NIDS) data to compute the poverty measure Sen-Shorrocks-Thon index (SST). This is followed by using ridge regression to model the poverty measure using aggregated results from the aerial classification and detection phase. The study area for this research is eThekwini district in Kwa-Zulu Natal, South Africa. However, this approach can be extended to other districts in South Africa.

Keywords: Poverty, Convolution Neural Network, Sen-Shorrocks-Thon, South Africa, Dwelling-type, Geo-type, Aerial Image(s), Survey Data
Feature Selection for Comment Spam Filtering on YouTube

Alper Kursat Uysal

1 Department of Computer Engineering, Eskisehir Technical University, Turkey

Abstract

Spam filtering is one of the most popular domains for text classification. While there exist some many studies on classification of spam e-mails and short text messages, comment spam filtering on YouTube is relatively a new topic as there are limited number of annotated datasets. As it is valid for all text classification problems, feature space’s high dimensionality is one of the biggest problems for spam filtering due to accuracy considerations. The contribution of this study is the analysis of the performance of five state-of-the-art text feature selection methods for spam filtering on YouTube using two widely-known classifiers namely naïve Bayes (NB) and decision tree (DT). Five datasets including spam comments belonging to different subjects were utilized in the experiments. These datasets are named as Psy, KatyPerry, LMFAO, Eminem, and Shakira. For evaluation, Macro-F1 success measure were used. Also, 3-fold cross-validation is preferred for a fair performance evaluation. Experiments indicated that distinguishing feature selector (DFS) and Gini Index (GI) methods are superior to the other three feature selection methods for spam filtering on YouTube. However, the performance of DT classifier is better than NB classifier in most cases for spam filtering on YouTube.

Keywords: Pattern Recognition, Spam Filtering, Youtube, Feature Selection.
Derin Öğrenme ile Gerçek Zamanlı Yüz İfadesi Sınıflandırma

Emre Dandıl¹, Rıdvan Özdemir²

¹Computer Engineering Department, Bilecik Seyh Edebali University, Bilecik, Turkey.
²Electronics and Computer Engineering Department, Bilecik Seyh Edebali University, Bilecik, Turkey.

Özet


Anahtar Kelimeler: Yüz Tanıma, Duygu Tanıma, Sınıflandırma, Derin Öğrenme, Konvolüsyonel Sinir Ağları
Real-Time Facial Emotion Classification Using Deep Learning

Abstract

Facial emotion recognition has an important position in the computer vision and artificial intelligence field because of it’s the academic and commercial potential. Moreover, real-time face recognition applications have to be able to be performed at high speed and accuracy rate in order to make human-computer interaction successful in increasing artificial intelligence and humanoid robot applications. Applications in many areas, for example; medicine, shopping and entertainment, have shown great progress thanks to face recognition technology in these days. When we search the literature, we see that there are a lot of facial recognition applications on static images data. However, there is no many work on facial emotion recognition applications with real-time video data. In this study, we detected the faces on real-time video data which is taken from the webcam to recognize the anger, fear, happy, surprise, sad and neutral emotions upon these detected faces using deep learning methods. We created our own dataset to use in this study for six different facial emotions since we could not find a dataset which has enough features to supply our requirements. At first stage, we created a convolutional neural network and trained it over our dataset by scratching method and we achieved 50% accuracy rate. Then, we increased the number of images in our database by 3 times, and get better accuracy which is 62%. Thanks to transfer training method and AlexNet's pre-trained networks, we reached 74% accuracy rate after increasing the number of images 80% in the dataset. In addition, we achieved 72% accuracy rate when we test our network which is trained with our own dataset with the Compound Emotion dataset. The basic reason of this decrease can be angry emotion because there are differences poses between our dataset and Compound Emotion dataset for angry emotion images. However, we obtained 100% accuracy rate for happy emotion and 89% for sad emotion. It has been seen that the work we are doing gives successful results when tested with different people in different ambient and light conditions.

Keywords: Face Recognition, Emotion Recognition, Classification, Deep Learning, Convolutional Neural Network
Ağırlıklar Optimizasyonunda Yapay Alg Algoritmasının (AAA) Yapay Sinir Ağına (YSA) Birleştirilmesi

Gülay TEZEL, Sait Ali UYMAZ, Esra YEL

1Konya Technical University, Faculty of Engineering and Natural Sciences, Computer Engineering Department, Konya, Turkey
2Konya Technical University, Faculty of Engineering and Natural Sciences, Environmental Engineering Department, Konya, Turkey

Özet


Anahtar Kelimeler: YSA, AAA, Ağırlık Optimizasyonu, Sınıflandırma

Combining Artificial Algae Algorithm (AAA) to Artificial Neural Network (ANN) for Optimization of Weights

Abstract

Artificial Neural Network (ANN) is one of the most important artificial intelligent algorithms used for classification problems. The structure of ANN depends on the learning algorithm used for adjusting the weights between neurons of the layers according to the calculated error between model value and the real value. The learning algorithm can be selected from traditional or heuristic optimization algorithms. Recently the weights between layers in ANN has been optimized by using metaheuristic optimization algorithms. One of the recent high-performance nonlinear optimization algorithms is Artificial Algae Algorithm (AAA) which is a bioinspired,
successful, competitive and robust optimization algorithm. In this study, AAA was used as a tool for optimization of the weights in ANN algorithm. ANN and AAA was combined such that the training step of the ANN modeling to be performed by AAA. After training, ANN continues testing with the optimized weights. The established model combination (AAANN) was tested on three benchmarked datasets (Iris, Thyroid and Dermatology) of the UCI Machine Learning Repository to indicate the performance of this hybrid structure. The results were compared with MLP algorithm in terms of Mean Absolute Error (MAE). Accordingly, up to 96% reduction in mean MSE levels could be achieved by AAANN for all models.

**Keywords:** ANN, AAA, Weight Optimization, Classification
Kompozitlerin Atık Plastik Piroliz Char Dolgu ile Su Emilimini Öngörmek için YSA Modellemesi

Esra YEL¹, Gülay TEZEL², Sait Ali UYMAZ²

¹Konya Technical University, Faculty of Engineering and Natural Sciences, Environmental Engineering Department, Konya, Turkey
²Konya Technical University, Faculty of Engineering and Natural Sciences, Computer Engineering Department, Konya, Turkey

Özet

Atık yönetiminde piroliz yöntemiyle atık Maddeler gaz, sıvı ve katı fraksiyonlara ayrılırlar. Son yıllarda katı fraksiyon (kok-char) epoksi kompozitlerde katkı maddesi olarak kullanılmaktadır. Epoksi kompozitlerin su tutma özellikleri katkı maddesinin türünden ve özelliklerinden etkilenir. Son dönemde bir kompozit su tutma veri seti (1512 veriden oluşan) deneysel olarak elde edilmiştir. Bu veri setindeki piroliz edilen atık plastik türü, atık ön yıkamanın varlığı, piroliz sıcaklığı, katkı dozu ve suya maruz kalma süresi giriş parametreleri olarak kullanılmış ve yapay sinir ağları çok katmanlı algılayıcı (MLP YSA) ile kompozitte tutulan su miktarının bulunması üzerine bir tahmin modeli oluşturulmuştur. Orijinal veri üzerinde veri ön işleme yapılarak dört farklı seti elde edilmiş ve farklı konfigürasyonlarda tahmin modeli çalıştırılmıştır. Yapılan denemelerde ulaşlan en yüksek R² eğimde 0.991 ve testte 0.986 olarak bulunmuştur. Bu başarıya ulaşılan model konfigürasyonunda iterasyon sayısı 2e4, lr 0.04, mc 0.9, ilk gizli katmanda 22 düğüm, ikinci gizli katmanda 15 düğüm ile çalışılmıştır. Optimum konfigürasyondaki R² değeri ile 5 katmanlı çapraz doğrulama hem eğitime hem test için elde edilen ortalama R² birbirine yakındır. Elde edilen model suya maruz kalan kompozitin yaklaşık ne miktarda su tutabileceği elinde veri olmayan kullanıcının da tahmin etmesine yardımcı olabilecektir. Bu da kompozitin farklı amaçlarla kullanılabilirliği hakkında fikir verebilecektir.

Anahtar Kelimeler: YSA, piroliz, atık plastik, kompozit, su tutma

ANN Modeling for Predicting The Water Absorption of Composites with Waste Plastic Pyrolysis Char Fillers

Abstract

In waste management, waste material was fragmented into gas, liquid and solid fractions by pyrolysis. Recently the solid fraction (char) has been used as filler in epoxy composites. Water absorption of epoxy composites are affected from type and properties of filler. A recent water absorption database (consisting 1512 data) has been obtained experimentally. Accordingly,
type of pyrolysed plastic, waste pre–washing, pyrolysis temperature, additive dosage and water exposure time were input parameters in the estimation model developed with multilayer perceptron artificial neural network (MLP ANN) to predict the absorbed water quantity as output parameter. Four datasets were derived with data preprocessing. Among all the configurations worked up, 0.991 training and 0.986 testing $R^2$ were attained as the highest $R^2$ values under conditions including 2e4 iterations, lr 0.04, mc 0.9, first hidden layer of 22 nodes, and second hidden layer of 15 nodes. The $R^2$ value attained in the optimum configuration and the average $R^2$ attained via 5-fold cross-validation are close to each other for both training and test. The established model will help users who do not have the database itself to predict the quantity of water that absorbed upon exposure. This will give idea about the availability of that composite for using it for particular purposes.

**Keywords**: ANN, Pyrolysis, Waste Plastics, Composites, Water Absorption
Sezgisel Yöntemler ile Eğitilmiş Uyarlamalı Sinirsel Bulanık Mantık Sistemlerinin Sınıflandırma Problemlerine Etkisi

M Canayaz¹, F Uludağ²

¹Department of Computer Engineering, Van Yuzuncu Yil University, Turkey,
²Faculty of Economics and Administrative Sciences, Van Yuzuncu Yil University, Turkey,

Özet


Anahtar Kelimeler: Sezgisel Yöntemler, ANFIS, Kaotik Haritalı Cricket Böceği Algoritması

Effects of Adaptive Neuro-Fuzzy Logic Systems Trained with Heuristic Methods to Classification Problems

Abstract

ANFIS is a decision-making mechanism that is a combination of artificial neural networks and fuzzy logic problems. In this rule-based system, inputs are passed through the ANFIS layered structure and an output value is generated. This structure is used in many areas such as classification, estimation, dynamic system identification in recent years. Parameters determined by heuristic methods as usual. Heuristic methods are divided into many categories such as swarm-based, physics-based and chemistry based and aim to find optimum candidate solutions. In this study, we tried to comparatively show that the effect on classification problems of ANFIS trained with Cricket Algorithm with Chaos Map, and The Whale Optimization Algorithm which are heuristic methods. It is seen that the studies performed on the known datasets provide an increase in the accuracy of the trained network. Another intmportant aspect
of the work is that the Cricket Algorithm with Chaos Map is being used for the first time in ANFIS training. It is anticipated that this will give the researchers an idea.

**Keywords:** Heuristic Methods, ANFIS, Cricket Algorithm with Chaos Map
Futbol Maçlarında Gol Olayının Bilgisayarlı Görü Sistemi ile Tespit Edilmesi

Emre Dandil¹ ve İnanç Özkul¹

¹Computer Engineering Department, Bilecik Seyh Edebali University, Bilecik, Turkey

Özet


Anahtar Kelimeler: Futbol Maçı, Gol, Bilgisayarlı Görü Sistemi, Haar Cascade Sınıflandırıcı
Computer Vision System for Goal Detection in Soccer

Abstract

In recent years, real-time computer vision systems have grown at an incredible rate, depending on computer technology. With decreasing size of computers, increasing of memory capacities and data processing speed, success rate of decision support systems are also increasing. A similar scenario applies to contemporary soccer matches. The need for autonomous systems increases day by day in order to be able to appeal to the referee's decisions in soccer. The main reason for this increase in demand is the fact that referees can make critical mistakes that could have an effect on important matches. Therefore, in many countries football referees, who are based on the computer vision system as well as referees, have been engaged in soccer games. It is aimed to provide fair competition environment by reducing mistakes with such systems. In this study, a computer vision system was designed for the determination of the goal event in football matches. In the system, firstly, the images taken from the videos obtained from the cameras placed in a region close to the tower in the designed football field prototype are separated as negative and positive. The ones that are positive from these images are those showing the goal event, the ones that are negative are the video images where the goal event is not coming to fruition. In the developed computer vision system, the matching of the positive video with the video images taken in real time is determined by providing Haar Cascade Classifier. It has been seen that the computerized vision system proposed in the test procedures on the designed prototype correctly determined the goal event with 91% success rate. Furthermore, in the study, it was seen that the intensity of the light in the videos obtained from the videos is the effect of correcting the goal phenomenon. Thus, taking into account the characteristics of the camera, it is necessary

Keywords: Soccer, Goal, Computer Vision System, Haar Cascade Classifier
A Comparative Study of Word Embeddings for Scene-Based Genre Classification of Movies and Genre Co-occurrence

Gaoussou Youssouf Kebe, Izzet Fatih Şentürk

1 Bursa Technical University

Abstract

Processing natural language such as English has always been one of the most sought after research goals of artificial intelligence and computer science in general. Text classification in particular is one of the most prominent subfields of natural language processing. There are numerous projects based on classification algorithms of books, blogs and other textual data generally by genre. However, there is very few examples of movie script genre classification. Even rarer is the usage of such algorithms to partially classify the different scenes composing a movie, despite the amount of knowledge we could obtain from such a task. Presented solution addresses the problem of classifying movie scenes solely based on the full script of the movie. Movie scripts, obtained from the Internet Movie Script Database (IMSDb) are broken down with scrutiny into individual scenes. Features from each of these individual scenes are then extracted using three state-of-the-art word embedding methods (Word2vec, Glove and FastText). An efficient similarity search library (NMSLIB) is used to classify the scenes using a K-Nearest Neighbors classifier. Obtaining such data would allow a better understanding of the timeline of the movie and can potentially help provide more insight into decision support systems such as recommender systems.

Keywords: Natural Language Processing, Machine Learning, Word Embeddings, Classification
Basketbol Oyuncularının Performanslarının Karar Ağaçları ve TOPSIS Metotlarıyla Karşılaştırılması

Erhan Çene¹, C Parim¹ and B Özkan¹

¹Yıldız Technical University, Department of Statistics, İstanbul, Turkey

Özet

Anahtar Kelimeler: Karar Ağaçları, Çok Kriterli Karar Verme, Spor İstatistikleri, Veri Madenciliği, Çok Değişkenli İstatistik

Comparing The Performance of Basketball Players with Decision Trees and TOPSIS

Abstract
In this study, individual game statistics for basketball players from Euroleague 2017-2018 season are analysed with Decision Trees and Technique for Order-Preference by Similarity to Ideal Solution (TOPSIS) methods. The aim of this study is to create an alternative ranking system to find the best and the worst performing players in each position eg. Guards, forwards and centers. Decision trees are a supervised learning method used for classification and
regression. The aim of the decision trees is to create a model that predicts the value of a target variable by learning simple decision rules inferred from the data features. On the other side, TOPSIS is another method to construct a ranking system by using a multi-criteria decision-making system. All the individual statistics such as points, rebounds, assists, steals, blocks, turnovers, free throw percentage and fouls are used to construct the rankings of players. Both decision trees and TOPSIS results are compared with the Performance Index Rating (PIR) index of players which is a single number expressing the performance of the player. Comparing these 3 measures revealed the over and underperformers in the Euroleague for the 2017-2018 season. The results of individual players performance are visualized with the proper methods such as Chernoff's faces.

**Keywords:** Decision Trees, Multi-Criteria Decision Making, Sports Statistics, Data mining, Multivariate Statistics
Graf Eşleme Algoritmalarından FastPFP’nin İncelenmesi

A Ulu¹, A Sayar¹, C Çelikhası¹

¹Kocaeli Üniversitesi Kocaeli-Türkiye

Özet

Çalışma genelinde büyük graf eşleşmesi için hızlı bir yakın eşleme algoritması olarak önerilen Fast Projected Fixed-Point (FastPFP) algoritması incelenmeye çalışılmıştır. Çalışma sırasında algoritma testi için gerekli olan verinin elde edilmesi aşamasında görüntü işleme kullanılmıştır. Görüntü işleme adımları da ayrıntılı olarak ele alınmıştır. Çalışma sırasında bu algoritmanın incelenmek istenmesinin sebebi: Bu algoritma ile temel olarak yeni bir projelendirilmiş sabit nokta yöntemi tanımlanmış olması ve algoritmayı türetmek için yeni bir iki yönlü stokastik projeksiyon uygulandığı ileri sürülmüş olmasıdır. Bu çalışmada bu ifadelerin üzerine araştırmalar yapılmıştır ve görüntü işleme üzerinde çalışılmıştır.

Anahtar Kelimeler: Graf eşleştirme, yaklaşık alt eşleme, FastPFP, görüntü işleme

Investigation of FastPFP from Graph Matching Algorithms

Abstract

The Fast Projected Fixed-Point (FastPFP) algorithm, which is suggested as a fast approximate mapping algorithm for large graph mapping across the work, has been studied. During the study, image processing was used to obtain the data required for the algorithm test. Image processing steps are also discussed in detail. The reason why this algorithm is being investigated during the run is: With this algorithm, it is proposed that a new projected fixed point method is defined and a new bi-directional stochastic projection is applied to derive the algorithm. In this study, researches were made on these expressions and image processing was studied.

Keywords: Graf matching, approximately sub-mapping, FastPFP, image processing
Gaussian Process Regression Modelling of The Performance Of An R1234yf Automobile Air Conditioning System

K Kaplan¹, M C Aral², M Suhermanto³, H M Ertunc¹, M Hosoz²

¹ Department of Mechatronics Engineering, Kocaeli University, Kocaeli, 41380, Turkey
² Department of Automotive Engineering, Kocaeli University, Kocaeli, 41380, Turkey
³ Department of Mechanical Engineering, State University of Malang, Malang, 65145, Indonesia

Abstract

This study deals with modelling various performance parameters of an automobile air conditioning (AAC) system using R1234yf as refrigerant using a novel modelling approach, namely gaussian process regression (GPR). In order to provide data for the proposed model, a laboratory AAC system consisting of the original components of the air conditioning system belonging to a compact car was set up. The system was charged with refrigerant R1234yf, an alternative to refrigerant R134a with a low global warming potential, and tested in a broad range of input conditions. Based on experimental data, various performance parameters of the AAC system such as the cooling capacity and coefficient of performance were evaluated using conservation of energy principle. Then, the proposed GPR model was prepared by training it with some of the input-output test data pairs. Finally, the prediction performance of the GPR model was tested using the remaining data pairs. It was revealed that the GPR model yielded very accurate predictions with correlation coefficients in the range of 0.9681−0.9909 and mean relative errors in the range of 1.6507−5.3032 %. These results suggest that the GPR approach can be relied on for predicting the performance of AAC systems.

Keywords: Mobile, Air conditioning, R1234yf, GPR
Ülkelerin Doğrudan Yabancı Yatırımlarını Etkileyen Faktörlere Göre Kümelenmesi ve Yıllar Bazında Karşılaştırılması

Coşkun Parım¹, B Özkan¹, and E Çene¹

¹ Yıldız Technical University, Department of Statistics, İstanbul, Turkey

Özet

Anahtar Kelimeler: Ülkelerin gelişmişlikleri, Eksik gözlem, Kümeleme Analizi, SSCB, Balkan Ülkeleri

Clustering of Countries by The Factors Affecting Levels of Development and Its Comparison by Years

Abstract
In the globalizing world, there are many variables that affect the development levels and economics of countries. A comprehensive analysis of these variables is crucial for the future of countries. In this sense, countries are classified as underdeveloped countries, transition countries, developing countries, and developed countries etc. It is an undeniable fact that the countries classified in this way and in the same class have similar characteristics. In this study, it is aimed to reveal the economic changes of Balkan and former Soviet Union countries over the last 20 years with clustering of these countries by using the factors that affect levels of
development. First, socio-economic variables which are considered to affect levels of development were taken according to years, missing data imputation methods were used for identification of missing values of the variables. Later, variables which affect levels of development are determined and with the help of these variables, similar countries are separated into clusters with cluster analysis. Same procedures are made for 1995 and 2015 years, changes of countries over the years are shown.

**Keywords:** Foreign Direct Investment, Missing Value, Clustering Analysis, USSR, Balkan Countries.
Değişen Yayılım Parametreli Beta Regresyon Modellerinde Model Seçimi

E Dünder¹, M A Cengiz²

¹ Fen-Edebiyat Fakültesi, İstatistik Bölümü, Ondokuz Mayıs Üniversitesi, Kurupelit Kampüsü, Samsun/Türkiye
² Fen-Edebiyat Fakültesi, İstatistik Bölümü, Ondokuz Mayıs Üniversitesi, Kurupelit Kampüsü, Samsun/Türkiye

Özet


Model Selection in Beta Regression Models with Varying Spread Parameters

Abstract

Model selection in regression analysis is extremely important in terms of data science. Depending on the range of the dependent variable, the regression technique to be applied varies, and in the case of the dependent variable (0,1), beta regression analysis is performed due to the nature of the data. In general, regression models are constructed only based on the location parameter and explanatory variables are not included in the model within the dispersion parameter. However, when the beta regression model is established by considering the explanatory variables dispersion parameter, uncertainty arises as to which model to choose. In this study, the model selection in beta regression analysis with varying dispersion parameters is examined. Information criteria are used for model selection and it is emphasized how to choose the most suitable model by including the dispersion parameter. According to the application results, it has been determined that the alternative information criteria significantly affect the model selection performance on the basis of the beta-regression models with varying dispersion parameter.
Otel Rezervasyon İptallerinin Makine Öğrenmesi Teknikleriyle Tahmin Edilmesi

M Boz¹, E Canbazoğlu², Z Özen³, S Gülseçen⁴

¹PhD Student, İstanbul University Department of Informatics, İstanbul.
²Lect. Assist, Akdeniz University TBMYO, Antalya.
³Dr., İstanbul University Department of Informatics, İstanbul.
⁴Dr., İstanbul University Department of Informatics, İstanbul.

Özet

Konaklama hizmeti veren otellerin maksimum kâr elde edebilmesi için doluluk oranlarının yüksek olması gerekmektedir. Bu sebeple oteller rezervasyon sistemleri aracılığıyla sınırlı sayıdaki odalarını doğru zamanda, doğru müşteriye tahsis etmelidir. Ancak rezervasyonlar çeşitli nedenlerle müşteri tarafından iptal edilebilmektedir. Oteller açısından iptal edilen rezervasyonlar doğru politikalar izlenmezse gelir kaybına neden olabilmektedir. Bu sebeple iptallerin önceden tahmin edilmesi büyük önem taşımaktadır. Bu çalışmada, makine öğrenmesi teknikleriyle 5 farklı otele ait toplam 38.826 kayıtten oluşan rezervasyon verisi kullanılarak otellerin gelecekteki rezervasyonlarının iptal durumları tahmin edilmeye çalışılmıştır. Çalışmada sınıflandırma algoritmalarından Random Forest Algoritması (RF), Destek Vektör Makineleri (SVM), k-En Yakın Komşu (kNN) ve Karar Ağaçları (C4.5) algoritmaların kullanılması 4 farklı model oluşturulmuş ve modellern performans karşılaştırılmaları yapılmıştır. En iyi sonuç %73 doğruluk oranı ile C4.5 karar ağaç algoritmalarından elde edilmiştir.

Anahtar Kelimeler: Makine Öğrenmesi, Danışmanlı Öğrenme, Otel Rezervasyon İptali

Predicting Hotel Reservation Cancellation by Using Machine Learning

Abstract

In order to maximize profit for hotels, occupancy rates must be high. For this reason, hotels should allocate a limited number of their rooms to the right customer at the right time using
reservation systems software. However, reservations may be cancelled by the customer for various reasons. Cancellations may result for hotels in loss of income if the right policies are not processed. For this reason, it is very important to estimate reservation cancellations.

In this study, the reservation data set consisting of 38,826 records of 5 different hotels were analyzed by machine learning algorithms to estimate the cancellation of future bookings of hotels. In this context, 4 different models were formed in this study by using Random Forest (RF), Support Vector Machines (SVM), k-Nearest Neighbor (kNN) and Decision Tree (C4.5) algorithms and then, performance comparisons were made among these models. The best result was obtained from C4.5 decision tree algorithm with 73% accuracy.

**Keywords:** Machine Learning, Supervised Learning, Hotel Reservation Cancellation
Hemşirelerin Örgütsel Bağlılıklarının İş Performansı Üzerine Etkisi

Özlem Yazıcı, Gözde Mert, Simge İslamoğlu

1,3 Ökan University, Faculty of Health Sciences Nursing Department
2 Nisantasi University, Faculty of Economic

Özet

Bu çalışma, bir devlet hastanesinde çalışan hemşirelerin örgütsel bağlılık seviyelerini belirlemek ve örgütsel bağlılık kaynaklarını ortaya koyarak iş performansı üzerinde etkisini tespit etmek amacıyla yapıldı. Araştırma verileri anket yöntemi ile toplandı. Araştırma, Ağustos-Eylül 2017 tarihleri arasında Zonguldak ilinde bulunan bir devlet hastanesinde gerçekleştirildi. Uygulanan ankete, 235 kişi katıldı. Araştırma, iş performansı üzerine etkisini tespit etmek amacıyla neden-sonuç ilişkisi arandı, p<0,05 anlamlılık düzeyinde değerlendirildi. Arastırma, kişilere ait demografik özelliklere ilişkin sonuçlar ortaya konuldu. Örgütsel bağlılık ölçeğinin; demografik özelliklere göre farklılık göstermediği analiz edildi. Ayrıca devlet hastanesinde çalışan hemşirelerin örgütsel bağlılık düzeyinin iş performansı üzerindeki etkisini tespit etmek amacıyla neden-sonuç ilişkisi arandı, p<0,05 anlamlılık düzeyinde değerlendirildi. Çalışmanın sonucunda, devlet hastanesinde çalışan hemşirelerin örgütsel bağlılık seviyesinin eğitim düzeyine göre farklılık gösterdiği belirlendi. Ayrıca devlet hastanesinde çalışan hemşirelerin örgütsel bağlılık düzeyinin iş performansını artırdığı belirlendi.

Anahtar Kelimeler: Örgütsel bağlılık, Hemşire, Hastane, İş performansi.

The Effect of Organizational Commitment of Nurses on Business Performance

Abstract

This study examines the role of nurses working in a state hospital, determine organizational commitment levels and revealing the sources of organizational commitment in order to determine the effect on business performance. Survey data were collected by questionnaire method. The research was conducted between August and September 2017 in a state hospital in Zonguldak province. In the survey conducted, 235 people participated. Personal Information Form, Organizational Commitment and Business Performance Scale were used to obtain data to be used in the research. Data were analyzed by SPSS 23.0 program, independent groups test,
one-way ANOVA, and correlation analysis were done. In the analysis of the data, the results related to demographic characteristics belonging to the participant were presented. Organizational commitment scale analysed according to their demographic characteristics whether they differed or not. In addition, nurses working in state hospitals, in order to determine the effect of organizational commitment on business performance, cause-effect relationship was investigated, p <0.05 was considered significant. In the study, it was shown that the level of organizational commitment of nurses working in state hospitals was different according to education level; the level of business performance was different according to age, education level and total work experience. It was also determined that the level of organizational commitment of nurses working in state hospitals improved their work performance.

**Keywords:** Organizational commitment, Nurses, Hospitals, Business performance
Automatic Text Summarization Methods

Used on Twitter

N Kemaloglu¹, E U Kucuksille¹

Department of Computer Engineering, Suleyman Demirel University, Isparta

Abstract

Automatic Text Summarization; is one of the areas of Natural Language Processing which has become very popular especially in recent years. Generally automatic text summarization; is the process of getting a summary of a document given as input to the computer as output. The documents used for summarization are usually selected from news texts, corner texts or research texts. In addition to this, efforts are being made to achieve the same successes on documents that are defined as microblogs and that appear to be relatively short and meaningless. In this study, automatic text summarization methods used on the data obtained from Twitter, which is one of the most widely used microblog sites today, are examined. Summarization performances were evaluated in the light of the obtained findings, the methods used were examined and the difficulties encountered and their solutions were presented.

Keywords: Natural Language Processing, Automatic Summarization, Twitter, Microblog
DNA Dizilerinin Graf Benzetim Yolu ile Karşılaştırılması

C Çelikhaşı1, A Sayar1, A Ulu1

1 Kocaeli University

Özet

Bu çalışmanın amacı farklı DNA’lardaki motifleri LZ Compression algoritması ile keşfedip, elde edilen verileri graflara dönüştürüp, Neighbor Matching (Komşu Eşleştirme) ve Cosinus Similarity (Kosinüs Benzerliği) algoritmaları kullanarak benzerlik oranlarını hesaplayan uygulama geliştirmektir.

Anahtar Kelimeler: LZ Compression, Neighbor Matching, Cosinus Benzerliği, Graf Benzerliği, DNA örüntü keşiş

Comparison of DNA Sequences Using Simulation

Abstract

The aim of this study is to discover the mophites in different DNAs with the help of the LZ Compression algorithm, convert the resulting motifs into graphs, and compare them with Neighbor Matching and Cosinus Similarity algorithms.

Keywords: LZ Compression, Neighbor Matching, Cosinus Similarity, Graph Similarity, DNA Pattern Exploration

(Bu çalışmanın genişletilmiş tam metin halı Veri Bilimi dergisi 1. cilt, 1. sayısında yayınlanmıştır.)
Logistic Location Selection with CRITIC-AHP and VIKOR Integrated Approach

Çağlar Tabak¹, Kürşat Yıldız², Mehmet Akif Yerlikaya³

Gazi University

Abstract

Transportation costs’ directly affecting national economies; increase in transportation costs depending on energy resources have directed the countries to develop combined transportation strategies to reduce transportation costs. In this study, it is aimed to provide suggestions for the location selection of the logistics centers where will be determined the strategies for the most economic, rapid and safe transportation with the integration of the transportation types which will contribute to the reduction of the transportation costs. The Aegean Region and The Central Anatolia Region were chosen as the pilot regions in the selection of the optimum location of the logistics centers required to develop combined transportation. The information required to select location in these two regions was obtained through a questionnaire survey and the CRITIC-AHP-VIKOR integrated method was used for the optimum location selection. While the criteria weights were determined by the CRITIC-AHP method, alternative location was chosen by VIKOR method.

Keywords: Kritik, Vikor, Lojistik Yer Seçimi-Critic, Vikor, Logistic Location Selection
Assessment of The Rise of Maritime Freight Costs Following The Application of The European MRV Regulation

A Bouda\textsuperscript{1,2}, N E I Bachari\textsuperscript{1}, L Nacef\textsuperscript{1}

\textsuperscript{1} LOBEM, Houari Boumediene University of Science and Technology (USTHB), El-Alia, POBox32, 16111, Algiers, Algeria.
\textsuperscript{2} National Maritime Superior Institute, SETRAM Laboratory, Tipaza Algeria.

Abstract

Maritime transport is one of the sources of greenhouse gas emissions in particular by carbon dioxide. In order to reduce these emissions, the European Commission has adopted on 2015 a regulation dealing with the monitoring, reporting and verification "MRV" of CO2 emissions from ships. The MRV Regulation is a standardized procedure for collecting data from a number of parameters which are already monitored by ship-owners during a normal ship operation, such as a type fuel oil used by ships, number of navigation days and quantities of transported goods etc. It seems clear that the purpose of the MRV regulation is to inflict new taxes for CO2 emissions to commercial ship. The data collected will be used to determine the rate of the contributions according to the type of vessel, its tonnage and the value of the goods transported. Through our study, we will try to estimate the rates of these taxes and the future increase in the cost of maritime freight and their impact on the price of the transported goods, inspired by the experience of the air transport which adopted the same approach few times ago.

Keywords: MRV Regulation, Ship, CO\textsubscript{2}, Taxes, Freight Costs
Contribution of Satellite Image and Altimetry Data to Observe The Functioning of Marine Environment Along the Coast of Algeria

N E I Bachari¹, A Nedjar¹, L Nacef¹, F Houma²

¹Université des Sciences et Technologie Houari Boumediene
²Ecole Nationale Superieure des Sciences de la Mer et Aménagement du Littoral

Abstract

This paper is a contribution to study the functioning of the marine environment of the Algerian coast. The basic element for this study is the images of MODIS / LANDSAT TM and altimetry data. For monitoring coastal erosion, we can conclude that MODIS images allow the extraction of the coastline at an average level. TM satellite permits the quantification coastal erosion with good precision. To study current geostrophic, we used altimetry data. We observe different region characterized with different velocity and different direction. To study the dynamics of coastal waters. The use of "Principal component analysis allows us to develop a map of coastal dynamics for a monthly scale. This dynamic characterized by the presence of a monthly haline forehead on the edge of the West Coast. Against for the region center and east characterized by the presence of gyres disappear to make a laminar form away from the coast. With regard to the burden of coastal waters suspended matter you have concluded that the fourth channel of the TM sensor is highly correlated with suspended matter. The Fourth application is in the processing of satellite chlorophyll images. MODIS satellite images are best suited to this application. The analysis results show that the maximum concentration for the months of June and October. The spatiotemporal distribution analysis of chlorophyll in us shows that the Algerian coast is oligotrophic.

Keywords: Modeling, Satellite, Coast, Function.
Internet, Social Media And Immigration

Edlira Kola
Sapienza University of Rome

Abstract

Currently the internet has become a fundamental element for our society, which cannot act without it. The importance is fundamental for any question, especially in the immigration mode/way it has a very important role, as it allows people to exchange information very quickly. In the Italian case, internet plays a very important role in terms of immigration, but specifically in the acquisition of citizenship. The foreigners in Italy are currently more than 5 million (equal to 8.5% of the residents at national level (10.7% in the Center-North, 4.2% in the South, ISTAT), instead those who apply for citizenship increase every year (Italian Ministry of the Interior). The bureaucracy in Italy is a very difficult undertaking/problem in general but in this case, it is even more complicated, as the timing is extended and the answers are given very late. Internet has reached the peak of importance because on average each individual uses the internet daily without stopping (Italy occupies the third position in the European ranking of users (76% the EU average in 2015). In recent years, the Ministry of the Interior has faced an increase in applications for citizenship, this has had a negative effect on the processing of practices. Therefore, people feel obliged to request information for other unofficial ways in most of the cases they use internal. Internet pages can be revealed as a great disappointment or a non-place where they can continue to believe, but their importance remains fundamental. The Internet plays a fundamental role in today's society.

Keywords: Citizenship, Website, Blog, Law, People, Answer, Bureaucracy, Internal Affairs, Information
State of The Fish Stocks Exploited in The Central Region of Algeria: Boops Boops (Linne, 1758) and Pagellus Acarne (Risso, 1826).

Kamel Harchouche

USTHB/FSB, University of Sciences and Technology of Houari Boumédiene/Faculty of Sciences and Biology

Abstract

The Sparidae are abundantly represented on our coasts. This work has two parts: The first consists in determining the growth (L∞, K and to) of the Von Bertalanffy equation (1934) by analysis of the size structures. The second part is an attempt to apply an analytical model on stocks of Boops boops and Pagellus acarne captured by trawl. Some operating parameters such as mortality, recruitment and selection sizes are calculated and integrated with other parameters, in particular those of growth in a predictive model of evaluation. The analytic model of Beverton and Holt (1966) will be used to estimate the current level of exploitation. This model is used to measure relative yield and biomass per recruit (Y'/R and B'/R). Growth is different, in favour of the males in the bug and in favour of the females in the white pagel. The height-weight relationship indicates isometric growth in both species. The weight therefore grows like the cube of the length. The exploitation rate E indicates an optimal exploitation of the two species. The recruiting sizes of B. boops and P. acarne are 11.3 and 12.1cm respectively. The selected size of the bug is 12.9cm, it is 11.8cm in the white Pagel. The current per-recruit yield and biomass are respectively 0.037g and 0.306g for the bug. In the white Pagel Y'/R=0.045g and B'/R=0.265g. The predictive values Emax, E10 and E50 are respectively equal to 0.703, 0.607 and 0.354 and in the white sheet Emax=0.645, E10=0.557 and E50=0.645.

Keywords: Fish, Exploitation, Algeria
Türk Dijital Oyun Pazarı Araştırması

İbrahim Külekci¹, Aykut Durgut¹, Burak Onaran¹, Mehmet Pak¹

¹Balikesir University

Özet

Dijital oyun sektörünün dünya ve Türkiye’deki gelişimi ve geleceği araştırma anketimizin ana fikridir. Dijital oyunların tüketimi ne kadar ettiği özellikle Türkiye’de tüketimin oldukça hızlı şekilde arttığı değinilmekle beraber oyun geliştirme için pazarın ne kadar büyük olduğu dikkat çekmiştir. Ayrıca dijital oyunlarla eğitimde nasıl verilebileceği, eğitimde dijital oyunların nasıl ve etkin kullanılabileceği çözümlenmiştir. Hem dünyada hem de Türkiye standart sporların istatistiklerini yakalamaya başlayan espor’un geleceği araştırılmıştır. Türkiye’de esporun gelişmesi ve profesyonel meslek olarak devam etmesinin yanında Türk aile yapısının bu yeni mesleğe bakış açısı cevaplanmıştır.

Anahtar Kelimeler: Dijital Oyunlar, Oyun Geliştirme, Türk Oyun Piyasası, Espor

Turkish Digital Gaming Market Research

Abstract

Digital game industry in the world and is the main idea of our survey research development and the future of Turkey. While the consumption of digital games that especially touched at how consumption has increased very rapidly in Turkey has been pointed out that with how big the market for game development. In addition, how to teach with digital games, how to effectively use digital games in education has been resolved. In both Turkey and the world standard sporting future of e-sports began to catch statistics were investigated. Turkey in addition to the continuing development of the profession and professional e-sports have this new profession who responded to the viewpoint of the Turkish family structure.

Keywords: Digital Games, Game Development, Turkish Gaming Market, Espor
Arduino Mikrodenetleyici Tabanlı Meyve Kurutma Makinesi Tasarımı

Ayhan Istanbullu¹, Naim Ayyılmaz¹
Balıkesir University

Özet

Bu çalışmada, çeşitli sensörlerden alınan verilerin mikrodenetleyici tabanlı bir sistemle değerlendirilmesi ile meyve veya sebze kurutulması amaçlanmıştır. Elektronik kısımda açık donanım ve yazılımı kullanan arduino uno, 5V 10 A röle, 12 V bilgisayar fani, Adaptör, 2 adet 105 watt halojenli ampüle ve bağlantı kabloları kullanılmıştır. Makine Çalışma Prensibi:

Anahtar Kelimeler: Arduino, Meyve Kurutucu

Arduino Microcontroller Based Fruit Dryer Design

Abstract

In this study, it is aimed to evaluate the data obtained from various sensors with a microcontroller based system and to dry fruits or vegetables. Arduino uno, 5V 10A relay, 12V computer fan, Adapter, 2 pieces of 105 watt halogen bulb and connection cables are used in the electronic part which uses open hardware and software. Machine Working Principle:
The products which are washed and chopped and ready to dry are placed on the shelves and placed on the machine. The arduino, which is programmed with the energy it receives, records the voltage information obtained from the LM35 center pendant in degrees centigrade. When the ambient temperature reaches 60 °C, it will discharge hot and humid air inside by operating some fans to keep the temperature constant. When the temperature drops to 60 °C again, the heaters open. This cycle continues. Depending on the product to be dried, the drying temperature can be changed via the program. The products are visually inspected at the end of 3-4 hours and the energy is turned off when the drying is completed.

Keywords: Arduino, Fruit Dryer
Drosophila Melanogaster için Optimize Edilmiş bir Comet Test Protokolü

Fahriye Zemheri¹, Nuri Bulut¹, Yusuf Şenses¹
¹Bartin University

Özet


Anahtar Kelimeler: Drosophila Melanogaster, Genotoksite, Comet Testi

An Optimized Comet Assay Protocol for Drosophila Melanogaster

Abstract

Genotoxins can cause various disorders in chromosome and DNA structure such as gene mutations, chromosome abnormalities and DNA chain breaks. This situation has been associated with the concept of genetic toxicity. Genotoxicity tests have been developed to predict the possible effects of genotoxins on all living things in nature. The single cell gel electrophoresis assay (SCGE, also known as comet assay) is used as the fastest, easy and sensitive. The Comet method is based on distinctive migration characteristics of DNA molecules having different electrical charges and molecular weights at alkaline pH. According to this method, nucleolus’ and cells can be visualized by staining with a fluorescent dye by first placing between the agarose layers and then running at alkaline electrophoresis buffer and lysis solution and lastly applying neutralization procedure. Comet
assay is a useful method in evaluating the potential toxic effect. Drosophila melanogaster has been used for many years as an in vivo model organism for potential toxicity and genotoxicity studies. This study aims to optimize the alkaline Comet assay aimed to determine the effect of various genotoxins on Drosophila melanogaster tissues.

**Keywords:** *Drosophila Melanogaster, Genotoxicity, Comet Assay*
Biyometrik Tanımada Mesafe Algoritmalarının Etkisi

Aykut Durgut¹, Serdar Biroğlu²

¹Balikesir University
²Duzce University

Özet

Parmak izi, avuç içi ve damar biyometrisi ile elde edilen detaylar karşılaştırılarak karşılaştırıldığında, karşılaştırma yapmak gerekirse, bir detay noktasından diğer tüm detay noktalara olan mesafe hesaplanır. Ölçen ve manhattan yöntemleri mesafe hesaplamasında kullanılır. Bu iki mesafe algoritmasının tanıma üzerindeki etkisi 3 biyometri ile incelenir.

Anahtar Kelimeler: Biyometri, Ölçen Mesafesi, Manhattan Mesafesi, Tanıma

Effect of Distance Algorithms In Biometric Identification

Abstract

The details obtained from fingerprints, palm and vein biometrics were compared for comparison. In comparison, the distance from one detail point to all other detail points is calculated. Euclidean and manhattan methods are used in distance calculation. The influence of these two distance algorithms on recognition is studied through 3 biometrics.

Keywords: Biometric, Euclidean Distance, Manhattan Distance, Recognition
Parmak İzi, Avuç İçi Ve Damar İzi Okuma Cihazı

Mehmet Pak¹, Aykut Durgut¹, Burak Onaran¹, Ayhan İstanbullu¹

¹Balikesir University

Özet


İki insanın parmak izinin aynı olma ihtimali 64 milyonda birdir. Bu az rastlanan ihtimali ortadan kaldırmak için parmak izinin yeterli kalmadığı durumlarda avuç içi izleri bu sorunu çözmek için kullanılmaktadır. Teknolojinin vermiş olduğu avantajlar sayesinde parmak izi ve avuç içinin yetersiz kaldıgı ve güvenlikte açık yaratabilen durumlarda ise işaret parmağının damar izleri bu açıkları kapatmak için kullanılmaktadır.

Geliştirilen cihazda, güvenliği en üst düzeye çıkartabilmek amacı ile parmak izi, avuç içi yolları, ve damar izleri kullanılmaktadır. 3 webcam aracılığı ile görüntüler elde edilip bilgileri ile birlikte veritabanında tutulmaktadır. Yazılım geliştirme müsait olan bu cihaz, gerek Api (Uygulama geliştirme arayüzü) kullanılarak gerekse de arduino gibi mikrodenetleyiciler kullanılarak programlanabilmektedir.

Anahtar KELimeler: Parmak İzi, Avuç İzi, Damar İzi, Biyometri

Fingerprint, Palm and Vein Trace Reading Device

Abstract

Technology has been associated with the security issue, and methods such as fingerprint reading have been used recently in devices that are on the market. In this developed device, besides the finger trace, the vein trace of the palm and index finger is taken at the same time. This can be used to open door locks, to hold a person's lock, to lock a lock, to start a high-level device.

The probability that two people have the same fingerprint is 64 million. The palm prints are used to solve this problem when the fingerprint is not enough to remove this rare possibility. In cases where the fingerprint and palm are inadequate due to the advantages of the technology and can create vulnerability in the safety, the vein marks of the index finger are
used to close these openings.

The developed device uses fingerprints, palm pathways, and vein marks to maximize safety. 3 images are obtained via webcam and kept in the database together with the information. This device which is suitable for software development can be programmed either by using Api (application development interface) or by using microcontrollers such as arduino.

**Keywords:** Fingerprint, Palm Print, Vein Print, Biometry
Sosyal Medya Fenomenlik Anketi
Aykut Durgut¹, Burak Onaran¹

¹Balikesir University

Özet

Anahtar Kelimeler: Sosyal, Sosyal Medya, Sosyal Medya Fenomenleri, Sosyal Medya Platformları

Social Media Phenomenical Survey

Abstract
The purpose of this article is to write about how people spend their time on social media platforms and assess how they spend their time on social media based on phenomenal survey responses. Many people have a social media focus on their time, and they support channel followers by watching them entertaining videos or channels, allowing them to have a career. This gives people on social media the chance to gain fame. Many people make their own career by earning money from social media. In this regard, social media phenomena compete with each other to ensure that the content shared by the people in social media is the focus of their attention to their followers and their appeal to the people. This competition creates his own career as an attraction.

Keywords: Social, Social Media, Social Media Phenomenons, Social Media Platforms
Öğrencilerin Bilişsel ve Duyusal Davranışları ile Matematik Başarılı Arasındaki İlişkinin Değerlendirilmesi

Mehmet Tahir Huyut

Bitlis Eren University, Medical Department of Publicity and Marketing, Bitlis, Turkey

Özet


Anahtar Kelimeler: İnertia (Hareketsizlik), Çoklu Uyum Analizi, Kategorik Değişken, Boyut Indirgeme

Assessing the Relationship Between Cognitive and Sensory Behaviors of Students and Their Mathematical Achievements

Abstract

In this study, it was aimed to determine the relationship between the success of some individual factors affecting the success of mathematics course in the ninth grade of secondary education with multiple correspondence analysis. Firstly, pre-study was performed to
determine framework of the questionnaire and then a questionnaire were formed with containing 35 questions. Created the questionnaire was surveyed on totally 471 students of 7 schools drawn randomly from 42 high school. Multiple correspondence analysis method was used to evaluate the obtained data. Results of study as follows; the students with target awareness are more successful, the students believing to learn math permanently were found willing to enter university, the students who did not pass enough dialogue with the teacher had fear of the note and found it to be more unsuccessful, the students who are unable to learn and scared from math tend to be more failure, the students who consider comprehensive the language of their teachers are more prone to success. It was seen that the students who see their teachers as friendly, helpful and humorous were positively related to the success category. Students who find the contribution of learning computer games to learning mathematics effective; At the same time working systematically and disciplined, the subject was found to solve plenty of questions. As a result of study, it has been emphasized that multiple correspondence analysis gives preferable results to investigate relationships among the multiple categorical variables in survey data.

**Keywords:** Inertia, Multiple correspondence analysis, Categorical variables, Dimension reduction
Bilimsel Araştırmalarda Kullanılan SPSS, SAS ve R Programlarının İncelenmesi

Alev Yüksel Aydar¹, Tülay Öncü Öner²

¹Manisa Celal Bayar University, Department of Food Engineering
²Manisa Celal Bayar University, Department of Bioengineering

Özet


Anahtar Kelimeler: İstatistiksel Programlar, SPSS, SAS, R

Investigation of SPSS, SAS and R Programmes Used in Scientific Studies

Abstract

SPSS, SAS and R are the most widely used statistical programmes in biological studies. SPSS was the first statistical programming language for the PC and was developed to analyse social sciences data. SAS was developed at the North Carolina State University and was initially developed to analyse large quantities of agriculture data. And R was developed by Ross Ihaka and Robert Gentleman. To become a SAS and SPSS user, an annual license fee is required depending on the intended utilization. R is an open-source programme so it has a large and supportive community. R,
which is very flexible and highly customizable, is continuously being developed and the latest version can be downloaded as often as desired. SPSS has a user-friendly interface and easy-to-use drop down menus. On the other hand, SAS provides an extraordinary range of data analysis and data management tasks. The SAS is a much more powerful program than SPSS and allows for the implementation of more analysis. R programme requires some programming skills. It has to be generated codes to perform analysis in SAS and R. Indeed R statistical software development environment is designed for data manipulation, calculation and graphical representation. So, R offers some advantages including its graphic visualization capacity and management of large volumes of statistical data. In this study, the advantages and disadvantages of these three programmes, which are getting interest day by day, were compared.

**Keywords:** Statistical Programmes, SPSS, SAS, R
Genetik Algoritma ve Sınıflandırıcı Yöntemler İle Kanser Tahmini

Hasibe Candan¹, Arzu Durmuş¹, Güneş Harman¹

¹Yalova University, Faculty of Engineering, Department of Computer Engineering

ÖZET


Anahtar Kelimeler: Genetik Algoritma, Naive Bayes, Bayes NET, Karar Ağaçları Destek Vektör Makineleri

Cancer Estimation with Genetic Algorithm and Classification Methods

Abstract

Nowadays, cancer diagnosis from microarray analyzes is an important research. By using machine learning method for cancer diagnosis on micro array data, which is obtain from individual genes has advantages in terms of time and accuracy. In this study, feature selection was performed by using Genetic Algorithm on large lung and brain cancer microarray data and Naive Bayes, Bayes NET, Decision Trees and Support Vector Machine classification algorithms were used for cancer prediction. According to the obtained results, the selection of the feature by genetic algorithm on the lung data was performed with LSVM, and the best performance was obtained with 94.09% class accuracy, 0.916 AUC and 0.872 MCC.

Keywords: Genetic Algorithms, Naive Bayes, Bayes NET, Decision Trees, Support Vector Machines

(Bu çalışmanın genişletilmiş tam metin halı Veri Bilimi dergisi 1. cilt, 2. sayısında yayınlanmıştır.)