

IMISC 2017

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INDUSTRY 4.0**

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Book of Abstracts

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PREFACE OF THE EDITORS

The 4th International Management Information Systems Conference (IMISC 2017), organized by İstanbul University Informatics Department and Computer Science Application and Research Center was held at İstanbul University Congress and Culture Center (Beyazıt-İstanbul, TURKEY) on October 17-20, 2017.

First of all, let us express our gratitude to the Rector of İstanbul University Prof.Dr. Mahmut AK for his patronage and support to organize such an important international event. In the same spirit we also express our thanks to Vice-Rector Prof.Dr. Halis Yunus ERSÖZ and Press Agent of Rector and Press and Public Relations Director of İstanbul University Prof.Dr. Ergün YOLCU for providing tools, instruments and necessary means for the completion of this conference in a most successful way.

This year, the special theme of the conference is Industry 4.0. The IMISC 2017 Organizing Committee has developed an exciting program that includes sessions (contributed and invited) on the following themes: Management Information Systems, Internet Technologies, Information Security & Law, Artificial Intelligence and Machine Learning, Social and Digital Media, Information Systems (Business and Technical Aspects), E-Applications, Microcontrollers and Applications, Geographical Information Systems, Business Intelligence and Decision Support Systems and Data Mining.

This book consists only of abstracts of papers that have not previously been published. They have undergone a detailed peer review process and were selected based on rigorous standards. At the conference, these papers were presented by the authors or co-authors and discussed in highly interactive sessions.

We would like to thank all members of the Program Committee for their effort in putting together such a comprehensive program. Sincere thanks go to all the authors, attendees, advisory and honorary committees, and technical committee for making this conference a good success. Last but not the least,

the organizing committee members deserve a special applause and mention for their effort and time for organizing this conference.

We acknowledge the sponsorship of Hpe Aruba, Havelsan, İAS, Netex, Endüstri Otomasyon, Ahşapsan, and Smart Valley and our conference supporters, İstanbul University Technology Transfer Center, İstanbul University Mechanical Engineering Technology Club, İstanbul University Computer Science Application and Research Center, and The Scientific & Technological Research Council of Turkey (TÜBİTAK) for their support for this conference.

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TABLE OF CONTENTS

EDITORS.....	III
PREFACE OF THE EDITORS	V
COMMITTEES	VII
HONORARY BOARD.....	VII
ADVISORY COMMITTEE	VII
ORGANIZING COMMITTEE	VII
SCIENTIFIC COMMITTEE	VIII
TECHNICAL COMMITTEE.....	X
COVER & DESIGN.....	X
PAPER SUBMISSION SYSTEM*	X
WEB SITE*	X
SOCIAL MEDIA.....	X
CONTACT (E-MAIL)	X
SPONSORS OF IMISC2017	XII
SUPPORTING INSTITUTIONS OF IMISC2017	XIII
TABLE OF CONTENTS	XV
KEYNOTES	XXIX
Management in the Age of Industry 4.0	xxxix
Dr. J.R. Reagan	xxxix
The Impact of Industry 4.0 on Higher Education	xxxiii
Prof. Dr. Sushil K. Sharma	xxxiii
Bilişim Hukukunda Yeni Gelişmeler: Siber Savaş ve Yasal Boyutu	xxxvi
Prof. Dr. Hasret ÇOMAK	xxxvi
Endüstri 4.0 ve Eğitim	xxxviii
Prof. Dr. Mustafa Hilmi ÇOLAKOĞLU.....	xxxviii
ORAL PROPOSALS	1
New Security Trend: Honeypot	3
Süleyman Muhammed ARIKAN	3
Recep BENZER*	3
A Real Life Web Based Marketing Optimization Framework with External Data.....	5
Sadi Evren SEKER	5

Evaluation of Shopping Basket According to Sociological and Demographic Conditions.....	7
Adnan AKTEPE*, Melda KOKOÇ, Süleyman ERSÖZ	7
A Proposal of Multi Criteria and Multi Method Decision Support System for Order Delivery Date Problem.....	9
Cemal AKTÜRK *, Sevinç GÜLSEÇEN.....	9
A Content Analysis of Consumer Reviews on Mobile Traffic Applications: Case of IMM Mobile Traffic	11
Tuğçe ASLAN, Adem AKBIYIK*	11
Sentiment Analysis on Twitter Messages Based On Machine Learning Methods.....	13
Aytuğ ONAN	13
A Proposal for National Internet of Things Strategy	15
Mustafa ÜNVER	15
İzzet Gökhan ÖZBİLGİN*	15
Development of a Central Administrative Automation Project with Objects Internet Platform on the Example of Automatic Door Control System	17
Ahmet Gürkan YÜKSEK*, Halil ARSLAN, Gülşah ÇİFÇİ, Mustafa Lemi ELYAKAN	17
The Scale of E-Customer Perceptions: A Study of Validity and Reliability.....	19
Vildan ATEŞ.....	19
It Governance Practices and Key Performance Indicators: A Systematic Mapping Study.....	21
Murat Paşa UYSAL*, Evrim ÇETİNKAYA	21
Investigating Continued Usage Intention in the Context of Mobile Shopping: A Comparision of Two Theoretical Models.....	23
Mehmet Cem BÖLEN*, Üstün ÖZEN, Ersin KARAMAN	23
Ecosystem Effects of the Industrial Internet of Things on Manufacturing Companies	25
Christian ARNOLD*, Kai-Ingo VOIGT.....	25
A Review of Data Mining Techniques Applied to Health Data	27
Abdulkadir ÖZDEMİR, Hadi POURMOUSA *, Neda ALIPOUR	27
Online Sermaye Aracı Olarak Kitlesele Fonlama	29
İkram DAŞTAN *, Cem GÜRLER	29

Process Mining Analysis for a Call Center	31
Ufuk ÇELİK	31
Eyüp AKÇETİN*	31
Abdulkadir YALDIR	31
The Effect of Mobile Application Users' Feedback on Potantial Users and Developers: A Case of İşcep.....	33
Kübra ÇALIŞKAN, Ramazan MURADİ, Adem AKBIYIK*	33
Counterproductive Use of Technology: Cyberloafing.....	35
Mustafa AGAOGLU, E.Serra YURTKORU*, Secil BAL TASTAN,	35
A Roadmap for Turkey's Industry 4.0 Transformation Based on Germany's Strategy.....	37
İdil ATASU*, Meltem ÖZTURAN.....	37
Birgül KUTLU	37
A Scientometrics Study on Internet of Things (IoT)	39
Fatma Seray DEMIRKAN*, Sona MARDIKYAN, Bertan BADUR	39
An Assessment of Recent Cloud Security Measure Proposals In Comparison To Their Support by Widely Used Cloud Service Providers	41
Ömer Özgür TANRIÖVER *, Mohamad SOUBRA	41
Comparison and Analysis of Commercial User Hashtags on Social Networks and Tags Generated With Image Processing.....	43
Kutan KORUYAN*, Melike AYDIN	43
An Add-On Suggestion for Improving User Experience on Websites	45
Veli Özcan BUDAK*	45
Çiğdem SELÇUKCAN EROL, Murat GEZER	45
Optimization of Improving Fields Using Heuristic Algorithms for Belonging Turkey to High Income Class According To GII 2016 Data	47
Ihsan PENÇE, Melike ŞİŞECİ ÇEŞMELİ*, Adnan KALKAN	47
Determination of the Ideal Business Computer by Vikor Method	49
Şükrü Ufuk ULADİ *, Ayşegül İrem ULADİ, Esra CENGİZ	49
Characterizing Owa (Ordered Weighted Averaging) Operator with Stress Function Using Incremental Artificial Bee Colony Algorithm	51
Efsun COSKUN*, Baris Tekin TEZEL, Resmiye NASIBOGLU	51

How A Work Force In Industry 4.0 Era? Labor 4.0	53
Ufuk TÜREN	53
Türksel KAYA BENSGHIR*	53
Yücel YILMAZ	53
Multidimensional Descriptive Analytics in Air Transportation Sector: Turkish Airlines Case Study	55
Musab Talha AKPINAR*	55
Abdülkadir HIZIROĞLU	55
Twitter Data Analysis in Automotive Sector: Tips for Driving Faster in Market	57
İlker Güven YILMAZ *, Doğuş AYGÜN, Elif KARTAL, Zeki ÖZEN	57
E-Government Adoption in the Health Sector: A Research on Hospital Information Management Systems in Public Hospitals .59	59
Melih ENGİN *, Fatih GÜRSES, Safiye Hilal ERGÜN,	59
The Happy Project: An Adaptive Emotional Socio-Technical System Approach	61
Esra Kahya OZYIRMIDOKUZ	61
Eduard Alexandru STOICA	61
Kumru UYAR	61
Increasing Production Efficiency with Using Internet of Things and Instant Data Analysis Methods on Machining Sector.....	63
Bahadır AKTAŞ, Can AYDIN*	63
Web-Based Effective Decision Making Process Design	65
Emre KARAGÖZ, L. Özge ORAL *, Cem YILDIZ, Vahap TECİM	65
RFM-Based Customer Analytics in Public Procurement Sector ..67	67
Ümit Cengiz UYSAL*	67
Abdulkadir HIZIROĞLU	67
Muhammed Emin KARABACAK	67
Diversty Measures Based Hierarchical Classifiers Ensemble Construction and Selection.....	69
Nabiha AZIZI*, Soraya CHERIGUENE, Souad GUESSOUM.....	69
Design of Intelligent Direction Systems by Using Multi Criteria Decision Algorithms in Emergency Evacuation Systems.....	71
Emre KARAGÖZ*, Vahap TECİM	71
Link Analysis and Detection in a Web Site with Decision Trees ..73	73
Muhammed Çağrı AKSU*	73
Ersin KARAMAN	73

Strategic Analysis of the Impact of Social Network Usage Effectiveness on the Number of Donors in Non-Profit Organizations: A Foundation Sample	75
Aykut ŞEN*, Gökhan SILAHTAROĞLU	75
New Relationship Dynamics Affecting Organizational Resilience in Supply Chain.....	77
Hasan GÜRBÜZ	77
Development of a Utility Application for Shorten Solution Time of Tickets to Software Support Department in Turk Telecom	79
Fulden NEOMAN, Çiğdem TARHAN*	79
Examining the Application of Augmented Reality on the Customers	81
Hüseyin ÇAKIR*, Gözde Nur KÜTÜKCÜ	81
An Effective Recommender Model for E-Commerce Platforms ...	83
Muhittin IŞIK*, Hasan DAĞ	83
Roboethics: Current Research Questions	85
Kadir Alpaslan DEMİR	85
Strengthening Individual Passwords: Social Pressure against Visual Warning Evidences From Turkey	87
Hakan AŞAN*, Onur DOĞAN	87
Industry 4.0 and Key Technologies: A Review.....	89
Abide Coskun-SETİREK*, Aysun BOZANTA	89
Classification of Fibromyalgia Syndrome with Support Vector Machines	91
Cemile ZONTUL, Emrullah HAYTA	91
Metin ZONTUL*	91
Ayça TAŞ, Yavuz SİLİĞ	91
A Conceptual Framework of a Big Data Analytics Suite for Telecommunications Industry on Cloud.....	93
Abdulkadir HIZIROĞLU	93
Dilan Özcan KALFA*, Ourania ARETA, Musab Talha AKPINAR.....	93
Information Security Behaviour: The Influence of Organizational and Individual Factors	95
Burcu KÖR*	95
Taner ŞENTÜRK, Serkan UZUNDÖNEKOĞLU, Bilgin METİN	95
Current Research Topics in Industry 4.0 and an Analysis of Prominent Architectural Frameworks	97
Kerem KAYABAY*, Mehmet Ali AKYOL, Mert Onuralp GÖKALP, Altan KOÇYİĞİT, P. Erhan EREN.....	97

Decision Tree Implementation for Determining the Causes of Air Pollution in the Keşan Region	99
Murat TOPALOĞLU	99
Ekin AKKOL*	99
Major Industries in Information Systems Research: A Quantitative Analysis on the Naics Codes in Article Meta-Data	101
İnanç KABASAKAL	101
Designing of Manufacturing Process with Mobile-based Smart Systems.....	103
Ceyda ÜNAL*, Cihan ÇILGIN, Vahap TECİM.....	103
The 2017 Plebiscite Analysis on Twitter Messages	105
Mansur BEŞTAŞ*, Hasan DAĞ.....	105
Büyük Verinin Türkiye’deki Yeri	107
Deniz HERAND, Törehan GÖREN, Mehmet IŞIK*	107
Social Data Capital Usage in the Health Sector: A Pilot Study in Istanbul	109
Zehra Nur CANBOLAT*, Gökhan SILAHTAROĞLU	109
Association Methods in Data Mining and an Application Related To Customer Relationship Management	111
Gökçe KARAHAN ADALI	111
M.Erdal BALABAN	111
Öneri Sistemlerinde Kullanılan Yöntemler Üzerine	113
Ankara Yıldırım Beyazıt University, Turkey.....	113
Development of Facility Evaluation System for the Use of Disabled People	115
İzel İlkin BORUCU, Murat KOMESLİ*	115
Validity Issues in Linked Data Driven is Research	117
Ziya Nazim PERDAHCI*	117
Kenan KAFKAS, Mehmet Nafiz AYDIN	117
A Study on Turkish State Universities Mis Undergraduate Curriculiums of the Relations and Readiness to Industrial 4.0 ..	119
M. Hanefi CALP*	119
Ahmet DOĞAN.....	119
Aslıhan TUFEKÇİ.....	119
Türksel KAYA BENSGHIR	119
Industry 4.0 Revolution In Clothing And Apparel Factories: Apparel 4.0.....	121
Ebru GÖKALP*, Mert Onuralp GÖKALP, P. Erhan EREN	121

The Analysis of Management Information Systems Field Undergraduate Level Curriculum of Private Universities within the Scope of Industry 4.0 in Turkey	123
Ahmet DOĞAN*	123
M. Hanefi CALP	123
Aslıhan TUFEKÇİ	123
Türksel KAYA BENSGHIR	123
Issues Regarding Deployment of Ipv6 and Business Model Canvas for Ipv6.....	125
Mehmet Nafiz AYDIN*, Ebru DİLAN	125
Genetic Algorithm Based Sentence Extraction for Automatic Text Summarization.....	127
Oğuz KAYNAR*, Yunus Emre IŞIK, Yasin GÖRMEZ, Ferhan DEMİRKOPARAN	127
Big Problem in Health 4.0 Applications: Access and Protection of Electronic Health Records.....	129
Şebnem AKAL	129
Cloud Computing Based Predictive Maintenance Framework for Medical Imaging Devices	131
Selin ÇOBAN*, Mert Onuralp GÖKALP, Ebru GÖKALP, P. Erhan EREN	131
Innovation Context at the Corporate and Digital Innovation Unit	133
Ebru DİLAN*, Mehmet Nafiz AYDIN	133
Ideal Steganographic Scenario: Calculation of Capacities of Carrier Photos and Using Opa Method of Frequency-Based Steganography	135
Faruk TAKAOĞLU	135
Ferdi SONMEZ*	135
Oğuz KAYNAR	135
Towards a Maturity Model for Industry 4.0: A Systematic Literature Review and a Model Proposal	137
Umut ŞENER*, Ebru GÖKALP, P. Erhan EREN	137
A Review of Technological Critical Success Factors in Disaster Management with Text Mining Approach	139
Yasemin KORKUT*, Halil İbrahim CEBECİ, Erman COŞKUN	139

A Model Proposal for Enterprise Architecture Framework in Social Security Institution	141
Ayşe MENTEŞE	141
İzzet Gökhan ÖZBİLGİN*	141
Yenal ARSLAN	141
Towards Industry 4.0: Challenges of Erp Systems For Smes	143
Gülşay EKREN*	143
Alptekin ERKOLLAR, Birgit OBERER.....	143
Vehicle Sales Prediction Using Neural Fuzzy Logic Method in Industry 4.0	145
Umut KAYA	145
Atınç YILMAZ*	145
Kadir KESKİN	145
Multi-Vehicle Dynamic Routing with Time-Windows in Parcel Delivery.....	147
Nafiz ÜNLÜ	147
Buğra ŞEN	147
Shortest Path Detection Using Clonal Selection Algorithm for Erzurum Metropolitan Municipality	149
Abdullah NARALAN*	149
Salih Serkan KALELİ, Mehmet BAYĞIN	149
Wireless Part Hot Call System in Plant Logistics: Application of Automotive Plant	151
Merve Simge USUK*, İhsan Hakan SELVİ.....	151
Geographic Information Systems (GIS) Based Financial Risk Map of Turkey	153
Halil İbrahim ZEYBEK	153
Handan ÇAM, Alper Veli ÇAM*	153
Optimum Smartwatch Selection Using Analytic Hierarchy Process (AHP) From the Viewpoint of Variable Decision Makers	155
Bedreddin Ali AKÇA*, Ömer BOYACI, Ömer Faruk AKMEŞE, Mustafa İlker ERDURSUN.....	155
Evaluation of Student Perceptions Related To the Undergraduate Curriculum of Management Information Systems In Terms Of Students' Success.....	157
Üstün ÖZEN	157
Handan ÇAM*.....	157
Ersin KARAMAN, Samet EKİZ, Cansu BAYSAL, Seda ONAYLI.....	157

Determining the Perceptions of Distant Higher Education Students on Educational Dimension of Social Media and Their Social Media Use for Educational Purposes	159
Üstün ÖZEN	159
Handan ÇAM*	159
Dilara CAN, Özge DÖNMEZ	159
Consumers' Adoption of Social Commerce: A Systematic Literature Review.....	161
Said ALTINIŞIK*, Sevgi ÖZKAN YILDIRIM	161
Real Time Control of Arduino Based Robot with Kinect Sensor	163
Ömer Faruk AKMEŞE*	163
Hasan ERBAY	163
Ömer BOYACI, Bedrettin Ali AKÇA	163
Assessment of University Mobile Applications as Content.....	165
Emrah AYDEMİR	165
Feyzi KAYSI*, Sevinç GÜLSEÇEN	165
Design and Implementation Of Mobile Navigation Application Recommending Route Changes Based On Category And Distance	167
Fatih KAYAALP*, Sultan ZAVRAK, Mehmet ŞİMŞEK, Sinan TOKLU	167
Industry 5.0 and a Critique of Industry 4.0.....	169
Kadir Alpaslan DEMİR*	169
Halil CİCİBAŞ	169
Enhancing Indonesian Geospatial Industry to Survive in the Current Competition.....	171
Budi SUSETYO*, Immas NURHAYATI, Indupurnahayu SUNARIAMAN, Puspa Eosina HOSEN	171
A Research on Delphi Method of Computerized Argument on Satisfaction of Instructors in Distance Learning at Muğla Sıtkı Koçman University	173
Murat SAKAL*, Ercüment GÜVENÇ	173
Generic Monitoring of Livestock Data Management	175
Bahadır ODEVCI	175
Mehmet AYDIN*	175

Technology Evaluation Based on Patent and Publication Data: A Case Study of Quantum Information Processing Technology ...	177
Serkan ALTUNTAŞ*	177
Türkay DERELİ	177
Volkan SERT	177
Strategic Importance of Turkey for SCO and EU: Application of AHP and TOPSIS Methods Based On Macroeconomics and Security Criteria.....	179
Ersin KARAMAN*, Üstün ÖZEN, Güler ERKAL KARAMAN, Elanur AKDAĞ, Dilara CAN	179
Integrated Ice Hockey Management and Analytics System (ICE-ERK).....	181
Ersin KARAMAN*, Üstün ÖZEN, Güler ERKAL KARAMAN, Murat Can AKTAŞ, Esra ÖZMEN	181
Developing Web Based Decision Support System for Customer Relationship Management (CRM) Software Selection.....	183
Doğancan ÜLKER*	183
Metin BARIŞ, Zeki ÖZEN, Elif KARTAL	183
Görüntü İşleme Tabanlı İha Ve Uydu Sistemleri Destekli Hibrit Yapay Zekâ Modeliyle Kaçak Yapıların Tespiti.....	185
Batuhan AY, Ersin NAMLI*	185
Converting Raw Datasets to Relational Databases Using Genetic Algorithms.....	187
Emre AKADAL*, Mehmet Hakan SATMAN	187
A Review Study on Supply Chain Intelligence	189
Merve ER KARA*, Seniye Ümit OKTAY FIRAT	189
Logistics 4.0 Challenges and Oppourtunities: Reflections from Industry 4.0	191
Zümrüt ECEVİT SATI	191
Industry 4.0 as High Technology and Evaluation of Turkey	193
Uğur KELEŞ	193
Zümrüt ECEVİT SATI	193
Forecasting of Box Office Revenue Using Machine Learning Algorithms.....	195
Özge Hüsnüye NAMLI	195
Tuncay ÖZCAN*	195
Data Mining Methods for Solving Customer Churn Analysis Problem	197
Fatma Önay KOÇOĞLU, Tuncay ÖZCAN, Ş. Alp BARAY	197

Diagnosis of Diabetes Mellitus Using Statistical Methods and Machine Learning Algorithms.....	199
Ebru PEKEL*	199
Tuncay ÖZCAN	199
POSTERS.....	201
Intelliad: Machine Learning Based Intelligent Advertising System.	203
Shakeel Ahmad SHEIKH*	203
Dawood Ahmad KHAN.....	203
Analysis of Cultural Differences in Collaborative Innovation Networks: Wikipedia	205
Mustafa POLAT, Adem AKBİYİK*	205
Determining Book Borrowing Behaviors via Data Mining Clustering Method: “Case of Uşak University”	207
Gülten DEMİRAL, Mustafa SOBA, Şükran ARMUTLU*	207
Anfis Analysis of Wireless Sensor Data with FPGA	209
Ahmed Khazal Younis AL-AZZAWI, Tuncay ERCAN*	209
An Assesment of Use of Data Mining Techniques on Social Media Content for Crime Prediction	211
Sakirin TAM*, Özgür TANRIÖVER	211
A Comparison of Process Mining Tools	213
Eyüp AKÇETİN*	213
Ufuk ÇELİK	213
Abdulkadir YALDIR	213
Internet of Things (IoT) In Healthcare: Advantages and Challenges	215
Yusuf Yalcin İLERİ*, Mehmet HACİBEYOĞLU	215
Mobile Marketing and Mobile Marketing Perception of University Students: A Research on University Students.....	217
Nil Esra DAL, Burcu GÜLDÜREN, Gülin Tuğçe SÖYLEYİCİ*, Tuğsel Çisil KILIÇ	217
The Implementation of Corporate Sustainability in Information Systems' Companies: An Analysis of Sustainability Reports	219
Nurcan BOZKAYA ÖZDEMİR *, Mazlum ÖZÇAĞDAVUL	219
Secure Management Model for Scada Systems.....	221
Çağrı DOĞU, Tuncay ERCAN *	221

Augmented Reality 4.0: Opportunities and Challenges for Smart Factories.....	223
Gülşay EKREN*	223
Birgit OBERER, Alptekin ERKOLLAR.....	223
A Study on Career Orientation: Graduated Students (2004-2015) At Başkent University, Management Information Systems Undergraduate Program	225
Türksel KAYA BENSGHIR	225
Gizem ÖĞÜTÇÜ*, Esmâ Ergüner ÖZKOÇ, Gülten ŞENKUL GÖNGÖRMÜŞ	225
Identification of Factors Affecting Online Shopping in Two Different Societies (Case Study: Atatürk University and Urmia University)	227
Üstün ÖZEN, Neda ALIPOUR, Hadi POURMOUSA*	227
A Scientometric Analysis of The Researches on Management Information Systems in Turkey	229
Ece Nur ÇAKAR, Tuğçe ASLAN, Adem AKBIYIK*	229
The Technical Challenges of Cloud Computing As a Leading Trend in Business: A Case Study of Turkey.....	231
Ahmet Cihat BAKTIR*, Bilgin METİN	231
Assesment of Graduation Project in the Context of Management Information Systems Department Curriculum	233
Mustafa KESKİNKILIÇ*, Rabia SAYLAM	233
Industry 4.0 and Turkey: A Chance or a Thread?	235
Tuğba KOÇ*, Alptekin ERKOLLAR, Birgit OBERER	235
Strategic Value of Information Systems: A Conceptual Study... ..	237
İbrahim YILDIZ	237
The Rising Fundamental Skills of It Field in Industry 4.0 Age....	239
Sevinç GÜLSEÇEN*	239
Doğan AYDIN	239
Mobile and Wearable Technologies in Healthcare: A Systematic Review and the State-Of-The-Art	241
Tansu PANCAR*, Sevgi ÖZKAN YILDIRIM	241
Investigate for Application of Industry 4.0 with Data Mining: Literature Review.....	243
Hakan KÖR*	243
Hasan ERBAY	243
Melih ENGİN	243

Curling Simulation for Education and Strategy	245
Ersin KARAMAN*, Üstün ÖZEN, Talha BUZRUL, Mahmut Ensar GÖKTAŞ, Esra ÖZMEN	245
Effectiveness Of Companies Internet Usage: Instance of Turkey's Forest Industry	247
Küçük Hüseyin KOÇ*	247
Mehmet CEYHAN	247
Documentation of Software Products: UML and Case Tools Support	249
Zerrin AYVAZ REİS	249
TUTORIALS	251
Dijital Öykü Yazarlığı Atölye Çalışması	253
Nilüfer PEMBEÇİOĞLU	254
Nebahat AKGÜN ÇOMAK	254
R ile Derin Öğrenme Çalıştayı	255
Yalçın ÖZKAN	255
INDEX	257



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KEYNOTES



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Management in the Age of Industry 4.0

Dr. J.R. Reagan

Woosong University College of International Studies



Dr. Reagan is Vice Dean at Endicott College of International Studies (Woosong University). As the Vice Dean, Dr. Reagan establishes the vision, mission, development strategy and plans for Endicott College of International Studies. In addition, he is responsible for establishing reciprocal global campuses with partner universities and developing alliance programs with global companies and institutions. He also serves as advisor to startups including cybersecurity, innovation and big data.

He previously served as Global Chief Information Security Officer (CISO) of Deloitte with revenue of \$34B, over 210,000 employees and operating in more than 150 countries.

In addition to his role at Woosong University, he taught at Johns Hopkins University (Carey Business School), Cornell University (Johnson Graduate School of Management) and Columbia University (Graduate Studies Mentor). He holds a Doctorate in Organizational Leadership from Shenandoah University and has been a guest lecturer on Innovation, Cybersecurity, Analytics and Marketing at Harvard, Wharton, Georgetown, Notre Dame, Northwestern, American and Southern Methodist Universities.

His research areas are Social Differentiation (Political Sociology, Social Stratification, Social Movements), Research Methods and Statistics, Global Development, Science, Technology, and Society, International Business and Management, Institutional Change in Socio-Technical Systems, Education as a Socio-Technical System in Global Development, and International Education Research.



Abstract

The Fourth Industrial Revolution is creating the need for Management 4.0. In Industry 4.0, cyber physical systems are designed to enhance the performance of autonomous tasks through the automation and interconnectedness of devices, processes, smart homes, machines. This changes the role of human involvement from everything from product production to decision-making. With the decentralization and automization of decision-making comes a fundamental shift in traditional management roles. This talk will discuss how networking of ‘internet of things, services, data and people’ will fundamentally change the future of individual companies, as well as transformation of management across a range of industries.



The Impact of Industry 4.0 on Higher Education

Prof. Dr. Sushil K. Sharma

Ball State University Miller College of Business



Sushil Sharma is currently an associate dean and a professor of information systems (IS) in the Miller College of Business at Ball State University. Sharma has a unique distinction of having earned two doctoral degrees. He has over 10 years of administrative leadership experience and more than 25 years of experience in higher education. Sharma served as the Chair for the Department of Information Systems and Operations Management (2008–2012) and Executive Director of the MBA and other Certificate Programs (2011-2013).

Prior to joining the faculty at Ball State, he held the associate professor position at the Indian Institute of Management, Lucknow (India) and a visiting research associate professor at the Department of Management Science at the University of Waterloo (Canada). Sharma served as chair, Quantitative Systems Group, chair, Information Technology & Systems group, and chair, Placement at Indian Institute of Management, Lucknow (India).

His primary research interests are in information systems security, e-Learning, e-Government, computer-mediated communications, human computer interaction (HCI) and community and social informatics. He has taught several graduate and undergraduate courses on a variety of subjects including database management, ERP systems (SAP), electronic commerce, computer and network security, management information systems, systems analysis and design, distributed data processing systems, computer networking, and other information systems related subjects.

His work on ‘Cyber Slacking’ has also been widely covered by several media and news channels in the United States and has often been interviewed for his work. He is often invited to speak at seminars and colloquia by international professional and academic groups on a wide variety of topics such as e-learning, management, computer and network security, ERP implementations community and social informatics, human-computer interaction (HCI) and knowledge management. He



has been a featured keynote speaker for hundreds of professional forums, executive development seminars, and academic conferences. Sharma has served as a consultant and advisor to numerous companies and organizations including World Bank funded projects.

Sharma currently serves as editor-in-chief of The International Journal of E-Adoption. He has been a reviewer and member of the editorial boards for several national and international journals.

Abstract

The fourth industrial revolution (Industry 4.0) both evolutionary and revolutionary includes cyber-physical systems ((e.g., intelligent robots, autonomous drones, driverless cars, 3D printing, and smart sensors), the Internet of things (IOTs), cloud computing and cognitive computing has already started revolutionizing the work places, manufacturing, services, businesses, education and society in the 21st century. Industry 4.0 has been helping in digitizing and integrating processes vertically (and horizontally (suppliers to customers and all key value chain partners) across the entire organization, from product development and purchasing, through manufacturing, logistics and services to customer support.

Industry 4.0 is helping in creating smart and intelligent applications. It certainly has an impact on higher education in teaching, research, administration, and services. Higher education in future will be more and more of virtual classrooms and laboratories, virtual libraries and virtual teachers. The ubiquitous computing and Internet of things components of Industry 4.0 will transform the education delivery value chain both within and outside campus and will offer personalized environment for the demanding students in terms of customized learning. It will have an enormous impact on cost of education, operational efficiencies, research innovations. This will help to speed the technology transfer from university to industry which will boost the economic and social development.

Virtual learning environments through MOOCs and CourseEra have already been offering tremendous educational value to millions of learners worldwide either in real time synchronously (e.g., video conferences), or asynchronously (e.g., Skype, YouTube, Facebook, forums and chats). Industry 4.0 will further enhance these



interactions with overlay of data analytics and artificial intelligence tools to create simultaneous feedback to instructors to customize the teaching and learning environment to the benefit of both students and academics.

Further, with the advancement of some wearable technologies, and augmented reality (AR) applications embedded in Industry 4.0 solutions, the students and instructors interactions will be much richer to enhance learning outcomes. The plurality of wearable devices has a huge potential to revolutionize the way we teach and learn.

The massive proliferation of affordable mobile devices Internet broadband connectivity across the world, and rich education content delivered through Industry 4.0 solution will transform and eventually disrupts the existing higher education systems. This may help in delivering education in the quickest, most efficient and best affordability form and prepare 21st century students for the new job market in the most efficient way. This paper explores the impact of Industry 4.0 on the higher education and university system in future..

Bilişim Hukukunda Yeni Gelişmeler: Siber Savaş ve Yasal Boyutu

Prof. Dr. Hasret ÇOMAK

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1956 yılında Bartın’da doğmuştur. Deniz Kuvvetleri namına eğitim gördüğü Kara Harp Okulu’ndan 1976’da mezun olmuştur. 1982’de İstanbul Üniversitesi İktisat Fakültesi’ni ve 1988’de İstanbul Üniversitesi Hukuk Fakültesi’ni bitirmiştir. İstanbul Üniversitesi’nde; 1984 yılında “Uluslararası İlişkiler” Yüksek Lisans eğitimini bitirmiş, 1987’de “İktisat Doktoru” ve 1990’da “Siyaset Bilimi ve Kamu Yönetimi Doktoru” olmuştur. “Uluslararası İlişkiler” Anabilim Dalı’nda 1996’da “Doçent” unvanını almış ve 1997 yılında Albay rütbesine terfi etmiştir. Deniz Harp Okulu’nda anabilim dalı ve bölüm başkanlıkları görevlerini yürütmüş ve 2000 yılı sonunda istekle emekli olmuştur. 2001 yılında Kocaeli Üniversitesi Uluslararası İlişkiler Anabilim Dalı’nda Profesörlüğe yükseltilmiş ve atanmıştır. Müteakiben Uluslararası İlişkiler Anabilim Dalı Başkanlığı’na ve Uluslararası İlişkiler Bölüm Başkanlığı’na getirilmiştir. 22 Temmuz 2003 – 23 Kasım 2005 tarihleri arasında Kocaeli Üniversitesi İletişim Fakültesi Dekanlığını yürütmüştür. 24 Kasım 2005 – 4 Aralık 2006 tarihleri arasında Kocaeli Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dekanlığını yürütmüştür. 19 Ekim 2010 – 1 Aralık 2014 tarihleri arasında Kocaeli Üniversitesi Adalet Meslek Yüksekokulu Müdürlüğünü yapmıştır. 5 Aralık 2006 – 1 Aralık 2014 tarihleri arasında Kocaeli Üniversitesi Rektör Yardımcılığı görevinde bulunmuştur. İstanbul Barosu (Avukat) ve İstanbul Yeminli Mali Müşavirler Odası (Yeminli Mali Müşavir) üyesidir. 20 Nisan 2013 tarihinde Kazakistan’ın Başkenti Astana’da bulunan L.N. Gumilyov Ulusal Avrasya Üniversitesi Senatosu’nun Kararı ile, Türk – Kazak Üniversiteleri arasında bilimsel ve kültürel işbirliğine sağladığı katkı ve Türk – Kazak dostluğunun geliştirilmesine yönelik özverili girişimleri nedeniyle “Fahri Profesör” unvanı ile onurlandırılmıştır. 20 ulusal ve uluslararası bilimsel kuruluş, vakıf ve derneğin üyesidir. Eşi Nebahat Çomak, Galatasaray Üniversitesi İletişim Fakültesi’nde (Doç. Dr.) öğretim üyesidir.



Abstract

Siber Savaş (*Cyberwar, Cyber War, Cyber Warfare*); Bir devletin, başka bir devletin bilgisayar sistemlerine veya ağlarına hasar vermek ya da kesinti yaratmak üzere gerçekleştirilen sızma faaliyetleridir.

Siber Savaş,
Siber Güvenlik,
Siber Terörizm
Siber Casusluk

Siber Savaş ile ilgili olarak,

1. Siber savaş gerçektir,
2. Siber savaş ışık hızındadır,
3. Siber savaş küreseldir,
4. Siber savaş, geleneksel savaş alanından önce meydana gelir.

Siber Savaş;

1. Savaş Hukuku,
2. Birleşmiş Milletler Sözleşmesi,
3. Silahlı Çatışma Hukuku,
4. Avrupa konseyi Siber Suçlar Sözleşmesi
5. Ülkemizdeki Siber Güvenliğe Yönelik Yasal Düzenlemeler çerçevesinde incelenecektir.



Endüstri 4.0 ve Eğitim

Prof. Dr. Mustafa Hilmi ÇOLAKOĞLU



Born in Ankara in 1957. He is a Mechanical Engineer graduated from Middle East Technical University. He got his M.Sc. degree from Department of Industrial Engineering of Hacettepe University and Ph.D. degree from the GAZİ University Faculty of Technical Education. He became associate professor in 2011. As Vice President and acting president of KOSGEB, he realized the establishment of more than 20 Technology Incubation Centers. He is the advisor to Technology Development Foundation of Turkey

and Ayyansaray University. He lectured at METU, TOBB ETÜ, KASTAMONU and ERCIYES Universities. He is the delegate of Turkey to OECD PISA, PIAAC, ECEC, curriculum mapping, ET2030 programs and activities. He is the managing board member of VQA-Turkey Vocational Qualification Accreditation Body, president of Turkey Qualification Council and the member of Higher Education Quality Council. He is the partner and/or consultant on many FP7, H2020, and ERASMUS+ projects. As the Deputy Undersecretary of Ministry of National Education of Turkey, he coordinates the strategic management, ICT management and finance of MoNE.

Abstract

Endüstri 4.0 ve Toplum 5.0 yaklaşımlarının temel hedef kitlesi eğitim ve öğretimde olanlardır. Bu kitleyi üçe ayırabiliriz; okul öncesi ve 12 yıllık eğitim, üniversite eğitimi ve Hayatboyu öğrenme. Toplamların, milletlerin ve devletlerin en büyük gücü insan kaynaklarıdır. Ülkemizin eğitim sistemi 17 milyon örgün, 8 milyon yaygın eğitim öğrencisi ile 1 milyondan fazla öğretmenden oluşmaktadır. Ayrıca 200'e yaklaşan üniversite, binlerce özel kurs hizmet vermektedir. Endüstri 4.0 ve Toplum 5.0'da başarılı olabilmek için 10 yıl sonrasının mesleklerine insan gücünü yetiştirmek için daha fazla geç kalmamalıyız. Endüstri 4.0 tartışmaları bu açıdan çok



önemlidir ancak gelişmiş ülkelerde yapılan çalışmaların anlatılması ve “ülkemizde de şunlar yapılmalı” tavsiyelerinden öteye geçmelidir. Konuşmamda milli eğitim sistemimiz hakkında geniş bilgi verip, yaptıklarımızı ve planladıklarımızı anlatacağım, diğer ulusal ve uluslararası kurum ve kuruluşları işbirliğine davet edeceğim.



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ORAL PROPOSALS



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New Security Trend: Honeypot

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Abstract: This study is a research on honeypots which are used to provide security in the world of information and are increasing in popularity day by day. There are many kinds of honeypots. Our work focuses on explaining these variations. In addition to this aim, it also focuses on explaining many in-field samples of honeypot systems. Furthermore, a honeypot system prepared for sql injection testing.

Keywords: Honeypot, malware, sql injection, ransomware, worm

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A Real Life Web Based Marketing Optimization Framework with External Data

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Abstract: Big data and data science studies in recent years are booming exponentially, parallel to the data collected and increased processing speeds. As an inevitable consequence, most of the web-based companies are migrating their business models to novel technologies based on the big data and data science research. This paper is based on a real life experience based on one of the web stores with highest volume sales in Turkey. The project was building a data science model on big data technologies to make estimations based on the external data, such as weather conditions, customer demography, news at newspapers, current product alternatives, financial facts (like currency exchange rate or stock market values) and most importantly the sentimental analysis and opinion mining on social network, blogs and news. In the paper, details of problems and possible solution alternatives and methodology for problem solving and solutions and outcomes of the study are explained in the given order.

Keywords: Marketing, Opinion Mining, Targeted Marketing, Big Data, Data Science, Customer Behavior



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Evaluation of Shopping Basket According to Sociological and Demographic Conditions

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Abstract: Data mining is a widely used very important technique in many areas. Association rules are a data mining technique that helps to find strong associations or correlations between data. The consumer trends mentioned in different studies in the literature have recently become a subject that is frequently analyzed using data mining techniques. Consumers are able to make a better distinction between goods because they are more conscious because of increased education levels. For this reason, it is important to take into account the economic, cultural and social levels of consumers. In this study, data mining studies were carried out by using shopping fiche taken from three different supermarket branches in different sociological and demographic regions. Result of study, shopping habits of the people who shopped at supermarket branches located in different demographic regions was examined. The effects of the characteristics of the people in different layers on shopping habits were analyzed by the association rules. As a result of analysis, it is observed that the sociological situation of consumers is reflected in shopping habits. Using association rules, it is possible to carry out studies that will enable customers to shop with loyalty. In addition, information obtained helps to organize planning of settlements that will enable customers to buy more products.

Keywords: Consumer behavior, Data mining, Demographic analysis, Market basket analysis, Sociological analysis

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A Proposal of Multi Criteria and Multi Method Decision Support System for Order Delivery Date Problem

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Abstract: Make to order firms determine the delivery dates of the orders from the customers and they present the delivery date bid to the customers. If a date is later than the customer's expectation, the company may face cancellation of the order or the customer's abduction. In this study, a decision support model is proposed, which deals with the problem of determining the delivery date as a multi-criteria decision structure in order to balance customer satisfaction and company's priorities. In the proposed model, the user assigns the order delivery date for each different sorting model by sorting the orders in the bid pool with 6 decision models in one interface. Decision support model provides decision-making for 6 model based on revenue approach to marketing unit managers, showing how much revenue will be generated from orders with delivery dates in a specific planning horizon. In the study, the delivery date problem was modeled with a multi-criteria decision structure and contributed to the delivery date literature as it was the first study to provide decision support to the user in the same application software with 6 different methods.

Keywords: Decision Support Systems, Multi Criteria Decision Models, Make To Order, Delivery Date

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A Content Analysis of Consumer Reviews on Mobile Traffic Applications: Case of IMM Mobile Traffic

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Abstract: The purpose of this study is to show that system requirements and deficiencies can be achieved with the comments and evaluations of consumers who are the end users of the application. Thus, the utility of consumer reviews as a valuable feedback source for developers will be revealed. The data set consisting 4400 consumer reviews with star ratings collected from Google Play, were analyzed via QDA Miner® and WordStat®, content analysis software packages. According to findings; while the comments with the high star rating, include mostly expressing general appreciation of the good aspects of the application, the comments with the lower star rating refer to the specific properties of the application. The reviews with 2,3,4 star ratings contain the comments of practical problems experienced, and improvements for future versions of the application. It is expected that this study will help to understand the advantage of consumer reviews, and help developers to take advantage of user experiences as feedback to develop more valuable and user friendly applications.

Keywords: Mobile Traffic Application, Consumer Reviews, Software Development, Text Mining

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Sentiment Analysis on Twitter Messages Based On Machine Learning Methods

Aytuğ ONAN

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Abstract: Twitter is an important social platform, in which people can share their opinions about current issues. The opinions and ideas shared on Twitter can serve as an important source of information for researchers and practitioners. The data available on Twitter can be used to identify current events, to collect information about epidemic diseases and to support crisis management. Sentiment analysis is a recent research direction, which utilizes tools and techniques from several fields, such as natural language processing, statistics and computer science, to identify the subjective information of opinion holders. Machine learning classifiers have been successfully employed in several different application fields of text and web mining, including sentiment analysis. The representation schemes utilized to represent raw text documents are essential for the predictive performance of text classifiers. In this regard, three well-known machine learning classifiers (Naïve Bayes algorithm, support vector machines and logistic regression) on Turkish Twitter messages. In order to represent text documents, different feature representation schemes (1-gram, 2-gram and 3-gram) and their subsets are evaluated.

Keywords: Sentiment analysis, n-gram, machine learning, Twitter.

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A Proposal for National Internet of Things Strategy

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Abstract: The applications in the Internet of Things creates increasing economic values and influence both business and social life very deeply. Having cyber security attacks to these applications may both lead to life-threatening causes for individuals and create huge threats for national security. It is thought that the subject should be considered with a holistic view if Turkey wants to take a large share from this market and want to minimize potential security risks. In this study, different regulatory approaches for Internet of Things are examined and a national Internet of Things proposal for Turkey is made.

Keywords: Internet of things, informatics law, informatics strategy

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Development of a Central Administrative Automation Project with Objects Internet Platform on the Example of Automatic Door Control System

Ahmet Gürkan YÜKSEK*, Halil ARSLAN, Gülşah ÇİFÇİ, Mustafa Lemi ELYAKAN
Cumhuriyet University, Turkey

Abstract: The Internet of Things (IoT) has been the starting point for many industrial applications in recent years, especially as a result of rapid developments in software, hardware and Internet technologies. Successful implementation of such projects is possible by bringing together many different platforms in harmony. In this work, which summarizes the realization of a centrally managed door automation project on the IOT platform, the structure of the project, the architecture and the algorithm development processes are mentioned. It is aimed that these processes can be examined and set an example for similar studies. The system has been offered as a usable product with the achievement of the required scale of the achieved system.

Keywords: Internet of Things, System Development and Design, MQTT, Embedded Systems, Algorithm Analysis, Web Programming and Mobile Programming.

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The Scale of E-Customer Perceptions: A Study of Validity and Reliability

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Abstract: The purpose of this study is to develop the Turkish E-Customer Perceptions Scale which covers all perceptions of customers who shop from online shopping sites. For the validity and reliability studies of the scale, the data obtained from a study group consisting of 553 undergraduate students in the spring semester of the 2015-2016 academic year were used. The construct validity of the scale was determined by exploratory and confirmatory factor analysis. The results of the factor analysis of the data revealed significant results with 33 items and six different sub-dimensions (benefit, security, personalization, customer relationships, control, risk). Reliability of the scale was evaluated based on the Cronbach's Alpha coefficient and structure reliability scores. In addition to this, the results of construct validity (convergent validity and discriminant validity) based on correlation among sub-dimensions, and on average variance extraction were satisfactory. The results show that the E-Customer Perceptions Scale is a valid and reliable measurement tool.

Keywords: Online shopping sites, customers' perceptions, scale, validity, reliability



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It Governance Practices and Key Performance Indicators: A Systematic Mapping Study

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Abstract: Information Technologies (IT) management is significant to organizations for several reasons. One of them is to expect better returns from IT investments and requires that IT deliver what is needed. Organizations also need to assess how they are performing against IT practices in view of various aspects. Therefore, IT Governance (ITG) practices can assure that IT will generate the business value. On the business side, Critical Success Factors (CSF) and Key Performance Indicators (KPIs) are the other methods used for business performance management. However, the review of literature on ITG cannot provide the sufficient work investigating the effects of ITG practices on KPIs and the relationships between them. In this paper, we present the primarily findings of a review study, which is conducted by the integration of Systematic Mapping and Systematic Literature Review Methods. The findings are discussed according to the data collected from the literature and the theoretical bases existed in ITG and performance management knowledge domains.

Keywords: IT Governance, Critical Success Factors, Key Performance Indicators

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Investigating Continued Usage Intention in the Context of Mobile Shopping: A Comparison of Two Theoretical Models

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Abstract: Today, with technological habits changing very fast, ensuring continuous use of a technology-based product or service is undoubtedly as important as least adoption. Hence, in recent years, the number of post-adoption studies has been increasing steadily. Many of these studies use the Technology Acceptance Model (TAM) or the Information Systems Expectation Confirmation Model (IS-ECM) as the theoretical background. In this study, these two models, which were used to determine the factors affecting the intention to continue using the technology after the adoption of the technology, were tested in the mobile shopping context and compared with each other in terms of their ability to explain their intention to continue using mobile shopping applications and sites. Data analysis was conducted by using structural equation modeling (SEM) method using AMOS software. Results indicate that IS-ECM has a larger explanatory power over TAM, explaining %71 of continuance intention in relation to %53 and it is revealed that IS-ECM is a more effective model than TAM in order to investigate the intention to use the technology in the mobile shopping context

Keywords: Technology Acceptance Model, Expectation Confirmation Model of IS, Model Comparison, Mobile Shopping, Continued Usage Intention

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Ecosystem Effects of the Industrial Internet of Things on Manufacturing Companies

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Abstract: The Industrial Internet of Things (IIoT) represents a novel, future-oriented paradigm of industrial value creation, which facilitates the creation of networks across and within manufacturing companies. Consequently, the IIoT is associated with an adjusted characterization of respective business ecosystems. As current research has primarily focused on the IIoT's technical fundamentals, economic research is still in its infancy. This article aims at examining the effects of IIoT on manufacturing companies' business ecosystems by applying a mixed-method approach. Thus, we carried out a quantitative survey among 198 German manufacturers from several industries based on insights of 15 expert interviews. This study contributes to the sparse body of SCIENTIFIC IIoT literature from an economic perspective by revealing that IIoT adoption is associated with greater openness of manufacturers toward participants of all analyzed ecosystem dimensions, i.e., customers, suppliers, organizations external to the own industry, and research institutions. Moreover, an intensified ecosystem integration is expected over time.

Keywords: Industry 4.0, Industrial Internet of Things, Business ecosystem, Manufacturing companies, Mixed method

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A Review of Data Mining Techniques Applied to Health Data

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Abstract: Health related data is rapidly increasing in the world and in Turkey. It is also stored increasingly unstructured data beside structured data in the health field. For this reason, it is necessary to use data mining techniques in order to organize, analyze these data and reveal the hidden information in them. The goal of present survey is to analyze the data mining techniques that were utilized in health field researches between 2000 and 2016. Espousing criterion-based research strategies, 288 articles were identified to constitute the source of the present paper. After a careful review of these articles, we found that 24 data mining techniques have been used with health researches. It has been determined that decision trees are used more at the beginning of the most used techniques in these studies.

Keywords: Data Mining, Technique, Health Data

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Online Sermaye Aracı Olarak Kitlese Fonlama

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Özet: Günümüzde projelerin hayata geçirilmesinde en önemli sorunlardan birisinin sermaye olduğu söylenebilir. Teknolojik değişim ve dönüşümle birlikte sermaye arayışı geleneksel yöntemlerden ayrılarak online ortamlarda yer bulmaya başlamıştır. Gerekli fona sahip olamayan yatırımcılar, projelerini hayata geçirmekte zorlanmaktadır. Böyle bir ortamda, kitlese fonlama, alternatif bir finansman kaynağı ve sermaye ihtiyacı olan yatırımcıların online ortamlarda başvurduğu bir yöntem olarak adından sıkça söz ettirmektedir. Ülkemizde kitlese fonlama üzerine bir çok online platform kurulmuş bir kısmı başarısızlıkla sonuçlanmış bir kısmı ise istenilen seviyeye ulaşamamıştır. Mevcut çalışma ile kitlese fonlamada fon sağlayıcıların, fon sağlama niyetlerini etkileyen faktörlerin belirlenmesi amaçlanmıştır. Bu bağlamda ilk olarak literatürden elde edilen ölçekler kitlese fonlamaya uyarlanmış ve gerekli pilot çalışma yapılmıştır. Ardından planlanmış davranış teorisinden faydalanılarak araştırma modeli oluşturulmuştur. Gerekli veri, internet anketleriyle toplanmış ve toplanan veriler SPSS 23.0 ve Amos 23.0 paket programlarıyla analiz edilmiştir. Yapılan analizler neticesinde güven, karmaşıklık, öznel norm ve algılanan davranışsal kontrolün, Türkiye’de yaşayan bireylerin kitlese fonlamaya katılma niyetlerini anlamlı bir şekilde etkilediği tespit edilmiş, fakat tutumun, Türkiye’de yaşayan bireylerin niyeti üzerinde anlamlı bir etkisi olduğu belirlenmemiştir.

Anahtar Kelimeler: Kitlese Fonlama, Online Bağış, Kitle Fonlaması

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Process Mining Analysis for a Call Center

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Abstract: In this study, we analyzed the event logs of an anonymous bank's call center in Israel. The aim of this study is to observe the management issues for a call center in order to discover bottlenecks and improve the process model. Call center is a human-service operation that provides tele-services between a company and its customers in order to solve problems remotely. The conversations between company and its customers create event logs. These logs are analyzed by using process mining tools. Process mining is a data mining technique of information extracting from event logs and it can be applied to any type of operational processes (organizations or systems). In this study, the logs contain 444431 events and 54471 cases of each customer's call starting from 01.01.1999 to 31.12.1999 related to 6 activities. We used Disco and ProM tools for the process mining. According to results 68.07% of events are regular activities. 52.77% of the customers are not identified people by the system and there is 14.5 seconds mean duration for a conversation and 1 hour 20 minutes' duration range for those customers. The customers are not identified by system should be guided by an automatic detection system that is managed by a software before the conversation of an actual call center representative in order to avoid bottleneck.

Keywords: Data mining, Business Intelligence, Process Mining, Call Center Events

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The Effect of Mobile Application Users' Feedback on Potantial Users and Developers: A Case of İşcep

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Abstract: With the increasing use of the Internet, customer reviews shared on the online platforms are affecting more consumer with their decision-making processes. Today, mobile application users as service consumers, share their reviews and/or give a star rate in the electronic environments when they want evaluate the application they use. The aim of this study is to demonstrate the impact of the consumer evaluations on potential consumers and software developers by examining the relationship between the comments and the star ratings for a mobile application. In this context, a data set consisting of 4000 user reviews and star ratings on İşCep Mobile Application was collected from Google Play Store. The data set were analyzed by the content analysis method using Wordstat, a text mining software. Analyzes have revealed the potential impacts of the reviews shared by mobile application users on potential users and developers. It expected that the results of this study will contribute to the field of mobile software usage, especially to software developers, with the consideration of user experiences.

Keywords: e-WOM, Consumer Reviews, Star Rating, Google Play Store software has been prepared in Eclipse environment using the java language.

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Counterproductive Use of Technology: Cyberloafing

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Abstract: Cyberloafing is a set of behaviors at work, in class or any official setting in which an individual engages in electronically-mediated activities that his supervisor would not consider job-related. Engaging in cyberloafing has become a problem for organizations since the quality of performance decreases and the actual potential of individuals disappears by cyberloafing. The purpose of this study is to investigate cyberloafing and to examine its antecedents and consequences in higher education. A multi-item questionnaire is used in this study. Findings indicate TPB can be used for explaining cyberloafing behavior. This study also revealed higher cyberloafing affected higher levels of withdrawal behavior. New generations are more prone to using technology in daily life and students are potential members of the workforce, therefore by understanding students' approach to cyberloafing provides conceptual and practical implications to organizational decision makers for managing new generations in work environment and productivity.

Keywords: Cyberloafing, Higher Education, Theory of Planned Behavior.

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A Roadmap for Turkey's Industry 4.0 Transformation Based on Germany's Strategy

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Abstract: This study discusses how Turkey's transition to Industry 4.0 could be achieved in reference to German Industry 4.0. Firstly, the concept of Industry 4.0 is explained and then focus is placed on German Industry 4.0 since Germany is considered to be the pioneer and the most dedicated investor in Industry 4.0. Even though Germany has not yet completed the transition, the German dynamics that feed it were identified and compared with the dynamics of Turkey. After examining the current situation in Turkey and pointing out the weaknesses in the manufacturing industry, the study is concluded with the suggestions for a successful implementation of Industry 4.0 in Turkey.

Keywords: Industry 4.0, Turkey, roadmap

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A Scientometrics Study on Internet of Things (IoT)

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Abstract: Internet of Things (IoT) becomes the trending topic of the past few years. This study conducts a scientometrics analysis in the field of Internet of Things on articles which is published in Web of Science between 2000 and 2017. It aims to identify growth, trend and patterns of this field. It investigates the contribution of countries, authors, organizations likewise the prominent journals and keywords to provide a roadmap for future researches and researchers. InCites tool of Thomson Reuters is used for descriptive analysis and VOSviewer software is used for constructing the network maps. This study reveals the global perspective of the field, collaboration of organizations and countries, the interconnection of authors and papers and main research themes that changed over time.

Keywords: Scientometrics, Internet of Things, IoT, Bibliometric Network Analysis, VOSviewer.

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An Assessment of Recent Cloud Security Measure Proposals In Comparison To Their Support by Widely Used Cloud Service Providers

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Abstract: In this paper, we aim to present the recent security approaches and solutions proposed for cloud service providers and those provided by widely used cloud service providers. Through a review, recent cloud security mechanisms are discussed with respect to their mode of operation, their structure and the techniques to offer security services. Then five widely used cloud service providers namely Microsoft 365, Cisco WebEx messenger, Force.com, Yammer, Servicenow are assessed in terms of their security services. The provided information by the assessment may be potentially used by organizations in order to align their security policies with those of cloud service providers.

Keywords: Cloud services, security measures, organizational security policies.

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Comparison and Analysis of Commercial User Hashtags on Social Networks and Tags Generated With Image Processing

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Abstract: At the present, the popularity and the potential user count of social networks are employed as an effective marketing tool. Companies utilize social networks for advertising and sales of products and services, or customer service and marketing activities to generate greater profit. Developments in web technologies contribute to these activities and provide new ideas. Text, video and image tagging, first used in 2009, groups all data relevant to a particular topic and allows users to easily access preferred content, providing an important advantage to both companies and customers. Correct and valid tagging of a product or service enables ease of customer access. Furthermore, in some studies, various applications have been developed for generating automatic tags but have not been tested. These applications detect the objects in any image with image processing and define tags as an output. In the study, new tags were generated with the Google Cloud Vision API based on product images and their hashtags from the Instagram account of an international e-commerce company, a comparison of these generated tags with the commercial user hashtags was conducted and the results were analyzed numerically at the end of the study.

Keywords: Hashtag, Image Processing, Image Content Analysis, Social Commerce

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An Add-On Suggestion for Improving User Experience on Websites

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Abstract: The rapid growth of internet world causes different solutions come out on the point of meeting individual needs. Websites which are one of the most preferred options in sharing information are only one of this solution. These applications which are developed in order to fulfil various needs in different functionalities may become successful according to users adoption rate. And being adopted any application by users is directly propotional to usability level of applications. There are various techniques and methods in order to improve this experience. In this study, an add-on which helps the in-site searches of users who visit websites to be able to be identified and helps the words/sentences which contain clear targets to be able to be directed to certain contents is developed by choosing log analysis method. In order to test this add-on, Kırklareli University Information Technologies Office (KLU ITO) website (<http://bidb.klu.edu.tr>) was used. The add-on developed had been tested throughout 9 months and important data which pointed the visitors of KLU ITO that they reached the information they look for without spending much time on the website is provided. In this study it is thought that the working mechanism of the add-on developed is able to contribute to experience of users who visit the websites. At the same time, it is thought that the add-on can enlighten the possible future studies and can help various applications to serve more user-friendly service with possible development of its working mechanism.

Keywords: Usability, User Experience, Log analysis, MySQL, SQLite.

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Optimization of Improving Fields Using Heuristic Algorithms for Belonging Turkey to High Income Class According To GII 2016 Data

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Abstract: As a result of the development of technology under the influence of innovation, the beginning of a new industrial revolution called Industrial 4.0 is mentioned. The Global Innovation Index (GII) aims to rank countries using different innovation factors. The countries are divided into four groups according to World Bank Income Groups rankings on the GII list. In this study, the optimization of the minimum effort that Turkey has to show for joining to the High Income (HI) group has been studied. As the data set, the related 27 features were selected in GII 2016 Report. Popular heuristic algorithms have been used to find the best values for the related fields. Euclidean distance has also been used to find the value to be minimized. This distance is also related to Turkey's efforts for joining the HI group. The short distance values obtained as a result of the optimization show that Turkey can join the HI group by improving the innovation factors. The results obtained can assist the other countries for long-term growth and improving their innovation capabilities.

Keywords: Global Innovation Index, Innovation, Optimization, Heuristic Algorithms

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Determination of the Ideal Business Computer by Vikor Method

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Abstract: Because of the variety in the market and the excesses in alternatives, today's people have to consider multiple influences while taking individual and large-scale decisions. The main purpose of this study is to find the most suitable computer for office use by using the VIKOR method which is one of the multi criteria decision making techniques. In the first phase of the study, it was determined by a questionnaire surveyed by computer experts that which of the desktop and laptop computers was more ideal as an office computer and which of the computer hardware features were more important for office computers. In the second phase of the study, a pair-wise comparison table of office computer preferences was filled in 30 company managers to determine the importance of hardware features and importance coefficients, and the values were evaluated by the AHP method and the weights of the required hardware specifications were determined. In the last phase of the study, the questionnaire asked the experts "What are the 3 ideal computers among the existing computers in the Turkish market for office use?" The most preferred 10 computers were selected from the answers given and the ideal computer for the office was determined using the VIKOR method.

Keywords: AHP, VIKOR, office computers, decision making

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Characterizing Owa (Ordered Weighted Averaging) Operator with Stress Function Using Incremental Artificial Bee Colony Algorithm

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Abstract – Ordered weighted averaging (OWA) operator which has flexibility and easy of use in multi-criteria decision making problems, is established by Yager. The part of flexible and easy of use is decision maker has an appropriate weighting vector and finding value for problem according to his/her thoughts (mental situation). There is a way to determine/characterize how optimistic or pessimistic of decision maker with only weights of function. But the number of weights constricts that generalization of characterization. The structure which can adapt to number of argument is obtained by using stress function. So characterization is independent of number of arguments. Again Yager proposed that OWA weights are obtained with stress function. Yager characterize the weights without depend on the number of weights by using one or more linear stress functions. In this study the parameters which define stress functions are obtained by Incremental Artificial Bee Colony (ABC) Algorithm. The size of the solution vector is increased step by step cause of trying to obtain most ideal set of linear lines which defines OWA weights.

Keywords: Ordered weighted averaging (OWA) operator, artificial bee colony (ABC) algorithm, stress function, aggregation, incremental algorithms.

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How A Work Force In Industry 4.0 Era? Labor 4.0

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Abstract: Mankind has realized some revolutions which are deeply effective on its life during its journey on earth. These revolutions have caused some tremendous changes on mankind's thinking and working styles. After the energy management centered industrial revolutions, some important information management centered evolutions have been witnessed. Parallel with the diffusion of informatics into the business world, today a new working methods such as tele-work, home/tele-employment, have been emerged. These new working and employment styles have changed the knowledge, skills and abilities which are necessary for workforce (Kaya Bengshir, 1996: 261). Lately, the revolution named Industry 4.0 envisions a very fast evolution towards the optimum state of human-machine interaction. The employee profile, which is suitable to these changes on new working methods and whole value chain caused by this revolution, is gaining importance. Since it is believed that the evolutionary education and development centered steps regarding labor can be harvested in long term, this subject is strategically significant. In this study the necessary issues which are significant in developing the future's work force have been discussed.

Key words: Industry 4.0, Workforce 4.0, Human-Machine Interaction

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Multidimensional Descriptive Analytics in Air Transportation Sector: Turkish Airlines Case Study

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Abstract: Civil aviation sector as a notable part of transportation has been growing year by year which has brought the competition together. Moreover, automatically and manually accumulating information is impracticable; due to the mass amount of data have produced on each different flights. Airlines have huge databases; therefore, corporations are obligated to utilize analytics in different application areas. In this study, it has been decided to put forth descriptive analytics and multidimensional reporting examples of an aviation case. First, an interview was conducted by the managers of the airlines company for the purpose of the needs assessment of such analytics implementation. Then, secondary data was produced and mined by employing descriptive analytics and reporting. Some remarks on the results of the extracted knowledge were made as evaluation and interpretation. The results of the study can contribute flight planning/optimization, marketing, finance and cargo departments of civil aviation companies.

Keywords: Aviation Analytics, Multidimensional Reporting, Descriptive Analysis.

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Twitter Data Analysis in Automotive Sector: Tips for Driving Faster in Market

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Abstract: Industry 4.0, or in other words, the fourth industrial revolution represents the new dimension in development of industry with today's new technologies (internet of things, machine learning, big data etc.). The automotive sector is one of the fastest adapting sectors to these technological innovations. In recent years, due to social media's potential, almost every company in automotive sector have been attracted to social media in order to gain competitive advantage. Twitter is one of the leading social platforms. In this study, it is aimed to investigate what is being discussed in automotive sector in the age of Industry 4.0 by analyzing Twitter data. Furthermore, possible similarities or differences regarding to automotive sector between Turkey and the world companies are examined. In this scope, data is gathered from official Twitter accounts of 12 leading companies in automotive sector (6 from Turkey and 6 from the world). Top frequent words are investigated and are visualized with word clouds. A sentiment analysis is performed on the dataset. Authors believe that method and findings of this study will help companies for determining their future strategies.

Keywords: Automotive sector, social network analysis, text mining, Twitter data analysis.

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E-Government Adoption in the Health Sector: A Research on Hospital Information Management Systems in Public Hospitals

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Abstract: Today, e-government is becoming an increasingly important phenomenon in public administration. Turkey has not been indifferent to this phenomenon which is no longer an option; and with the impact of European Union accession period especially since 2000s, Turkey has accelerated the e-government projects and applications. Nonetheless, the e-government phenomenon is not only technical but also sociological and psychological one as well. In order to get the desired results from the multi-dimensional efforts for successful implementation of e-government and from big investments on e-government projects, the e-government should be adopted by its users.

Within this context, the aim of this study is, with the help of Technology Acceptance Model and Information Systems Success Model, to analyze the factors effective on the adoption of the Hospital Information Management Systems by the staff at public hospitals in Turkey. According to the results of the empirical research, the system quality and perceived ease had a positive and significant impact on the perceived of usefulness to HBYS. The information quality and service quality had a positive and significant impact on the perceived ease of use to HBYS. With this the perceived ease of use and usefulness had a positive and significant impact on the adoption of HBYS.

Keywords: E-Government, Adoption of E-Government, Hospital Information Management Systems, the Health Sector, Technology Acceptance Model, Information Systems Success Model.

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The Happy Project: An Adaptive Emotional Socio-Technical System Approach

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Abstract: Gartner Inc. forecasts that 8.4 billion connected things will be in use worldwide in 2017, up 31 % from 2016, and this will reach 20.4 billion by 2020. Such an important and effective growth indicates that systems must be more responsive to users' feedback on social networks. Unmanned technology will always remain incomplete for future studies. Therefore, socio-technical systems (STSs) will be introduced into our daily lives.

As well as filling the gap in the literature, this paper gives a brief description of an emotional adaptive STS, which is an original subject in matter of science and technology, and a new mining methodology. The emotional adaptive STS measures Turkish online happiness in software systems in order to give automatic feedback to the systems that try to minimize the time and effort of human beings. A wide variety of organizations may be interested in this research, which could be applied in many sectors.

Keywords: Well-being informatics, Socio-technical systems, Cybernetics behaviural analysis, Digital addiction, Well-being marketing, Big data analysis, Persuasive technology, Gamification



4th International Management Information Systems Conference “Industry 4.0”

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Increasing Production Efficiency with Using Internet of Things and Instant Data Analysis Methods on Machining Sector

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Abstract: Autonomous robots, internet of things and data-analysis technologies will be the distinguishing factor between the future manufacturing industry and the traditional one. On the other hand, many small and medium-sized production companies in our country seem to keep their production records on paper within their production process. As a result, all these stored data cannot be included in the decision-making process. Although there are many studies about storing and reporting data in digital environment using automations, there is no study to analyze and report data instantaneously. It is aimed to increase traceability in production processes by using instantaneous data analysis and to increase production performance and productivity as a result of this increment. In the scope of the study, embedded systems were used and an application was developed to increase efficiency in production processes. Performance data has been used to measure productivity in production processes. As a result, the machine in which the new system was used showed a higher production increase than the other machine with the same characteristics. According to these results the workflow, time management and decision making process will be improved.

Keywords: Instant Data Analysis, Internet of Things, Management Information System, Productivity Measurement

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Web-Based Effective Decision Making Process Design

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Abstract: The decision-making process is a process that needs to be comprehensive and careful for decision-makers. There are a number of decision making methods and rules that can help to reduce wrong decisions. In the literature, there are many studies using Multi Criteria Decision Making Methods (MCDMM) such as AHP, TOPSIS, VIKOR, DEMATEL, MOORE and COPRAS. The MCDMMs have a major role in making effective and correct selection in many complex decision making problems. There are many applications of MCDMMs in computer and web-based platform. However these applications solve problems in a very short time period with algorithms, they include specific MCDMMs. The purpose of this study is to present the theoretical and practical solutions of six multi-criteria decision making algorithms for decision makers. It is possible to use any number of variables and decision points for decision problems in same web-based platform. A platform has been created for the users who can only select and use the MCDM methods without any technical knowledge. Web tools such as Youtube, Wikipedia and Google can be used effectively for results depending on the decision points or variables within the platform.

Keywords: Decision, Decision Making Techniques, Web-Based Applications, Effective Decision Methods, Optimization.

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RFM-Based Customer Analytics in Public Procurement Sector

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Abstract: This study has been prepared in order to contribute to the realization of the strategic objectives of the State Supply Office of Turkey, which is assigned as a central purchasing institution between suppliers and public institutions, in order to meet the goods and services required by public institutions and organizations in Turkey. At the same time, this study, focusing on public procurement and in the context of Public Economic Enterprises and focused on customers (public institutions), which is the most important for State Supply Office. Customers has been segmented by RFM analysis and aimed to provide an important indicator for top manager's decisions, especially about customers. Customers has been categorized with specific characteristics like budget type and purchase type which reflects 64% of the total customers. According to analysis in addition to the customer's purchase amount, customers are scored with the parameters such as frequency and recency values in order to identify the most valuable customers. As a result of the analysis, "Platinum", "Gold", "Silver", "Standard" segments has been created for the customers and each segment was defined and individual campaign and marketing suggestions are proposed. Thus, top managers will be able to determine sales strategies for each customer and for each segment subject to customer valuation.

Keywords: Data Mining, Customer Relationship Management, RFM Analysis, Public Procurement, State Supply Office of Turkey

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Diversity Measures Based Hierarchical Classifiers Ensemble Construction and Selection

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Abstract: The diversity between the classifiers forming the ensemble is recognized to be one of the required characteristics to achieve high degree of accuracy. In other words, there is no gain in combining identical components. Many methods have been developed to enforce diversity among the learner's base. In this study, a new approach is proposed based Random subspace Algorithm (RSS) and diversity based static selection strategy for classifier ensemble construction using homogenous learning algorithms. The subset of classifiers selected in the selection static procedure is combined using majority voting. The experiments have been conducted using 6 benchmark data sets from the UCI machine learning repository. The experimental results confirm that our approach leads to better performance in many aspects.

Keywords: Learning; Ensemble classifier construction; Random subspace; static classifier selection; diversity measures

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4th International Management Information Systems Conference “Industry 4.0”

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Design of Intelligent Direction Systems by Using Multi Criteria Decision Algorithms in Emergency Evacuation Systems

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Abstract: From the beginning of 19th century, loss statistics that is reasoned by the fire, flood, earthquake or terrorist attack in buildings, open and close areas, has been collected. These losses actualize from the beginning of matter that must be emergency to the end of the evacuation. The cause of stairs and front doors filling with the unconscious people in a buildings, occur that some desperate evidence. This status indicates; it is very important issue that to be directed people who are evacuated emergence systematically.

This study focused that optimize and strengthen the integration of evacuation systems using computer and web technologies. In the study, it is revealed that Industry 4.0, which creates usage areas that will minimize the human element by obtaining output from the decision making techniques based on the intuition of people, is effective and healthy usability together.

Keywords: Intelligent evacuation systems, Industry 4.0, decision support systems, decision making technics

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Link Analysis and Detection in a Web Site with Decision Trees

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Abstract: Web sites are web-based applications that intend to inform their visitors through contents such as texts, visuals and videos. The home page of a web site must be a summary of the web site. Home page must host the links for frequently or long-term visited sub-pages with lower possibility to exit immediately. Big web sites have hundreds or thousands of sub-pages. If the links of all these sub-pages are given in the home page, the page can become messed. In this research, a decision tree was formed through data mining method using Google Analytic data in order to identify the links necessary to be given in the home page of a web site. The decision tree can be used for the identification of the links of the sub-pages necessary to be given in the home page of a current or future web site. This can support the functionality of the home page and help the visitors easily find the sub-pages they would like to enter into.

Keywords: Data Mining, Google Analytic, WEKA, Classification, C4.5.

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4th International Management Information Systems Conference “Industry 4.0”

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İstanbul University, İstanbul, Turkey*



Strategic Analysis of the Impact of Social Network Usage Effectiveness on the Number of Donors in Non-Profit Organizations: A Foundation Sample

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Abstract: The purpose of our research is to determine the effects of social networking activity on the number of donors and use this for estimation purposes in Non-Profit Organizations. The Non-Profit Organizations that is the subject of our research is IHH - Humanitarian Relief Foundation. The twitter account of the IHH's social network accounts has been examined in our research. Through the program Knime 3.3.1., the decision trees and the neural networks have been used for analysis. The class variable in our study is the number of donors, our independent variables are tweets, retweets, additions to favorites and most frequently used words taken from twitter. As a result of our research, the relationship between the number of donors and the level of activity in the social network and the words used have been determined.

Keywords: Business Intelligence, Data Mining, Text Mining, Big Data, Social Media, Non-Profit Organizations, Strategic Management, Strategic Decision Making

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4th International Management Information Systems Conference “Industry 4.0”

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New Relationship Dynamics Affecting Organizational Resilience in Supply Chain

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Abstract: Many academic studies have been carried out in field of organizational resilience as the most important factor affecting the supply chain. Until recent years, while the dyadic buyer-supplier structures have been examined, nowadays triadic buyer-supplier-supplier structures are being investigated. This study submits that buyer and supplier relations need to be examined in triads rather than dyads. In the supply chain, it has been observed that buyer-supplier relationships have recently moved towards coopetition behavior. The aim of this study is to examine the effect of triadic relationship dynamics in the supply chain, which affects organizational resilience. It is thought that this study will open up new horizons for the researcher and encourage research triadic relational dynamics. The multi-case analysis of this study in the textile sector reveals the relational dynamics of the triads. It has been observed in this study that coopetition has increased both the resilience of buyers and suppliers.

Keywords: Organizational resilience, supply chain, relational dynamics, triadic buyer-supplier relationship, coopetition.

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4th International Management Information Systems Conference “Industry 4.0”

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Development of a Utility Application for Shorten Solution Time of Tickets to Software Support Department in Türk Telecom

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Abstract: The applications within Türk Telecom have a structure composed of interconnected complex integrations. Due to this structure, in supported applications, the relevant issue report must be examined by more than one support team in order to ensure control of the process. This situation extends the relevant report's solution period, increases the dependence between units and delays the solution of the issue. As for the current process, there is an absence of a platform in which teams can pull information other teams have kept in databases without redirecting the event reports. In this study; the "EntegreAsisTT" application alleged to enhance the work period-in operation terminology "the event solution period" was developed. The developed application combines information that support teams request from each other and presents them from a single interface. Thus potential complaints can be prevented by taking fast action with event reports.

Keywords: Telecom, Event Management, Application Development, Scrum Tecnique, Visual Studio

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4th International Management Information Systems Conference “Industry 4.0”

*October 17-20, 2017
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Examining the Application of Augmented Reality on the Customers

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Abstract: In this era known as the information age, the accelerated scientific and technological developments have influenced the economies and the businesses as so the industrial, the political, the military, the social and the cultural fields. "Augmented Reality" is one of the systems where evolved technological structures are used and the interaction between men and technology is advanced. Thanks to the augmented reality, the object/space images in the physical world are transferred to the screen and the image is enriched by linking predetermined points artificial objects from specific points.

In this study, the aim is to comprehend the effects of AR (Augmented Reality) technology, which combines the real world and the virtual world, on the customers. In the research conducted, "menu" in the food and beverage sector was also used as a strategic marketing tool. For this purpose, a "menu" was prepared with a reality application that was increased to a customer capacity of 31 people. Following the study, a questionnaire consisting of 10 questions was applied to the customers. According to the results of the study, menu prepared with "augmented reality technology" has influenced the customers in a positive way. In the study, preparation of the menu as an important and effective tool for the business with the AR technology has had a positive impact on the customer satisfaction, on the advertisement of the business together with the recommendation of customers and on the preference of the business.

Keywords: Augmented Reality

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4th International Management Information Systems Conference “Industry 4.0”

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İstanbul University, İstanbul, Turkey*



An Effective Recommender Model for E-Commerce Platforms

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Abstract: Because of the sparsity problems in databases, fake accounts can easily affect results of recommender algorithms especially when a product does not have enough votes by consumers. Generally, fake accounts are created by the owner of the product in order to raise their product score or by the ill-wishers who wants to denigrate a product or a company. This situation represents a great sense for e-commerce platforms especially when considering that majority of companies have less than 1% density of database.

In order to overcome negative effects of the fake accounts in e-commerce platforms, this study proposes a recommender model, which will find the consumers who are trustful and have a great effect on other's opinion by analyzing the relationship between consumers.

With the proposed model, the Recommender Systems (RS) are expected to provide recommendations to customers based on trustful users' opinions to improve the quality of RS in e-commerce platforms.

Keywords: E-commerce, trustful users, recommender model.

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Roboethics: Current Research Questions

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Abstract: As the use of artificial intelligence and robotics increase in our daily life, it will have many impacts on our society. While we will benefit greatly from this technology, we will also face new challenges and subject to new questions unasked before. Actually, we use robots more commonly than many people are unaware of. Robots are in factories. Robots are in the skies as unmanned vehicles. Robots are finding their place in roads and highways as autonomous cars. Robots are becoming toys for our children. Currently, robot decision making capabilities are limited. However, as their decision-making capabilities increase, many ethical issues will be discussed. Roboethics is a multidisciplinary area dealing with ethical issues related to robotics. Roboethics is quite new. To guide this new area and related research studies, we should first start with asking good research questions. In this paper, the goal is to identify and discuss various research questions. Note that such questions cannot be final and definitive at this point and their mere purpose is to start fruitful discussions for searching answers or for asking better questions.

Keywords: Robotics, Ethics, Roboethics, Robot Ethics, Machine Ethics, Artificial Intelligence, Ethical Robots



4th International Management Information Systems Conference “Industry 4.0”

*October 17-20, 2017
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Strengthening Individual Passwords: Social Pressure against Visual Warning Evidences From Turkey

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Abstract: As it is in real life, the virtual environment also contains vulnerabilities in the sense of security. Passwords are used to provide personal security. It is clear that strong passwords are directly linked to ensuring the security of individuals' information. Virtual platforms, like users wanting to protect their accounts by setting strong passwords, are also trying to encourage users to set strong passwords. For this purpose, in the virtual environment, users are warned by different methods during their registration to the system. These warnings are sometimes provided by a visual expression, sometimes by various explanations.

In this study, people's reactions to password warnings have been tested while their registration to a web application. 153 university students have been participate to the experiment and participants are asked to fill out a form. If any participant determined a strong password which has 3 different characters set and at least 8 characters his/her registration is completed. On the other hand, weak password owners were warned by two different warning systems. One of the warning systems is a visual warning which warns users about weak password, while the other is aimed at creating a social pressure by comparing it with the strength of passwords of other users who are registered to the system. It is aimed to test how the warning type affects the user. As a result of the analyses, people who receive visual warnings tend to change their insecure passwords more than those who receive other warning type. It has also been observed that the password warnings have a positive impact on the behaviour to change and strengthen passwords.

Keywords: Information Security, Password Behaviour, Visual Warning, Social Pressure

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4th International Management Information Systems Conference “Industry 4.0”

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Industry 4.0 and Key Technologies: A Review

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Abstract: This study aims to thoroughly review the research performed on Industry 4.0 and its key technologies. Based on the research objective defined, it was aimed to produce an updated snapshot of the existing knowledge relevant to Industry 4.0 and to propose influential suggestions for the future research. For this purpose, the publications in Scopus database was examined by using keywords which represent the key technologies of Industry 4.0 with resource type (conference proceedings and journals), document type (conference paper and article), and language (English) limitations. The publications were examined according to their publications years, classified in accordance with the research type classification as empirical or conceptual, and the research design classification as quantitative, qualitative, or mixed. In addition, publication countries are also specified for each articles. Thus, the current state of Industry 4.0 research is summarized and future recommendations are provided for researchers and developers.

Keywords: Industry 4.0, cyber physical systems, internet of things

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İstanbul University, İstanbul, Turkey*



Classification of Fibromyalgia Syndrome with Support Vector Machines

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Abstract: Fibromyalgia syndrome (FMS) is a long-term common body pain and a defined chronic pain syndrome. Fibromyalgia syndrome is a difficult disease to diagnose. For this reason, after many unnecessary treatments are applied to the patient, the diagnosis of FMS is usually delayed by clinical examination and evaluation of the patient's complaints. In this respect, there is a need for a decision support system that will facilitate the diagnosis of FMS. In this study, by using the questions asked 351 respondents, 175 FSM patients and 176 healthy control subjects and experimental data, FMS classification was performed with Support Vector Machines which is one of machine learning methods and 85% success was achieved.

Keywords: Fibromyalgia Syndrome, Support Vector Machines, Classification, Health Decision Support System.

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A Conceptual Framework of a Big Data Analytics Suite for Telecommunications Industry on Cloud

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Abstract: Thanks to advances in ICT technologies, cost of data acquisition and collection has become cheaper. The numbers of data, variances in structure, format and language have vastly increased, but many organizations lack the skills and the technical capacity to make the transformation to a more analytics-oriented business cycle. Due to the crucial place in global economy, this becomes more vital for telecommunication sector. To overcome these problems, we propose a novel and contemporary approach for big data analytics and knowledge extraction. The aim of this paper is to propose a conceptual model that addresses these problems by providing the telecommunications industry with a cloud-based open platform for big data analytics and knowledge extraction. The proposed model will be aid decision makers to make strategic decisions regarding their businesses and help diverse business systems and business cultures by producing output in a multi-lingual and multi-cultural environment.

Keywords: Big data analytics, cloud computing, knowledge extraction, telecommunications industry

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4th International Management Information Systems Conference “Industry 4.0”

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Information Security Behaviour: The Influence of Organizational and Individual Factors

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Abstract: In today's world, information security is a trending as well as a crucial topic for both individuals and organizations. Experts believe that nothing can guarantee any system's security unless humans' information security behavior is taken under consideration. Opening an e-mail attachment without checking its source, sharing account information with other people and browsing websites without checking its reliability can be considered as common mistakes in information security behavior. This study examines the factors affecting information security behavior by scrutinising its relationship with different variables which are information knowledge sharing, information security organization policy, intention of attending information security trainings and self-efficacy. The present study extensively analyses the data collected from a survey of 531 people ranging from students to managers aged between 15 to 79 in order to generalize the Turkish context. The results of reliability measures and confirmatory factor analysis support the scale of the study. The present study's findings show that there is a positive relationship between the factors mentioned above and information security behavior.

Keywords: Information Security, Information Security Behavior, Information Security Organization Policy, Information Knowledge Sharing, Self-Efficacy

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4th International Management Information Systems Conference “Industry 4.0”

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Current Research Topics in Industry 4.0 and an Analysis of Prominent Architectural Frameworks

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Abstract: Industry 4.0 sets new goals for manufacturing and impacts business outcomes. In the near future, ordinary plants will transform into smart factories in order to stay competitive in the marketplace. This transition has already started as manufacturing industry increasingly adopts advancing technologies including Internet of Things, Big Data, Cloud Computing, and Machine Learning. After presenting motivations and the enabler technology stack behind the next industrial revolution, this paper comprehensively classifies and introduces ongoing research activities to reach the goals of Industry 4.0. Then it investigates the prominent architectures which provide higher level abstractions and integrations from the perspectives of enabler technologies and introduced research fields. Accordingly, discussions are provided regarding whether prominent architectures are adequate to comprehensively address the needs of Industry 4.0.

Keywords: Industry 4.0, Industrial Internet of Things, Industry 4.0 Research Areas, Industry 4.0 Reference Architectures, IIRA, RAMI 4.0

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Decision Tree Implementation for Determining the Causes of Air Pollution in the Keşan Region

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Abstract: The Ministry of Environment and Urban Planning continuously measures the quality of air with the measuring stations located in many places of our country. In order to make the data obtained from these measurements meaningful, various studies have to be done. An examination of the data, one of the elements that threaten the health of humankind, air pollution was handle in this study.

In this study, data were collected for Keşan, which has been in the foreground due to air pollution in recent years, and data mining studies have been made to make the measurements meaningful. In the study, air pollution analysis was carried out using two air pollutant elements (SO₂, PM₁₀), temperature value and wind speed value. In the study, all data was analyzed and was tested with the data mining method to get the best results. As a result of the study, Keşan's air pollution situation for 2015 was revealed by data mining.

Keywords: Data Mining, Air Pollution, Public Health, PM₁₀, SO₂, Random Tree, J48



4th International Management Information Systems Conference “Industry 4.0”

*October 17-20, 2017
İstanbul University, İstanbul, Turkey*



Major Industries in Information Systems Research: A Quantitative Analysis on the Naics Codes in Article Meta-Data

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Abstract: This study aims to explore the industries addressed within keywords provided in Information Systems (IS) publications. IS field is highly relevant to the business environment. In particular, industries and IT artifacts in businesses are covered as much as IT topics in IS studies. Moreover, the industry concept is regarded as a context that bounds IS theories. However, there is a shortage of quantitative studies that aim to figure out the major industries recently focused by IS researchers. To provide an overview of industries mentioned in IS research; the keyword data was collected from top IS journals. 22 IS journals available on EBSCO Online Research Database were involved in the study. Subsequently, keywords that match the industries defined in NAICS were marked. A publication that includes at least one NAICS keyword was assumed relevant to the corresponding industry. In the results, top-20 industries were revealed as the focal industries of IS research. Moreover, the annual count of IS studies for each sector was presented for the period 1997-2016.

Keywords: IS Research, NAICS.



4th International Management Information Systems Conference “Industry 4.0”

*October 17-20, 2017
İstanbul University, İstanbul, Turkey*



Designing of Manufacturing Process with Mobile-based Smart Systems

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Abstract: Recently the concept of Industry 4.0 has begun to be on the agenda of both manufacturing enterprises and other multinational companies. This process, also referred to as the "The Fourth Industrial Revolution," takes the use of information technology in production to the next level. Distinctive features of the Industry can be listed as real-time communication among the sensors, real time analysis of these data with the help of information systems, and support of these processes with intelligent devices.

When machine-to-machine, human-to-human and human-to-machine communication are so important, it is inevitable to mention intelligent technologies. The concept of Industry 4.0 has given rise to new technologies such as autonomous robots, simulations, Internet of Things (IOT), additive manufacturing and augmented reality, and cloud computing has given a new dimension.

The aim of this study is to increase the collaboration of production machinery, production personnel and management level under the title of Industry 4.0, especially in manufacturing enterprises and to activate the management of production process with intelligent devices connected to the Internet. In this context, not only the products produced but also the devices that produce these products must be included in a smart system. Thus, in order to increase concepts such as flexibility, speed, and efficiency, which are the core of the emergence of the Industry 4.0, mobile-based intelligent devices, cloud systems, and the Internet of objects must be used as a means of a collaboration tool.

In this study, a web and mobile based application has been developed in order to ensure effective communication of manufacturing machines, production personnel and management level by utilizing the cloud infrastructure. In the application developed, it is also aimed to implement the process more efficiently by increasing the interoperability of the mentioned parties at the same time.



4th International Management Information Systems Conference “Industry 4.0”

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Keywords: Industry 4.0, Process Innovation, Manufacturing Enterprises, Hybrid Mobile Application, Smart Manufacturing.



The 2017 Plebiscite Analysis on Twitter Messages

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Abstract : In this study, it is explained how the preliminary preparations for reviewing the data obtained after the gathering process of the Twitter messages related to the 2017 plebiscite, that is the referendum done in April 2017, in the data mining context are explained. In the study, it has been investigated that Turkish Twitter messages were analyzed by using multi classification method and there has been a success in terms of the rate of the classes. As a result of the information obtained with the training set in this study, the highest performance in the test set was obtained as 73.81%.

Keywords: Text Classification, Twitter, Naive Bayes, Multinomial Naive Bayes, IBk, LWL, J48, WEKA

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4th International Management Information Systems Conference “Industry 4.0”

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Büyük Verinin Türkiye'deki Yeri

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Özet: Dünya üzerinde yaşayan her birey günlük hayatlarında sürekli veri üretmektedir. Eskiden geleneksel veri depolarında biriktirilip analiz edilen veriler artık hem farklı formatlarda üretilmesi hem de yoğunluğu çok fazla olduğundan dolayı klasik veri depoları yetersiz olmaktadır. Yeni gelişen teknolojiler ışığında bugün devasa verileri işlemek mümkün hale gelmiştir. Bu çalışmada büyük verinin ne olduğu, nerelerde kullanılabileceği, işleme teknolojileri ve ülkemizde büyük verinin yerine değinilmiştir. Türkiye'deki büyük verinin yerini daha iyi anlayabilmek için çalışmamızda yapılmış olan bir anketten faydalandık. Bu anket bize Türkiye'deki kamu kurumlarının büyük veri kullanımı ile ilgili bilgiler vermektedir. Sonuç bölümünde Türkiye'nin bu teknoloji ile yeni tanışmaya başladığı yapılan yeni projelerde görülmektedir. Ülkemizin diğer ülkelerden geri kalmamak ve ileride çağımızın zorunluluğu haline gelecek büyük veri kullanımının önemini kavrayıp bu alanda yatırımlarını arttırması gerektiği aynı zamanda ülkenin bu alanda bilgi sahibi uzman ihtiyacının karşılanması için personel yetiştirilmesi gerektiği sonucuna varılmıştır. Özel sektörde yabancı firmaların aksine Türk firmalarında büyük veri ile ilgili yeterli kullanımı olmadığından ileride uluslararası rekabet alanında karşılaşılacakları durumlardan zarar görmeyip pazardaki yerini koruyabilmeleri için büyük veri kullanımına önem vermeleri gerektiği üzerinde durulacaktır.

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Social Data Capital Usage in the Health Sector: A Pilot Study in Istanbul

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Abstract: In this study, it has been aimed to explore the potential opportunities for business intelligence (BI), which is used as a decision support tool, at the level of strategic decision making by using social media tools. It has been explored if hospitals use social media at the level of strategic decision making, which is a component of business intelligence systems, and whether they see social media as social media data capital. For this purpose, the social media accounts of 237 hospitals (private, public and university) in Istanbul province have been examined. Social media accounts of the selected hospitals have been collected and an analysis of Text Mining has been performed via using the posts in Twitter accounts. It has been found that 94.9% of the hospitals which has been examined in the province of Istanbul have Facebook and 48% have Twitter accounts. Our study suggests that the hospitals in Istanbul do not use social media in the concept of social data capital. Hospitals use social media as a tool for a one-way announcement, communication and customer complaints management system; They do not use it in such a way to create an appropriate infrastructure for methods such as deep learning, artificial intelligence and data mining for further data analyses. This is the first study to evaluate the concept of social media data capital through text mining in health sector. As a sample, Istanbul, which is the most populous province in Turkey, has been dealt with and we present a study that could represent the entire main population, i.e. all hospitals in Turkey. In this sense, the study is innovative and original.

Keywords: Business Intelligence, Strategic Decision Making, Social Media, Text Mining, Social Media Data Capital.

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Association Methods in Data Mining and an Application Related To Customer Relationship Management

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Abstract: In this study, it is aimed to determine the products that customers prefer to buy together by using algorithm of association rules Apriori, and to implement an application related to customer relationship management. The data set used in this study was obtained from a company operating in the electricity sector. CRISP-DM model was used during data analysis. Association rules technique Apriori applied to data that contains the years 2014-2015. Data analysis is performed with R language. RStudio was used as a development tool for R codes. The model performed with Apriori was transferred to web environment via Shiny (shinyapps.io). Detection of the products purchased together was performed in line with the support and confidence criteria. The user is given the opportunity to query the analyzed data set and make basic arrangements related to the algorithm. This allows the application to be dynamic, independent of time and space.

Keywords: Data Mining, Association Rules, Market Basket Analysis, Apriori, Shiny, Customer Relationship Management.



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Öneri Sistemlerinde Kullanılan Yöntemler Üzerine

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Özet: Öneri sistemleri, geçmiş verilere dayanarak kullanıcı davranışlarını anlamaya çalışan ve buna göre kullanıcılara yeni öneriler sunan bilişim sistemleri olarak tanımlanabilir. Diğer bir deyişle, bir kullanıcının bir öğeye olan ilgisini, öğeler, kullanıcılar ve/veya öğelerle kullanıcılar arasındaki etkileşimler hakkındaki bilgileri baz alarak tahmin eden ve belirli kullanıcılara en uygun öğeleri önermeye çalışan yazılımlardır. Yüksek yoğunluktaki bilginin elde edilmesi sırasında kullanılan zaman artmaya başlamıştır. Bu zamanı azaltabilmek için akan bilginin filtrelenmesi gerekmektedir. Bazı durumlarda filtrelemenin istenen bilgi parçalarını elde edememekle sonuçlanması da dramatik bir sonuç olarak görülmektedir. Bu probleme bir çözüm olarak öneri sistemleri sunulabilir. Bu çalışmada, öneri sistemleri tartışılmakta ve halihazırdaki öneri yöntemlerine katkı yapacağı düşünülen bir öneri sistemi modeli geliştirilmektedir.

Anahtar kelimeler: Öneri sistemleri; İşbirlikçi filtreleme; Melez yaklaşımlar.

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Development of Facility Evaluation System for the Use of Disabled People

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Abstract: Disabled people face a lot of challenges in their daily lives. This study aims to develop a mobile application software for disabled people to evaluate venues, facilities such as hospitals, schools, shops, restaurants and ATMs according to their needs. This mobile application allows users to rate and comment on places, view the precautions taken and to search and list the places that has the required arrangements for various types of disabilities. The study also aims to increase public realization for this civil responsibility initiative. The program has been developed using Java and can run on Android devices.

Keywords: Disabled people, mobile application, android, evaluate, rate, comment

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Validity Issues in Linked Data Driven is Research

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Abstract: This research adopts a complex system approach to linked data, which has a trace aspect and to examine validation issues in linked data driven IS research. Thereby a relevant question arises: What are the validity issues in the overall network analysis process applied on such linked data? This research argues that validity issues are vital to research in linked data and requires a complex system approach so that true value of linked data can be discerned and applicable to the real-world cases. Particular emphasis is placed on the validation issues in empirical research on linked data concerned with the educational system. This paper should be considered as a contribution to the efforts of those who are struggling with the validity issues in SNA. The intention of the work is to build a checklist that can be used to check the validity of the data, methods, and algorithms for transdisciplinary research teams who utilize theory of networks in general and SNA in particular in a particular domain, which is an educational system for the focus of this research. The findings may help the school administrators, instructors and student advisors in the decision making processes.

Keywords: Trace Data, Social Network Analysis, Network Science

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A Study on Turkish State Universities Mis Undergraduate Curriculum of the Relations and Readiness to Industrial 4.0

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Abstract: Nowadays, with the technological developments like the industrial internet, big data and Industry 4.0, it is increasingly becoming more important to educate and train the manpower which is the basic input of the information economy with the knowledge and skills necessary for the digital and information age. In this context, the role of the Management Information Systems (MIS) departments in our country is crucial in order to overcome the mentioned requirements. Therefore, it is necessary to harmonise the curriculums of Management Information Systems (MIS) and Information and technology management departments in state universities in Turkey, academic staff, tools and equipment, physical conditions and also all other fields. In this study, the readiness and the relation of the curriculum of Management Information Systems (MIS) undergraduate courses in Turkey with Industry 4.0 are examined. In this context, the literature review was conducted primarily and the scope of Industry 4.0 was determined under nine headings. Subsequently, by using content analysis and information scanning methods, the content of the MIS undergraduate course curriculum in the bodies of the state universities in Turkey was examined in detail and examined in relation to Industry 4.0. The results of this research show that the level of readiness and awareness are low taken into consideration of the MIS undergraduate curricula of state universities in Turkey especially in the fields of "Internet of Things"; "Cyber-Physical Systems, Cloud Computing. It is expected that the findings of the research will shed light on the innovation in the curricula of the MIS and the IT departments of universities as



increasingly the digitising society, such as Industry 4.0, are the areas where new developments are needed to develop the manpower needed.

Keywords: Management Information Systems, Industry 4.0, Undergraduate Program, Curriculum, State University, Turkey.



Industry 4.0 Revolution In Clothing And Apparel Factories: Apparel 4.0

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Abstract: Recent technological innovations have paved the way for realizing smart factory vision with the next industrial revolution called Industry 4.0. Industry 4.0 has significant potential to change whole manufacturing processes and business models for labor intensive clothing and apparel factories. Therefore, the companies in the clothing and apparel industry need to invest in Industry 4.0 and its enabler technologies to start the transition from ordinary plants to smart factory to gain competitive advantage. However, the studies in the literature are limited and not sufficiently comprehensive to state how these relatively new technologies may affect the clothing and apparel industry. In order to address this shortcoming in the literature, within the context of this study, after briefly reviewing the four major industrial revolutions to understand the impact of Industry 4.0, a conceptual smart apparel factory called as "Konfeksiyon 4.0" is proposed in accordance with Industry 4.0 and Smart Factory visions. With "Konfeksiyon 4.0", innovative approaches based on Industry 4.0 and its enabling technologies are presented holistically from production systems and managerial activities viewpoints. Then, we identify the benefits and challenges of "Konfeksiyon 4.0".

Keywords: Industry 4.0, Smart Factory, Clothing and Apparel

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The Analysis of Management Information Systems Field Undergraduate Level Curriculum of Private Universities within the Scope of Industry 4.0 in Turkey

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Abstract: The aim of this study is to contribute to the field of MIS by assessing the extent to which the curriculums of Management Information Systems departments (MIS) are compatible with Industry 4.0; which is widely regarded as the technological vision of the future by every segment of society. For this purpose, 12 foundation universities; which have Management Information Systems departments and operate in Turkey are included in the evaluation. The relationship between undergraduate course curricula of these universities; which provide education at faculty and higher educational school level; and Industry 4.0 has been examined. Therefore, a literature review has been conducted and the components of industry 4.0 have been reviewed; It has been determined that those components can be examined under nine basic technologies such as internet of things, smart factories, cyber-physical systems, big data, autonomous robots, simulation, system integration, cloud computing and augmented reality. Thereafter, these 9 core components of Industry 4.0 and existing curriculums of the Management Information Systems departments were extensively reviewed and assessed using content analysis and information retrieval methods in order to reveal the relationship between two concepts. Finally, as a result of the analysis, it is seen that the level of readiness of MIS undergraduate curricula in foundation universities in Turkey is low especially in the fields of "Internet of Objects, Cyber-Physical Systems and Cloud Computing" and high in the fields of "System Integration and Big Data". Moreover; considering the relationship levels, it is observed that an awareness related to Industry 4.0 has not been created yet within the universities.



Keywords: Management Information Systems (MIS), Industry 4.0, Undergraduate program, Course curriculum, Private University, Turkey



Issues Regarding Deployment of Ipv6 and Business Model Canvas for Ipv6

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Abstract: There has been an increase of the use of the Internet in the world and also in Turkey. This increase led to some changes in the business world and Internet protocol became hot topic in Internet of Things (IoT) and Industry4.0 contexts. Most of the companies and Internet Service Providers (ISP) are making possible IPv6 permanently for their users and services, but the progress for transition from IPv4 to IPv6 is inadequate. This study analyzed experiences of several ISP and vendors that had deployed IPv6 in Turkey. It aims to explore the best solution for a business method and factors affecting IPv6 implementation. This research points out an appropriate standardization approach and value generation among stakeholders as the most critical aspects for successful transformation to IPv6. We provide a concise yet comprehensive analysis for representative standardization efforts all over the world. We furthermore articulate the value generation aspect by using the business model canvas method.

Keywords: Internet Protocol, IPV6, Standardization, Business Model Canvas

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Genetic Algorithm Based Sentence Extraction for Automatic Text Summarization

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Abstract: With the development of the Internet, the amount of data in the digital environment is continuously increasing. Especially with web 2.0 technology, as a result of sites which users are able to add new content such as wikipedia, blogs and social media sites, the amount of information on the internet is increasing both in number and size. Accessing the required information in a medium where there are so many data is a serious problem. Today's information age make it necessary to use automatic text summarization systems in many areas about information retrieval in order to access the searched information. In this study, text summarization methods based on sentence extraction are discussed, firstly features to represent sentences in document is extracted and then the effectiveness of these attributes on summarization is tried to be determined by using genetic algorithm. The data set used in the study consists of 120 documents containing Turkish news texts and their summaries. 80 documents are trained with the help of genetic algorithm and the best weight values for the attributes are determined, then 40 test documents are summarized with these weights and the results are compared with the original summaries.

Keywords: Genetic Algorithm, Sentence extraction, Statistic method, Text summarization.

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Big Problem in Health 4.0 Applications: Access and Protection of Electronic Health Records

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Abstract: In Turkey, digital hospital studies have been made in order to collect health data and integrate health institutions within the scope of the 2013-2017 strategic actions plan of the Ministry of Health. In the near future, beyond the digital hospital concept, Health 4.0 vision will be implemented. Health expenses are predicted to be doubled by 2040 because of the affect of an aging population and long lifetimes, unless there is a reform. With the changes made by Health 4.0, expenses can be controlled and more definitive diagnosis and successful precision medicine practices can be actualized. This goal can only be achieved by creating a new perspective for the creation, collection, storage, exchange and protection of the electronic health records (EHR) that have been used by all shareholder of the health system. Blockchain can be a trusted solution for data security of EHR, protection of data integration, solving problems of interoperability of different systems and data types. The goal of this paper is to evaluate how to use these approaches in the creation and sharing of EHR in the framework of Health 4.0. In addition, the difficulties of implementing Blockchain and similar systems and their problematic and missing aspects have been evaluated in order to shed light on future works.

Keywords: Industry 4.0, Health 4.0, Blockchain, Electronic Health Records, Precision Medicine, Security and Sharing of Patient Records

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Cloud Computing Based Predictive Maintenance Framework for Medical Imaging Devices

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Abstract: Recent technological advancements in Internet of Things (IoT) and Cloud Computing domains, enable improving quality of health services in hospitals. The widespread use of smart sensor and actuator technologies in hospitals allow us to improve healthcare services by collecting data from various medical devices. Therefore, hospitals grasp noteworthy potential to convert these collected data into valuable information for predictive maintenance of biomedical devices. However, in order to obtain maximum benefit from the predictive maintenance system to reduce maintenance costs and improve healthcare services, a well-integrated solution is needed to combine cloud computing and IoT technologies with medical imaging devices. Despite some promising efforts in this area to solve this problem, they are not sufficient to be used in the information era. Thus, in this study, we primarily focus on the problem of how to define a predictive maintenance framework for medical imaging devices based on cloud computing and IoT technologies. Then, we identify the benefits and challenges of the proposed predictive maintenance framework.

Keywords: Predictive Maintenance, Cloud Computing, Internet of Things, Medical Imaging Devices

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Innovation Context at the Corporate and Digital Innovation Unit

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Abstract: Information Systems (IS) Research focusing on Innovation has adopted several perspectives to reveal a rich context in which the innovation surfaces as a phenomenon. In this research, we adopt an integrative approach to take in to account following perspectives, which are also employed for examining the case at hand: the focus on innovation (product, process, business model, marketing), governance (closed, open) emphasizing communication aspect, and the degree of innovation (radical versus incremental). The objective of this study is to understand these three dynamics of innovation practice of an organization in the service industry. We adopted a case study research method as it allows us to understand a rich context in which the phenomenon of interest under investigation. The study examines two different units that invest in innovation in the service organization; Digital Innovation (DI) and Corporate Innovation (CI). The case demonstrates that even within the same organization innovation practice can vary due to context differences.

Keywords: Digital Innovation, Open and Closed Innovation, Digital Innovation Governance, Corporate Innovation

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Ideal Steganographic Scenario: Calculation of Capacities of Carrier Photos and Using Opa Method of Frequency-Based Steganography

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Abstract: In this study, digital image steganography, a branch of steganography, and DCT and DWT, frequency-based steganography methods that are a sub-branch of it, are mentioned. Methods such as MSE, PSNR which are performance calculation parameters of steganographic methods are explained and the methods of calculating image capacity like KL-Divergence, JS-Divergence and QTS for increasing the values of these parameters are mentioned. This study explains the OPAP method, which allows the existing capacity in the pictures to be further increased, in detail and provides an ideal steganography scenario. In addition, this scenario has been tried and consequently reached the result that the images with higher data concealment capacity than QTS have higher PSNR values.

Keywords: DCT, DWT, KL-Divergence, Jensen-Shannon Divergence, Information Technology Security, Data Security, Data Hiding, Frequency Based Steganography.

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4th International Management Information Systems Conference “Industry 4.0”

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Towards a Maturity Model for Industry 4.0: A Systematic Literature Review and a Model Proposal

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Abstract: Recently, Industry 4.0 has received a great deal of interest from both enterprises and practitioners. With this revolution, competitive market conditions stimulate enterprises to restructure their business operations through digital transformation and to improve business accordingly. This creates a need for a guideline regarding how to pursue this transformation. Maturity Models (MMs) are standard structures that are employed to determine opportunities for improvement by assessing the current situation. In this study, a systematic literature review of existing maturity models in the context of Industry 4.0 is conducted, and seven existing MMs are analyzed by a set of criteria in terms of the scope of study, suitability for purpose, completeness of dimensions, objectivity, and level of granularity. Consequently it is concluded that none of them satisfies the expected criteria. To improve this situation, and to provide a guideline that can assess the capabilities of enterprises in the context of Industry 4.0 with a set of standard, consistent, and repeatable metrics, the main structure of the proposed model, Endüstri 4.0-OM, is presented.

Keywords: Industry 4.0, Industrial Revolution, Industrial Internet of Things, Maturity Model

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A Review of Technological Critical Success Factors in Disaster Management with Text Mining Approach

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Abstract: Rapid development in the area of information and communication technologies brings significant opportunities in the field of disaster management as well as many other areas. In this context, determining which technological components are more effective for disaster management may provide important benefits for the practice. The purpose of this study is to determine technological critical success factors with the help of a comprehensive systematic review of the disaster management literature. 773 full text articles which were published between 2000-2016 were taken into consideration for the text mining process. According to the analysis results, the factors related to communication and information management were found to be the most significant ones in the current disaster management literature. Another finding of the study is that the focal point of academic studies related to disaster management is shifting from the field of communication to the field of knowledge management.

Keywords: Disaster, Disaster Management, Technological Factors, Critical Success Factors, Text Mining

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A Model Proposal for Enterprise Architecture Framework in Social Security Institution

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Abstract: The Social Security Institution, within approximately 470 web applications, 850 oracle applications, 5200 cics applications, is an institution which has insurance and health databases with a system doing nearly 22.000 processes per second. The Institution which has a large network structure exchanges data with external stakeholders through 524 locations and 74 web services. Since the system is large and complex, sometimes there may be system management and integration problems in the institution. The purpose of this study is to introduce a model which may solve these problems and to explain how this model can be implemented. In this study, enterprise architecture reviewed in terms of business architecture, data architecture, application architecture and technical architecture. The institution's problems about enterprise architecture and the benefits of enterprise architecture to Social Security Institution were analyzed. The components of reference framework, TOGAF, have been examined. Insurance registration system was used to create the model of enterprise architecture development framework.

Keywords: Social Security Institution, Enterprise Architecture, TOGAF, ADM, Management Information Systems

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Towards Industry 4.0: Challenges of Erp Systems For Smes

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Abstract: The transformation of today's industrial factories into smart factories takes especially the manufacturing industry into the next level of industrial evolution, which is called Industry 4.0, or the fourth industrial (r)evolution. This transformation offers many opportunities for companies but also addresses several challenges. In this study, challenges and possible solutions for ERP systems of SMEs under the vision of Industry 4.0 are presented by reviewing literature. The identified challenges and solutions are organized in terms of four different phases of an ERP system, such as system preparation & design, system installation & implementation, system adaption, system operations & maintenance. This study makes an effort to make some contribution to the use of ERP systems by SMEs. The results of this study expected to support future works with regards to ERP adaption for SMEs, as variety of solutions to a range of challenges that faced by ERP systems for SMEs are presented; also the suggestions presented here show that more future research is required on the adaption of ERP systems for SMEs.

Keywords: ERP, SMEs, Industry 4.0, challenges

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Vehicle Sales Prediction Using Neural Fuzzy Logic Method in Industry 4.0

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Abstract: In the 20th century, 4th Industrial revolution came true when the technological developments and applying these technologies were used in Industry. The machines began to share the information about their product and services in real time in production with the system, which is called Industry 4.0. The artificial intelligence develops which is the one of the most major developments of 20th century. In this study, the first three months sales of 2017 are tried to be predicted with neural fuzzy logic method which is the sub discipline of the artificial intelligence by using as data which are taken from the monthly sales of domestic and imported automobiles, the monthly sales of domestic and imported light commercial vehicles, monthly producer prices, domestic producer prices index on a monthly basis in Turkey between 2014 and 2016, S&P and Moody's' quarterly reports on Turkey. Applied model has reached the 93 % accuracy.

Keywords: Artificial intelligence, neural fuzzy logic, anfis, industry 4.0, prediction.

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Multi-Vehicle Dynamic Routing with Time-Windows in Parcel Delivery

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Buğra ŞEN

Abstract: CEP companies perform pickup and delivery with limited warehouse usage daily. Customers expect real time monitoring, flexible pick-up and delivery models, and CEP companies are working on technology based solutions to meet such requirements. In this paper, we present a method to solve VRPTW (vehicle routing problems with time windows), which is an NP-hard problem. The method used is divide and conquer where a dynamic routing mechanism is devised to optimize the work load within a Courier Working Zone to meet possible changes in the task list during the working period.

Keywords: Pickup and delivery problem, Vehicle Routing Problem, Multi-vehicle dynamic routing with time windows.

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Shortest Path Detection Using Clonal Selection Algorithm for Erzurum Metropolitan Municipality

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Abstract: Optimization algorithms are an approach to solving many problems in everyday life and usually to find the optimal solution for problems with a large solution space. In this study, an optimal route detection approach was developed using the clonal selection algorithm which is a sub-method of the artificial immune system. For this purpose, the road passenger transport network obtained from Erzurum Metropolitan Municipality has been modeled and a bus line which is selected and used from this network has been examined by clonal selection algorithm. The optimization method developed for the proposed approach was implemented in the MATLAB environment and the results obtained are plotted comparatively on Google Maps. The performance of the proposed method was tested and a performance improvement of about 10% was achieved according to the results obtained.

Keywords: Shortest Path Detection, Clonal Selection Algorithm, Optimization, Traveling Salesman, Artificial Immune System.

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Wireless Part Hot Call System in Plant Logistics: Application of Automotive Plant

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Abstract: Nowadays since the technologies of production has reached the saturation point in lots of fields , executives turn their face to logistics fieldto reduce the cost.Under the control of stock , such as the systems of just in time supply , kanban have been used pretty widely from now on.Lean manufacturing has been a complete system which is understood better ,developed day by day and exceeds automotive sector lines in application field thanks to computers being used widely and communication systems being developed. This fast development in information technologies and along with this, rising in heavy competition of the dynamic structure of the sector today, product variety, the rising demands of the customers have resulted in the importance of the logistics softwares. A well organized production logistics optimizes the material management, decreases the inventory cost and increases productivity. In this study, an introduction has been made on 'wireless emergency parts request system' developed to supply with the request of emergency parts in the assembly stations and the benefits of the system in the business in an automotive factory absorbing just in time product philosophy.

Keywords: Material request system, in plant logistics.

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Geographic Information Systems (GIS) Based Financial Risk Map of Turkey

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Abstract: Geographic Information Systems (GIS) are systems in which graphics and non-graphical data are interrelated and can be easily used in the field of finance. The aim of this study is to create Turkey's financial risk map with GIS by using the parameters that determine Turkey's financial risk. In the study, the data for the year 2016 and the Statistical Region Units Classification (NUTS) level 2 were used. In the literature, risk analyzes using descriptive statistical methods give superficial and static results. In this context, the current financial risk map of Turkey was created by spatial regression analysis using parameters such as GNP, unemployment rate, inflation rate, problematic loans and problematic credit cards. Obtained findings reveal more dynamic, more meaningful and visual results. In the study, the first GIS based financial risk analysis was carried out in the field in Turkey. One of the outputs of the workshop is that the GIS-based applications can be easily used in finance.

Keywords: GIS, Financial Risk, Spatial Regression

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Optimum Smartwatch Selection Using Analytic Hierarchy Process (AHP) From the Viewpoint of Variable Decision Makers

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Abstract: Mechanical watches have entered our lives since the 14th century. Though it is very large and useless due to its weight, the watch has been developed to be lighter, smaller and portable with the progress of the technology. First pocket watches were produced and over time they were replaced by wristwatches. Nowadays wristwatches are widely used. With the advancement of computer and electronic technologies, wristwatches have been difficult to meet people's needs. Hence, smartwatch one of the most recent technologies in the world, have emerged that can only respond to the needs of people by changing clocks and wristwatches that show schedule.

In this study, smartwatches in the market and the characteristics of these watches were examined. Five smartwatches models with specific features and five sub-criteria for these watches have been identified. The most suitable smartwatch alternative is determined by comparing the predefined smartwatch models with the analytical hierarchy process (AHP), which is a multi-criteria decision-making approach, compared with the sub criteria. An individual was chosen as a decision maker and smartwatch models and criteria were scored according to the individual's desire. Since the desires and ratings of different decision makers will be different, the result will be specially changed. Since individuals may be variable at this stage, it is aimed to find the most appropriate smartwatch belonging to that individual.

Keywords: Analytic Hierarchy Process, Smartwatch, AHP

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Evaluation of Student Perceptions Related To the Undergraduate Curriculum of Management Information Systems In Terms Of Students' Success

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Abstract: The aim of the study is to determine the opinions and ideas of the undergraduate students of MIS department, about MIS curriculum, and to answer the question of how much the program outputs meet student expectations. It is therefore hoped that the results obtained will contribute to a comprehensive and up-to-date curriculum that addresses both the needs of the students and the needs of the sector. In this context; data were gathered by face-to-face interview with 170 students, who studying MIS in Ataturk University. A sample of 160 surveys, cleaned and organized, was included in the sample. There are 76 variables prepared according to Likert scale and 5 demographic factors. Descriptive statistics, descriptive and exploratory factor analysis and variance analysis (ANOVA) for difference test were applied to the obtained data set. As a result, about the curriculum, students are more positive at the point of their achievement, while they are partly negative about the content, educational framework and measurement and evaluation. As a result of the ANOVA tests, these differences were measured and the results were evaluated.

Keywords: MIS, Curriculum Evaluation, ANOVA, Factor Analysis

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Determining the Perceptions of Distant Higher Education Students on Educational Dimension of Social Media and Their Social Media Use for Educational Purposes

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Abstract: The purpose of this study is to determine how distance education students use social media for educational purposes. In this context, Atatürk University Open Faculty students were determined as the population, and 587 students were included in the sampling. Data from students were collected by questionnaire. Within the scope of the aim, factor analysis, descriptive and relational analyzes were applied to the data, and the results were evaluated. In general, it is seen that students use social media more for communication and socialization purposes. It is also seen that students use social media as a part of their education because video and text-type materials and questions asked in previous exams are shared intensively on social media. As a result, it can be said that there is a meaningful relationship between perceptions about the educational dimension of social media and the time spent on social media on a daily basis.

Keywords: Social Media, Education, Youtube, Facebook, Instagram

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Consumers' Adoption of Social Commerce: A Systematic Literature Review

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Abstract: Social commerce though it is a relatively novel concept, has been an attracted field by both practitioners and scholars. In search for exploring underlying motives for social commerce usage many theories proposed and various factors studied by academic circles. In this study we review the social commerce literature to grasp a picture of the literature in terms of the social commerce activities as research basis, theories and factors employed by the studies and the countries that the studies were conducted. Our findings and concluding comments would be useful for future studies especially for newcomer researchers in the social commerce discipline.

Keywords: Social Commerce, E-Commerce, Systematic Literature Review

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Real Time Control of Arduino Based Robot with Kinect Sensor

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Abstract: The use of Kinect technology, which can perceive the movements of the human body and transmit it to the digital environment, is increasing. Kinect, commercially produced by Microsoft, was originally used for gaming purposes, but over time it has also found its place in scientific work. Kinect technology is also used in areas such as education, healthcare, security and robotics, especially in the entertainment sector. In this study, we have tried to provide instant control of the vehicle designed using Kinect and Arduino. Kinect, which is the most basic feature of sensing the movements of the human body and transferring them to the computer environment in a non-contact manner, has been used as a controller to control the designed robot in real time. For this purpose, the data received with Kinect were processed by computer and instantaneous embedded system based robot motion was provided by wireless communication. Being a new technology, Kinect can be used to control the robotic arms of the industry. Thus, the industry can benefit from many benefits such as increased precision control, reduced human error, increased safety and increased product quality. Although different motion capture methods are used today, these methods require high cost and special working devices and environments. However, the use of the Kinect sensor offers lower cost and practical solutions.

Keywords: Kinect, Robot, Human Motion Detection

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Assessment of University Mobile Applications as Content

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Abstract: Mobile devices that are used at high rates are also attracting great interest from students at higher education levels. However, higher education institutions are also aware that they need to plan and organize their services in consideration of this situation. For this reason, universities are developing their own mobile software. These softwares are added to mobile markets for different purposes. However, some institutions are trying to combine these services under one roof. In this context, it is aimed to make services especially for teaching and information access faster and more effective. The purpose of this study is to evaluate the applications offered for the universities in Turkey in the mobile application markets. This study will allow universities to see their mobile application status and make comparisons with other universities. It will also allow universities to re-evaluate the points they have in mobile communication with students. The study examines the most commonly used software in the Google Android and Apple iOS markets. The application explanations were analyzed by content analysis method and grouped according to themes. Within the scope of the study, it will be investigated which market infrastructure the applications use and for what purpose they are made. In addition, the applications addressed to the people and university expectations are categorized and presented. There are also official applications that universities develop as an institution, as well as unofficial applications developed by a person from within or outside the institution. Both formal and informal applications have been seen as courses, a private conference, lunch menu, social media platforms, student-work information system, web-site, distance learning etc.

Keywords: Mobile application, Google Android Store, Apple iOS store, University mobile applications

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Design and Implementation Of Mobile Navigation Application Recommending Route Changes Based On Category And Distance

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Abstract: The navigation devices used to learn the route that travels from one point to another are working on the communication infrastructure with the satellites that have been sent to the space. And these devices are widely used in tourism and transportation sectors or in the travels of many people in their daily lives. For this reason, many studies have focused on them in order to provide more functionality to those who travel by using these devices. Generally, the route from the start point is presented and followed up until the destination on navigation devices. In this work, which is different from the previous works in literature, a mobile navigation application has been developed which allows the user to be alerted when an area of interest within a selected category is moved to a certain proximity distance while the user is moving on the originally drawn route. In addition, if the proposed area of interest is accepted, the route is updated to include that point. However, the user is also provided with the ability to create a route with points selected by tapping on the screen. These features make it easier for users to draw a route on the navigation device, thereby contributing to saving time and fuel.

Keywords: GPS, Navigation, Android, Mobile



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Industry 5.0 and a Critique of Industry 4.0

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Abstract: Industry 4.0 is at the door. It is being discussed by scholars and practitioners in conferences, symposiums, and seminars. Fourth industrial revolution comes with a lot of promises for the future of effective and efficient manufacturing. It is interesting that Industry 5.0 is already being discussed in forums and blogs. In discussions related to Industry 5.0, Industry 4.0 is being criticized with not being able to provide solutions for all foreseeable future needs. While the focus of Industry 4.0 is mass production, Industry 5.0 focuses on sustainability. In this paper, we provide a critique of Industry 4.0 and briefly present the arguments for Industry 5.0. Furthermore, we emphasize that regardless of its version, the next industrial revolution should be fueled by both the information technology and the concerns for environmental sustainability.

Keywords: Industry 4.0, Industry 5.0, Sustainability, Sustainable Manufacturing, Human Robot Coordination, Zero Waste, Industrial Upcycling



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Enhancing Indonesian Geospatial Industry to Survive in the Current Competition

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Abstract: Geospatial Information Technology is developing rapidly as a decision-making tool. However, Indonesia has potential markets for the geospatial industry. Currently, the geospatial industry seems incompetent. Hence a proper plan policy, regulation and training is needed. Current study is aimed at measuring the competitiveness of geospatial industry. Population sample where taken using purposive random sampling and clustering method. Composite performance index method is used to analyze the competitiveness index. The result shows, the overall geospatial competitiveness index value has an average of 26.48 on a scale of 100. Considering the research results of geospatial industry competitiveness index, the government of Indonesia must urgently support and enhance geospatial industry through training and creating new opportunities.

Keywords: ASEAN economic community, Competitiveness, Decision making, Geospatial industry.

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A Research on Delphi Method of Computerized Argument on Satisfaction of Instructors in Distance Learning at Muğla Sıtkı Koçman University

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Abstract: The aim of the study is to interpret the results of the distance teaching methods of the instructors who have been giving remotely from the distance since 2011 in Muğla Sıtkı Koçman University. In order to obtain opinions on this purpose, a computerized argument delphi technique and a questionnaire were applied. The data obtained from both studies were combined, analyzed and evaluated. It has been observed that the lectures of the lecturers who teach the distance lessons were lowered. Both the statistical analysis and the punching technique were used to explain what was the cause of this. The results of the study can be used to improve the missing sides in the distance learning activities and to develop the good sides.

Keywords: Distance learning, Delphi Method, Computerized Argument Delphi Method, Social Network Analysis

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Generic Monitoring of Livestock Data Management

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Abstract: Precision livestock farming is seen as a way forward in a world in which there is growing concern about food and its impact on human health, animal welfare and in which food producers are facing reduced profit margins. Precision livestock farming is defined as covering the life cycle management of animals and exploiting multiple identification and associate sensory and location technologies to optimize feeding and control to achieve objective yield factors, improved animal health and optimized usage of resources with respect to such factors. This paper reviews the development of precision livestock farming (PLF) in sheep. PLF relies upon automatic monitoring of livestock data and related physical processes. Decision on which data set should be monitored depends on the production targets of livestock farming operations. In addition to that, we examine viability of technology and data management in the case of intensive sheep breeding for meat production, which fits in minimizing the environmental footprint of lamb production, ensuring high levels of welfare and health for animals and increased productivity. We propose relevant data types, data model and along with underlying technology. Since PLF treats livestock production as a set of interlinked processes, which act together in a complex network, data sensors having high impact and deterministic role on production should be carefully investigated. Most of the research has focused on data related to animal growth, the output of fiber, some endemic diseases, aspects of animal behavior, and the physical environment of a livestock building, such as its thermal micro-environment and emissions of gaseous pollutants such as ammonia. It was concluded that PLF is an early technology with great promise but one that requires considerable research and development before uptake, especially for small ruminants.

Keywords: Precision livestock, data management, monitoring, technology management



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Technology Evaluation Based on Patent and Publication Data: A Case Study of Quantum Information Processing Technology

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Abstract: In this study, an approach is proposed for technology evaluation. The proposed approach uses patent data and publications published in the literature. It evaluates technologies based on three main criteria, namely the current situation of the technologies at its technology life cycle (S-curve), technology novelty potential and technology hotness which indicates technology updateness. A case study related to quantum information processing technology is conducted to show how the proposed approach works in practice. Patent data is gathered from USPTO database, while publication data is obtained from "Web of Science" for the case study. The results obtained from the case study showed that 'quantum information processing technology' is at growth stage of its S-curve and the technology has a potential to be invested by entrepreneurs.

Keywords: Patents, Publications, Technology Evaluation, Quantum Information Processing Technology

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Strategic Importance of Turkey for SCO and EU: Application of AHP and TOPSIS Methods Based On Macroeconomics and Security Criteria

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Abstract: Turkey has been negotiating on full membership for European Union (EU) and Shanghai Cooperation Organization (SCO). Recently, which of the cooperation will be more beneficial for Turkey has become debatable issue. In this two-part study, with regard to direction of policy implementation of Turkey, multi criteria decision making methods i.e. AHP (Analytic-Hierarchy Process) and TOPSİS (Technique for Order Preference by Similarity to Ideal Solution) have been applied. Criteria used in the decision analysis process consists of macroeconomics and military supplies. Based on the results, some suggestions were offered on the question of "which cooperation is more useful for Turkey to determine priority?". In the second part of the study, importance of Turkey for EU and SCO was evaluated. To do so, prefer ability of EU and SCO for other candidate countries was evaluated with TOPSİS method in the case of full membership of Turkey.

Keywords: EU, SCO, AHP, TOPSİS

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Integrated Ice Hockey Management and Analytics System (ICE-ERK)

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Abstract: Since ice hockey is considered fast-playing sports branch, it is difficult to manage. During the ice hockey match, there are 14 referees in total; 4 in-ice, 9 off-ice and 1 referee supervisor. Announcing almost all event in the game and recording situations like goal and penalties with detail data make management process difficult. Moreover, it is difficult to monitor the game for referee supervisor because of filling referee evaluation form for each judgement call. Furthermore, it is matter to provide decision support about players and tactical issues to coaches and managers for contribution ice hockey improvement in Turkey. Taking into account all of these, an integrated ice hockey management system is needed. However, managing all these process with traditional methods and lack of application except the system called BuzNet (released with the contribution of Turkish ice hockey federation) to contribute faster management the all processes strengthen the motivation of this study.

In this study, an integrated ice hockey management and analytics system was developed. The system consist of three main modules. First module consist of referee assignment based on linear programming methods and user-friendly interface for referee supervisor for referee evaluations components. The second module of the systems includes automatic announcing and recording of goals and penalties components. The third module enables users to make ice hockey analytics. In the third module, there are analysis like puck, player, penalty, shoot, goal, body-check and attack for decision support. The system can be executed integrated mode optionally. In order to prevent error-prone conditions in this fast playing game, the system developed by considering usability heuristics.

Keywords: Analytics System

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Developing Web Based Decision Support System for Customer Relationship Management (CRM) Software Selection

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Abstract: Today, customer relationship management (CRM) software has become an essential necessity for all organizations from global organizations to small and medium-sized enterprises (SME)s, from higher education institutions to government institutions, also its usage is increased. Because of this expansion, various software has been developed and presented to the market to enable continuous management. It is also becoming increasingly difficult for the organization to choose the software that best meets its needs in the customer relationship software market, which offers a great deal of choice. In this study, a web-based decision support system prototype is developed in which software makes a CRM software suggestion to organizations in the direction of their needs and preferences. In this study, the CRM software researching organization uses the prepared interface to rate the criteria for CRM selection according to their importance. Then, considering the expert opinion on the mentioned criteria, the system lists the ideal software according to the expectations of the organization.

Keywords: Customer Relationship Management, CRM, Decision Support System.

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Görüntü İşleme Tabanlı İha Ve Uydu Sistemleri Destekli Hibrit Yapay Zekâ Modeliyle Kaçak Yapıların Tespiti

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Özet: Günümüzde imara kapalı olan bölgelerde yasak olmasına rağmen yetkili personel ve denetim eksikliğinden dolayı kaçak konut inşasının mümkün ve yaygın olduğu görülmektedir. Bu durumun tespit edilmesi ve yetkili kişilere iletilmesi oldukça zordur ve yüksek maliyetlidir, buna ek olarak bir o kadar da süre kaybına yol açmaktadır.

Bu çalışmada görüntü işleme, veri madenciliği, makine öğrenme ve yapay zeka teknikleri ile analiz edilmek üzere uydu görüntülerinde imara kapalı bölgelerden belirli alanlar alınıp tanımlandırılarak kendi aralarında sınıflandırılmıştır.

Yapılan çalışmada amaçlanan, fotoğrafları görüntü tarama ve yapay zeka algoritmalarıyla analiz ederek kaçak bölgelere inşa edilmiş konutları tespit edilmesi ve bu şekilde tespit edilen bölgeyi, konumu ve zamanı sorumlu kişilere aktararak kaçak yapılaşmanın önüne geçebilmektir. Ayrıca yapılan sınıflandırma sayesinde boş araziler, ekili araziler, orman alanları da tespit edilebilmektedir. Tespit edilen bu araziler ise daha verimli kullanılabilmek adına ilgili kişiler tarafından değerlendirilmesi için tespit edilen konumları hakkında bilgi verilebilir. Yapılan bu çalışma sonucunda doğru sınıflandırma oranı oldukça yüksek çıkmış ve kaçak konutların tespiti adına başarılı bir sonuç elde edilmiştir.

Anahtar Kelimeler: Görüntü İşleme, Yapay Zeka, Veri Madenciliği, Makine Öğrenmesi

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Converting Raw Datasets to Relational Databases Using Genetic Algorithms

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Abstract: Relational database, suggested by Codd (1970), is a data management method that can minimize the redundant parts of data thanks to the identification of the data in smaller tables (entities) and increase the performance in data-related processes. The process of converting a data set stored in electronic table form into relational database form is called normalization. Normalization is applied by converting the data into normal forms. However, since the rules arising from the normal forms and to be followed are applied depending on intuitive and subjective decisions they can vary according to the designer. Therefore, the best relational database design cannot always be achieved. This indicates the difficulty of applying normal form rules systematically or automatically. In literature, there are various studies regarding the automatic execution of the normalization process. However, the common disadvantage of these studies is that they demand functional dependencies from the user. Since the determination of functional dependencies incorrectly causes the incorrect design of the relational database, the difficulty in automatizing the process preserves its existence. Within the scope of this study, normalization process was discussed as an optimization problem. The objective function was proposed by considering the definition and rules of normalization. Unlike the studies in the literature, in this study no information is demanded from the user and a relational database design suggestion can be offered in response to the given raw data set. The application was performed after the selected 20 databases were turned into data set with an expectation that the proposed algorithm results the same design again. The application results showed that the algorithm could successfully put forward a relational database design proposal.

Keywords: Relational database, normalization, automatic normalization, genetic algorithms, multi-objective optimization

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A Review Study on Supply Chain Intelligence

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Abstract: In business world, developments in information technologies and increased collaboration and communication by the effect of globalization lead to high information loads in supply chains. Companies have to deal with huge amounts of different and distributed data sources in order to take right and fast decisions and survive in the competitive business environment. Many companies started to adapt Business Intelligence (BI) in various functions of Supply Chain Management. Supply Chain Intelligence (SCI) is emerged as a new initiative with the application of BI tools and technologies to supply chain data. SCI aims to convert internal and external supply chain data into information and knowledge to make more intelligent and efficient decisions. The aim of the study is to make a review on the use of BI in Supply Chain Management. First the SCI concept is introduced and some of the studies in this area are presented. Finally the results of the literature survey are discussed.

Keywords: Business Intelligence, Supply Chain Intelligence, Supply Chain Management

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Logistics 4.0 Challenges and Oppourtunities: Reflections from Industry 4.0

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Abstract: The industrial production is move to towards a globalization, open supply chain network, short-term business connections and cooperation between the stakeholders. The technology needed to cover this new requirement, is already available and all encompassed in the concept called Industry 4.0, with the main issue of the high cost. The Industry 4.0 revolution with its characteristic elements of Cloud Platform, Big data, Blockchain Technology, the Internet of Things, Automation, Robotic, Augmented Reality and 3D Printing has caused a paradigm shift within the Logistics Industry. This impact is called as Logistics 4.0. Logistics 4.0 can describe the transformation from hardware-oriented logistics to software-oriented logistics. The optimization and visibility of logistics systems depend on information accuracy and availability. This paper evaluates characteristics, opportunities and challenges of Logistics 4.0 in frame of Industry 4.0. With it analyses the current application areas and future prospects of these technologies in logistics activities.

Keywords: Logistics 4.0, Logistics 4.0 Technologies, Industry 4.0



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Industry 4.0 as High Technology and Evaluation of Turkey

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Abstract: As a result of being promoted as a vision for high technology, Industry 4.0 has been an important work of field for both academic and business fields. While many companies make research and investment activities in this area, yet some companies hesitate developing corporate strategies due to technological uncertainty. To understand the significance of high technology and canalize the potential to that area is getting more and more important in the new digital era where both products and production technologies are passing thorough a smart transformation. In line with those concerns, the purpose of this research is to review Industry 4.0 and high technology literature and develop a framework for both concepts to emphasize benefits of using high technology strategies in management of digital transformation by underlining the high technological side of Industry 4.0. Therefore, concepts of Industry 4.0 and high technology trends are compared, direction of technological advancement is analyzed and general strategies are recommended in order to manage the upcoming industrial revolution. Additionally, the current state of high technology is reviewed in this context to analyze Turkey's position and potential for Industry 4.0.

Keywords: Industry 4.0, high technology, high-tech management strategies, digitalization



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Forecasting of Box Office Revenue Using Machine Learning Algorithms

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Abstract: Current developments such as new effects and 3D shootings increase the competition in the movie industry. Pre-production analyzes are becoming more important for the expensive and risky investments in the movie industry. At this point, the prediction of the box office revenue has become an important research issue. In this context, this study aims to present an approach using machine learning algorithms for box-office revenue prediction. Artificial neural networks and support vector machines algorithms as traditional artificial intelligence methods and random trees, random forests and C4.5 algorithms as decision tree algorithms are used. Later, a hybrid model is proposed using these algorithms and the bagging algorithm from the ensemble algorithm. Prediction models are evaluated with the percentage of correct classification, kappa statistics and ROC area. Numerical results show that Random forest-bagging and artificial neural networks-bagging hybrid methods have the best performance among all models.

Keywords: Box-office revenue, Artificial neural networks, Support vector machines, Decision trees, Machine learning

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Data Mining Methods for Solving Customer Churn Analysis Problem

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Abstract: The competition has changed with the globalizing world. Enterprises are developing different strategies in order to maintain their presence in their markets and / or to gain place in new markets. One of the principal focal points of these strategies is the customers. It is important for enterprises that not to lose existing customers as much as to acquire new customers. For this purpose, the most important source of enterprises is data. In order to make strategic decisions with the least risk, it is necessary to transform the data into knowledge. Data mining, one of the most important methods on the way from data to knowledge, is also used to understand customer behaviors. There are various data mining methods that are frequently used in the literature for customer churn analysis. The most important ones are Decision Trees, Logistic Regression, Support Vector Machines etc. In this study, it is aimed to determine and compare the performances of the basic methods such as Decision Trees (C5.0), Support Vector Machines, k-Nearest Neighbor Algorithm, Naive Bayes Algorithm and also Extreme Learning Machines (SLFN-ELM) using "churn" dataset obtained from UCI Machine Repository for Customer Churn Analysis problem. As performance evaluation methods Hold-Out (70% -80%) and Cross Validation (5-fold and 10-fold) were used. Accuracy, specificity, sensitivity and F-score were selected as performance evaluation criteria. Numerical results showed that proposed approaches are efficient methodologies to predict customer churn.

Keywords: Customer Churn Analysis, Data Mining, Classification

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Diagnosis of Diabetes Mellitus Using Statistical Methods and Machine Learning Algorithms

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Abstract: The early diagnosis of the diabetes condition is crucial for cure process, because an early diagnosis provides the ease of treatment for the patient and the physician. At this point, statistical methods and data mining algorithms can provide important opportunities for early diagnosis of diabetes mellitus. In the literature, many studies have been published for solution of this problem. In this study, firstly, these studies are analyzed in detail and classified according to their methodologies and solution approaches. Later, an application is implemented with a dataset taken from UCI machine learning repository using basic algorithms.

Keywords: Diabetes Mellitus, Machine Learning, Statistical Methods

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Intelliad: Machine Learning Based Intelligent Advertising System.

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Abstract: The business world wishes to sell products and services to the consumers. In order to increase the sale of these goods and services, marketing is used--by advertising of these goods and services to the public. As such, there is a need for innovative and effective marketing methods. This paper presents a system for Intelligent Advertisement (IntelliAd). IntelliAd is Artificial Intelligence (AI) system, which has a computer controlled digital electronic display system-- for disseminating targeted public advertising, at selected times and at selected locations. We propose an IntelliAd system based on Computer Vision and Machine Learning. IntelliAd uses a classifier to classify people based on the gender (Male, Female) and age-group (Adult, Child) etc. Afterwards, the classified group is targeted with an appropriate advertisement-- based on the classifying characteristics- on the display screen facing the target group. In the end, we show the effectiveness of the system based on the results from the developed prototype.

Keywords: Machine Learning, Computer Vision, Marketing.

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Analysis of Cultural Differences in Collaborative Innovation Networks: Wikipedia

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Abstract: This paper aims to observe the cultural differences in collaborative innovation networks by comparing Wikipedias in English, German, Japanese, Korean, Finnish and Turkish languages. For this purpose, some data provided by Wikipedia is used. Relying on this data, the prevalence of Wikipedia was evaluated by examining contribution rates to Wikipedia dependent on population in different languages. In addition, the hierarchy of the social structure formed during article creation on Wikipedia was evaluated by looking at figures such as the number of active users and admins. Here, Wikipedia is used as a microscope to analyze the cultural structure and the transition process of different local cultures into information technologies. This study is a step toward having a better understanding of different cultures by analyzing editors' behavior based on the assumption that the editing behavior and co-operation models are influenced by their own cultures in the real world.

Keywords: Wikipedia, Collaborative Innovation Networks, Online Culture, Web 2.0

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Determining Book Borrowing Behaviors via Data Mining Clustering Method: "Case of Uşak University"

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Abstract: Today, it is possible to collect, save and store data in various sectors quickly, thanks to the developments in information technologies. However, these data stacks do not make any sense on their own and have to be processed with information technology in order to make the collected data more meaningful. Discovering relationships and finding links among data is possible by using the data mining method.

In this study, the concept of data mining is described in a general manner, the related data mining processes are explained briefly and finally, they have been applied within a case study of Uşak University. Patterns regarding to library use have been obtained by using SQL query language, over large data stacks formed a result of students' book borrowing behaviors in Uşak University – Cental Library, between the years of 2007 and 2017. In the study, a total of 11 clusters and the corresponding statistical tables have been obtained via differential hierarchical clustering method as one of the hierarchical clustering methods. With the created tables, book borrowing buying behaviors have been examined.

Keywords: Data mining, library data mining, education data mining, clustering methods, differential hierarchical clustering.

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Anfis Analysis of Wireless Sensor Data with FPGA

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Abstract: Applications related with WSNs may include thousands of separate sensor nodes, production and control data for different industrial sectors. It is important to manage these applications, monitor the network and reprogram the nodes to avoid operational problems. In this study, we propose a smart wireless sensor node architecture using a reconfigurable embedded system of Field-Programmable Gate Arrays (FPGAs) with a soft-core processor. This processor can also be programmed dynamically and synthesized to implement the preprocessing of sensed data by ensemble Hybrid Neuro-Fuzzy algorithms such as Adaptive Neuro-Fuzzy Inference System (ANFIS). The first part of the proposed work is based on Matlab software to develop and train the ANFIS algorithm. Two different types of data sets (temperature and humidity) downloaded from Internet have been used in order to make a comparison between the Matlab Toolbox and modified ANFIS algorithm with momentum factor. The results obtained in this study have shown that the modified ANFIS algorithm is the convenient choice in terms of speed, accuracy.

Keywords: ANFIS, Neuro-Fuzzy System, FPGA, Sensor Nodes, Smart node.

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An Assesment of Use of Data Mining Techniques on Social Media Content for Crime Prediction

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Abstract: In recent year, data mining had been used as powerful data analysis techniques in various domains to find pattern and predict huge data set. To analyze crime data to find pattern and trend of crime was very successful done using data mining in many researches. However, the pattern of crime is not static, it always changes and growth. Rapidly growth of social media usage; hidden potential information can provide valuable insight for crime prediction when data mining techniques applied to user's post and tag. Hence, this paper presents as systematic literature review in crime prediction using social media content. We identified 154 papers from recognized digital library such as IEEE Xplorer, Web of Science, Sciencedirect, Springer Linked, EBSCOhost, Emerald, CAM digital library and Google Scholar, published between time span 2010-2017 that provided data on crime prediction on social media. After multiple stages selection process, 9 papers were selected for detailed study. The contribution of this review is the consequently that of supplying researchers with a summary of all existing information about crime prediction using social content; types of social media content and data mining techniques that are commonly applied for crime prediction. The obtained findings, including the state of art and shortcomings found in this systematic literature review, provide strong evidence to encourage further research in the development of a new approach in crime prediction.

Keywords: Crime prediction, Data mining, Social media, Sentiment analysis, Text mining, Systematic Review

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A Comparison of Process Mining Tools

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Abstract: Process mining is a new era in the science of data mining and is a subset of business intelligence. Process mining analysis provides an idea about a general process by comparing each process with others in the terms of time and responsible people who deal with the process. For this reason, event logs are checked. Event logs consist of large data. Because the event logs keep all the records that occur during short time intervals. Special programs are needed to examine such data. These programs generate a process map using information such as event ID, activity, time and responsible person. Through the analysis, processes are discovered, monitored and improved. In this study, the tools named ProM, Disco, Celonis and My-Invenio used in process mining were examined and their performance with the usage statistics compared. According to the obtained results, the usefulness, performance and reporting features of the software used in a process analysis are revealed.

Keywords: Data mining, Business Intelligence, Process Mining

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Internet of Things (IoT) In Healthcare: Advantages and Challenges

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Abstract: The rapid development of Information and Communication Technologies and their introduction into people's daily lives worldwide has changed working environments especially healthcare sector recently. As a developing technology, Internet of Things (IoT) has a great potential to bring convenience to healthcare professionals and improve people's quality of life greatly. IoT is a developing technology that reduces interoperability challenges to change the way healthcare services are delivered, results better outcomes, increases efficiency and makes healthcare services more affordable. IoT involves many kinds of sensors (environmental, implanted, and wearable) that enable people to access medical healthcare anywhere, anytime thanks to cloud computing. This paper brings examples of the IoT for use in healthcare purposes, discusses the advantages and possible challenges of implementing this technology and make suggestions for healthcare administrators.

Keywords: Internet of Things (IoT), Wireless Communication, IT in Healthcare

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Mobile Marketing and Mobile Marketing Perception of University Students: A Research on University Students

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Abstract: The aim of this research is to examine the effect of mobile marketing concept and mobile marketing perception on university students' buying behaviors. In this paper a research was made to the faculty and college students at Mehmet Akif Ersoy University. Face to face survey technique was used as data collection method. In the questionnaire survey, validity and reliability analysis developed by Alkaya A. (2007) and Ağan M. (2010) were used. Analyzes were made by entering the questionnaire data obtained from 401 students in the university into the appropriate statistical program. In the study, reliability analysis, factor analysis, frequency analysis, t-test and ANOVA test were performed. As a result of the research, it is concluded that the students have a generally positive perception towards mobile ads and that mobile ads are effective on purchasing behaviors.

Keywords: Mobile Marketing, Mobile Communication, Consumer Perception

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The Implementation of Corporate Sustainability in Information Systems' Companies: An Analysis of Sustainability Reports

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Abstract: Companies must maintain their sustainability in order to survive. For that reason, they develop different corporate sustainability strategies. Thus, corporate sustainability practices and sustainability reporting processes are gaining increasing importance. In this study, the analysis of corporate sustainability reports of 14 companies on the Fortune Global 500 list was analyzed by content analysis method to see how firms apply corporate sustainability. As a result of this study, it can be said that the world's leading companies operating in the information systems sector are aware that the most important key to their survival in the future will be companies pursuing sustainable strategies with sustainable practices and trying to improve themselves. However, although they work for institutional sustainability, it is still necessary to carry out serious work in this regard. As a result, we need sustainable companies for sustainable future.

Keywords: corporate sustainability, corporate sustainability implementation, sustainability reporting, content analysis, information systems

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Secure Management Model for Scada Systems

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Abstract: SCADA is an important management and control system for all different industrial plants today. Although this system has become a world standard, it has still some vulnerabilities. In order to prevent these weaknesses and securely communicate with all the devices in the system, a security model in a layered architecture is required. Such an architecture requires to control and manage properly all of the end devices in the entire SCADA system. After all these steps, the decision about how to manage the system can be made. In this paper, we will introduce an ORC-powered (Organic Ranking Cycle) geothermal power plant that we've already worked as an IT engineer and give detailed information about the SCADA system. Additionally, we will focus on the overall sensor networking topology and try to explain how the decision support system can be compromised and how an attacked HMI can affect the control of this system. In our secured model, we move the WSNs (Wireless Sensor Network) into a PLC (Programmable Logic Control) first, then connect it to Cloud Computing environment instead of SCADA to manage the sensors and communicate SCADA in a hybrid structure.

Keywords: IIoT, SCADA, Security, Management of SCADA, PPPoE

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Augmented Reality 4.0: Opportunities and Challenges for Smart Factories

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Abstract: In recent years, Industry 4.0 and the Industrial Internet of Things have become one of the most popular concepts in the industrial business area. These concepts create disruptive changes in industrial production/manufacturing, maintenance and assistance systems as well as training activities. However, in order to enable the full potential of industry 4.0, new processes, technologies and tools need to be developed, allowing for innovative processes. One of these technologies is augmented reality. Augmented reality (AR) refers to the integration of additional computer-generated information into a real-world environment. This study aims to explore the opportunities and challenges of AR for Industry 4.0 and the smart factory. This study provides qualitative research for academics and practitioners and should offer them a roadmap for prioritizing their steps toward Industry 4.0.

Keywords: Industry 4.0, Smart Factory, Augmented Reality, Industrial Internet of Things

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A Study on Career Orientation: Graduated Students (2004-2015) At Başkent University, Management Information Systems Undergraduate Program

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TODAİE, Turkey

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Abstract: In this study, it is examined the sectoral (public-private, ICT, finance sector, etc.) and managerial positions, entrepreneurial experiences and academic orientations of the graduated students at Başkent University, MIS Undergraduate Program (2004-2015) which is one of the first programs in the field of Management Information Systems (MIS) in Ankara.

It is expected that the findings will shed light on the development of the MIS discipline in Turkey, the development of existing curricula of the MIS departments, and the basis for the preferences of young people in the MIS department.

Keywords: Management Information Systems (MIS), Graduates, Başkent University, Academia, Entrepreneurship, Business Administration, Career Orientations

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Identification of Factors Affecting Online Shopping in Two Different Societies (Case Study: Atatürk University and Urmia University)

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Abstract: Today, e-commerce is one of the issues in the business. E-commerce refers to transactions between organizations and individuals that are based on information technology. E-commerce leads to promote communications and economic openness in the domestic and international levels, change business methods and change traditional markets to new and modern form of markets. One of the new ways shopping that has extensive benefits is online shopping. Now, a large amount of buying and selling is done in this way around the world. So in this study, online shopping will be discussed in two independent societies. First, in the study factors affecting online shopping were introduced and then will be analyzed through regression analysis in SPSS. The results of the study show that there are positive relationships between five factors and online shopping and online shopping is more common among students at Atatürk University.

Keywords: Online shopping, Individual factors, Environmental factors, Organizational factors, Product Attributes, Buying Process

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A Scientometric Analysis of The Researches on Management Information Systems in Turkey

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Abstract: The popularity and rapid development of the field of management information systems in Turkey in recent years, has increased its interest in scientific activities in this area. Since MIS has an interdisciplinary nature and interest from different fields, it becomes increasingly difficult to reveal the general structure and development of the field, without analytical approaches. Scientometric studies aiming to reveal policies and development in any field of science by considering scientific activities with analytical methods have been realized in a limited number in the field of management information systems. In this study, a scientometric analysis of the data set consisting of a total of 287 proceedings presented in the Management Information Systems Conference, which has been held since 2014 in Turkey, has been realized. The findings of the study determined the subfields of MIS studies, scientific patterns, and trends in the field. It is expected that the results of this study provide a better understanding scientific studies in the field of management information systems in Turkey, and be a basis for directing future scientific activities, and information sharing.

Keywords: Management Information Systems, Scientometric, Scientometric Analysis, Text Analysis.

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The Technical Challenges of Cloud Computing As a Leading Trend in Business: A Case Study of Turkey

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Abstract: Cloud computing is a computer technology that enable convenient, on demand and pay-as-you-go access to a pool of shared resources. It has an important role in the competition between the companies as it grows and increases the efficiency of companies by providing advantages more than in-house system such as cost decreasing related to IT. However, cloud computing is not taken into consideration as a remarkable research area in Turkey. Even it helps companies to gain benefits in economic aspect, a considerable amount of companies is still not eager to adopt the cloud computing because there are also several crucial challenges that are seen as a barrier to use cloud computing. The aim of this study is surveying the technical challenges of cloud computing and analyzing their effects on usage in companies that operate in Turkey.

Keywords: Information and communications technology, cloud computing, technical challenges, IT costs, computer networks, virtualization

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Assesment of Graduation Project in the Context of Management Information Systems Department Curriculum

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Abstract: It seems impossible to accept that the accumulation of systematic knowledge and skills required for a professional career in Management Information Systems (MIS) will only be achieved through classical undergraduate courses, given market expectations. On the one hand, there is a multidisciplinary structure of MIS and it is a field with many technical applications each of which requires expertise; On the other hand, the inability to compress all the knowledge and skills required by the profession for a four-year education and training process appears to be the two major constraints of the subject. Therefore, there is a risk that departmental graduates cannot meet the expectation of the real business environment with the professional experience that will be obtained only after the course of education which is limited by departmental courses. For this reason, it is necessary to implement a number of supportive and reinforcing practices. Keeping the curriculum up to date, focusing on the application of theoretical lessons, consolidating each applied field with homework or projects, distributing student groups instead of traditional student counseling to faculty members who will work as professional counselors, career trips, career days, graduation projects and internship become important pedagogical strategies (Akpan, 2016). Among these, the Graduation Project is an important and necessary step for the realization that the graduate student has learned in university (Zhang-bing vd., 2010). The aim of this study is to emphasize the importance of giving graduation project course to the MIS students and to reveal the status of the universities in our country. The study can help the educators in the MIS programs to prepare the project course content and determine whether graduates have acquired sufficient career skills to meet their professional career requirements.

Keywords: Management Information Systems, MIS Graduation Project, MIS Curriculum, MIS Critical Skills

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Industry 4.0 and Turkey: A Chance or a Thread?

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Abstract: The concept of Industry 4.0, which was launched within the scope of "Action Plan High Tech Strategy 2020" published by German Government in 2010, has started to spread rapidly to other countries and different sectors especially to developed countries. The industry 4.0 that is being trending topic, is called with the smart factories, the internet of objects, the cyber-physical systems, but it will only be mentioned as industry 4.0 in terms of not creating confusion of concepts. While the number of academic studies on this concept, which is quite new in terms of Turkey, is very small, most companies have not yet grasped the importance of this concept. The main aim of this study is to highlight the difficulties and threats encountered in the transition to the industry 4.0, as well as the opportunities and strengths that Turkey has, taking into account the political and economic situation in Turkey. This new technological development is in order to keep pace with the current initiatives made in Turkey, the current situation of the country and the role that the state plays here, another important issue that is evaluated within the scope of the study.

Keywords: Industry 4.0, internet of things, SWOT analysis, Turkey

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Strategic Value of Information Systems: A Conceptual Study

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Abstract: Information Systems (IT) have important roles about organization's relations with their context. Therefore, IS strategically contribute to organizations. Because strategy is a decision about organizational milieu. At this point, some expert claim that IT does not strategically contribute to business. As this argument that, IT is not scarcely resource and it is easily acquired. However, some expert and academicians opposite to this view. They argue that IT have important effects on the business even if IT is commonly using and it easily captured. As this opinion that IT is value because, it delivers valued output, "information". If user understand how derived utility from IT, they achieve effectively results. In the conceptual study, different arguments analyzed and these conclusions discovered: IT provides value contribution for corporate strategies if IT is being alignment with organizational strategies, contribute to digitalization, innovativeness and knowledge management. Moreover, the study advice to future researches that scale development titled "strategic value of information systems". Therefore, it contributes to national and international literature with the study.

Keywords: Information Systems, Management Information Systems, Strategy, Scale Development.



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The Rising Fundamental Skills of It Field in Industry 4.0 Age

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Abstract: The fact that people and objects are becoming more and more online every day increases the need for information and communication technologies. Internet of things, big data, 3D and cloud technologies are innovation which support the need. In the period, which is called the new industrial revolution, machines will take the place of human powers in production and it means that qualified labor will be needed in almost all departments of enterprises. In the new industrial period, the purpose of this study is to detect what are fundamental skills required from personnel candidates in the field of IT which one of the areas in the center of production in the new industry period. Therefore, Job advertisements related to the field of IT were examined and the analysis was carried out by taking the job position, job description and qualifications in the advertisements regardless of sector difference. Finally, it was determined which skills are requested.

Keywords: Industry 4.0, IT, proficiency, skill.

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Mobile and Wearable Technologies in Healthcare: A Systematic Review and the State-Of-The-Art

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Abstract: Mobile and Wearable Technologies in Healthcare is a rapidly emerging topic in consequence of the technological advances, especially in mobile computing and communication technologies. Mobile phone penetration exceeded over 70% world population with more than 4.7 billion unique mobile subscriptions (GSMA, The Mobile Economy Report 2016). Increased capabilities of mobile devices including smart phones, smart bands and other wearables; provides vast opportunities to easily collect health data. Such data can be used by health professionals to support medical diagnosis and treatment and also by consumers to assist self-motivation to adopt and track healthier daily life practices. Researches on wearable devices collecting health data have various focuses, ranging from sensors, batteries, user acceptance or clinical studies. This review aims to understand and organize the current trends in mobile and wearable technologies in healthcare by proposing a classification of the literature after a systematic review. The review covers 112 publications published between years 2005 and 2016.

Keywords: Wearable Devices, Mobile Health, Wearables in Healthcare.

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Investigate for Application of Industry 4.0 with Data Mining: Literature Review

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Abstract: One of the distinctive features of Industry 4.0 is that it is produced in large quantities data during the production process. It does not make any mean if raw data in production is not processed and rendered valuable. In other words, unprocessed data is likened to crude oil and can be valuable only by processing. In this case, the effective use of data mining will make economic and strategic contributions to the producers forward. Data mining methods such as estimating the sales income to be obtained and determining the market share of a product that is being marketed are being used. In this study, studies on data mining in the field of industry are examined and the contribution it provides is given.

Keywords: Data mining, big data, industry 4.0

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Curling Simulation for Education and Strategy

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Abstract: In today's world, many people have no idea about the rules and content of curling game which is one the popular ice sports game. The main purpose of the study is to design a curling game simulation in order to promote the game and examine the scoring structure and rules of curling. In the scope of this study, interviews were carried out with curling players and coaches to have idea about the simulation design. According to these interviews, the simulation is built on three main components including training, match and strategy. In training part of the simulation, the user may have the basic knowledge to solve the game's logic and solve the curling game structure. In the match module, users can play the game and may have understand the scoring system and game format. In the strategy part, the simulation enables users to define shooting strategy according to manually pre-located curling stones. The simulation interface is designed English language and evaluated by experts.

Keywords: Curling, Curling Training, Curling Simulation

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Effectiveness Of Companies Internet Usage: Instance of Turkey's Forest Industry

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Abstract: One of the important tools that companies can use to improve the efficiency of its business activities is web environment. Companies, with the help of information technologies, are trying to create value using the web environments they create. From this perspective, internet provides a platform to create communication and value. However, effective usage of this power depends on the managerialism of the companies. The purpose of this research is to observe the effective usage of internet by Turkey's forest industry companies. Which internet tools the companies use, their appearance on internet, their utilization types of internet and the effect of internet on companies production are researched in this paper. Product diversity, projection of this diversity to internet and effect of internet on production process are important query parameters. With the help of a special interface software created with Python, common search engines like Google, Bing, Yandex are benefited from. For query, distinctive word groups prepared for forest industry has been used. At the end of the research, 19.000 forest industry company has been found that exists on internet in different capacities. 3.284 of these companies has an accessible web site and from these, 2.046 has a communications channel, 307 has multi-language support, 658 has product price information, 613 has online catalog, 47 has "You design, we do it" option, 34 has online sale and 14 wants to include customers in design process. It is determined that these companies offer 220 different product types on web and companies present 8 times more products on their web sites than their branches. The results show the necessity for companies to increase their usage of internet.

Keywords: Turkey forest industry, internet activities, effect of internet activities on production.

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Documentation of Software Products: UML and Case Tools Support

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Abstract: Today, the US and other European countries are also doing serious work on Industry 4.0 (I4.0), which was brought to the agenda by Germany in 2011. The documentation of software products is of great importance, in line with the main objectives of Industry 4.0 in the field of computer software engineering. The first of the objectives of this study is to draw attention to the importance of documenting software products, taking into account the industrial revolution we are involved in. Latter; it does not only certify the software product, but it also has a positive effect on the process of adapting a methodology in all phases of the product discovery process (analysis-design-development-test-implementation). The methodology mentioned here is UML (Unified Modeling Language). Finally, And CASE (Computer Aided Software Engineering) tools that facilitate the work when applying the methodology.

Keywords: Software Engineering, Documentation, Industry 4.0, UML, CASE Tools

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TUTORIALS



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Dijital Öykü Yazarlığı Atölye Çalışması

Amaç

Yeni medya teknolojilerinin ve geçişimli medyanın (transmedyanın) gerektirdiği unsurları kullanarak anlatıları yeniden kurabilmeyi ve farklı hedef kitlelere yönelik farklı biçimlerde yeniden sunabilmeyi amaçlayan bir atölye çalışması

Atölye Yöneticileri

Doç. Dr. Nebahat Akgün ÇOMAK

Prof. Dr. Nilüfer PEMBEÇİOĞLU

Atölye Çalışması

Dijital araçlar kullanılarak öykü oluşturmaktır. Dijital Öyküler Atölyesi; kuramsal bakış açısının yanı sıra, metin, görüntü, ses ve video çekimlerini kapsamaktadır.

Katılımcı sayısı: 20 Kişi

Çalıştay Süresi: 90 Dak. (14:00 – 15:30)

Özet

Öykü anlatımı, kadim kültürlerden itibaren bilgiyi en iyi anlatma ve belleğe yerleştirme biçimidir. Teknolojinin yükselişi ile bireysel, toplumsal ve kültürel bellek, deneyimler ve kazanımlar anlamlarını yitirmeye ya da farklı anlamlar kazanmaya başlamıştır. Öykülerin her biri bir diğerinin içine geçişerek aktarılmakta, zenginleştirilmiş öykü anlatımı, etkileyciliği ve kurgulanmış yapısı ile bireyleri, grupları, toplumları daha bir içine alabilmektedir. Bir yandan gerek geleneksel anlatıları (öyküleri, masalları) gerekse daha özel biçimde gündelik anlatıları (haberler, reklamlar, olaylar) anlatmanın yeni yolları gündeme gelirken, bir diğer yandan da anlatıların klasik özellikleri modern yaşamın ya da teknolojinin yoğunluğu ile birlikte yitirmeye başlanmış, günümüzde “öykü” nün yerini “bilgi” almıştır. Öyküler artık bilginin işine yaramaktadır ve karşımızdakine bilgi ile birlikte verildiği haliyle değer taşır görünmektedir. Dijital araçlarla elde edilen bilgi anında değer kazanmakta ve anında değerini yitirmektedir, eksik ya da atık bilgi yerine geçebilmektedir. Oysa anlatıların bilgidен öte bir de duygusal değeri vardır. Bu çalışma, günümüzün öykü anlatıcılığında anlatıcıların neleri önceledikleri ile ilgili ipuçları sunmaktadır.



Nilüfer PEMBECİOĞLU (Ph.D.)

İstanbul Üniversitesi İletişim Fakültesi Radyo Televizyon ve Sinema Bölümü Öğretim Üyesi olarak ulusal ve uluslararası alanda eğitim, iletişim, gazetecilik, barış gazeteciliği, yeni medya, çocuk, kadın ve reklam odaklı bildiri, makale ve araştırmaları bulunmaktadır. Sosyal Ayırmıcılık ve Dışlanma, Siber Zorbalık, Sistemik Aile Terapisi, Çocuklarda ve Gençlerde Travma Terapisi, Film Terapi vb eğitimler almış ve vermiştir. TRT, RTÜK, MEB, BYEGM, NATO gibi kurumlara danışmanlıkları bulunmaktadır. Çocuklarla düzenlediği kısa film atölyeleri çerçevesinde gerçekleştirdiği 30 kadar kısa filmi ve animasyon filmleri de bulunan Pembecioğlu'nun, göçmenlerle, işitme engelli, ortopedik engelli, üstün zekalı çocuklarla çalışmaları ve çeşitli konularda 15 kitabı, çok sayıda kitap bölümü ve akademik makaleleri uluslararası projeleri de bulunmaktadır.

Nebahat AKGÜN ÇOMAK (Ph.D.)

1986 yılında İstanbul Üniversitesi, Edebiyat Fakültesi, Türk Dili ve Edebiyatı Bölümü'nden mezun olmuştur. Aynı Fakültenin, Eski Türk Dili Bölümü'nde Yüksek Lisansını ve Doktorasını, İstanbul Üniversitesi, Sosyal Bilimler Enstitüsü, Gazetecilik ve Halkla İlişkiler Bölümü'nde tamamlamıştır. 2012 yılında, İletişim Çalışmaları alanında Doçent unvanını almıştır ve halen Galatasaray Üniversitesi, İletişim Fakültesi'nde görev yapmaktadır. Simgesel İletişim, Metin Çözümlemeleri, Mitoloji, Dijital Öykü Anlatıcılığı, Medyada Dil Kullanımı, Söylem Çözümlemeleri, Dilbilim ve İletişim, Reklam Çözümlemeleri ve Göstergebilim alanlarında çalışmaktadır. Uluslararası ve Ulusal bildirileri, makaleleri, kitapları bulunmaktadır.



R ile Derin Öğrenme Çalıştayı

Amaç

Son yıllarda derin öğrenme kavramının yapay zeka uygulamalarında geniş yer tutmaya başladığını görüyoruz. Özellikle bilgisayarlı görme, tercüme, metin işleme, ses tanıma ve bunun gibi alanlarda geniş uygulama alanları bulmuştur. Bu çalıştayda derin öğrenme ve konvolusyonel yapay sinir ağları üzerine eğilerek R programlama dili yardımıyla nasıl uygulama geliştirilebileceği üzerinde duracağız ve görüntü analizlerinin nasıl yapılabilirliği konusunda pratik örnekler çözeceğiz.

Gereksinimler

R konusunda kısa bir giriş yapılacağından katılımcıların R konusunda bilgi sahibi olması zorunlu değildir.

Katılımcı sayısı 20 kişi

Katılımcıların dizüstü bilgisayarları ile gelmelerini öneriyoruz.

Çalıştay süresi 90 dakikadır.

Program

R programlama diline giriş

Derin Öğrenme ve konvolusyonel sinir ağlarına giriş

R ile görüntü işleme üzerine bir uygulama

Yalçın ÖZKAN (Ph.D.)

Matematik Mühendisi olarak KTÜ den mezun oldu. İstanbul Üniversitesinde istatistik üzerine yüksek lisans, Yöneylem Araştırması üzerine doktora derecesi aldı. Tekel Genel Müdürlüğü, Eczacıbaşı Holding ve Koç Holding TEE A.Ş. de bilişim ile ilgili konularda projelerde görev aldı. Ahmet Yesevi Üniversitesi'nde ve diğer bazı üniversitelerde "Veri Madenciliği" konusunda dersler vermiştir. Veri Madenciliği ile ilgili olarak, Papatya yayınevi tarafından "Veri Madenciliği Yöntemleri", "Biyoenformatik DNA Veri Madenciliği" ve "R ile Programlama" kitapları yayınlandı. Şu sıralar "Kanser Veri Madenciliği", "Psikiyatride Veri Madenciliği", "Sosyal Medya Madenciliği" ve "Büyük Veri Analizleri" konularında çalışmalar yapmaktadır.



4th International Management Information Systems Conference “Industry 4.0”

*October 17-20, 2017
İstanbul University, İstanbul, Turkey*



INDEX

Abdulkadir HIZIROĞLU	67, 93
Abdulkadir ÖZDEMİR	27
Abdulkadir YALDIR.....	31, 213
Abdullah NARALAN	149
Abdülkadir HIZIROĞLU	55
Abide Coskun-SETİREK	89
Adem AKBIYIK	11, 33, 205, 229
Adnan AKTEPE.....	7
Adnan KALKAN	47
Ahmed Khazal Younis AL-AZZAWI	209
Ahmet Cihat BAKTİR	231
Ahmet DOĞAN	119, 123
Ahmet Gürkan YÜKSEK.....	17
Alper Veli ÇAM.....	153
Alptekin ERKOLLAR.	143, 223, 235
Altan KOÇYİĞİT.....	97
Aslıhan TUFEKÇİ.....	119, 123
Atıncı YILMAZ	145
Ayça TAŞ.....	91
Aykut ŞEN	75
Aysun BOZANTA	89
Ayşe MENTEŞE	141
Ayşegül İrem ULADI.....	49
Aytuğ ONAN	13
Bahadır AKTAŞ.....	63
Bahadır ODEVCİ	175
Baris Tekin TEZEL.....	51
Batuhan AY.....	185
Bedreddin Ali AKÇA.....	155, 163
Bertan BADUR	39
Bilgin METİN	95, 231
Birgit OBERER.....	143, 223, 235
Birgül KUTLU	37

Budi SUSETYO.....	171
Buğra ŞEN	147
Burcu GÜLDÜREN.....	217
Burcu KÖR	95
Can AYDIN	63
Cansu BAYSAL	157
Cem GÜRLER.....	29
Cem YILDIZ.....	65
Cemal AKTÜRK	9
Cemile ZONTUL.....	91
Ceyda ÜNAL	103
Christian ARNOLD	25
Cihan ÇILGIN	103
Çağrı DOĞU	221
Çiğdem SELÇUKCAN EROL.....	45
Çiğdem TARHAN	79
Deniz HERAND	107
Dilan Özcan KALFA	93
Dilara CAN	159, 179
Doğan AYDIN	239
Doğancan ÜLKER.....	183
Doğuş AYĞÜN.....	57
E.Serra YURTKORU	35
Ebru DİLÂN	125, 133
Ebru GÖKALP	121, 131, 137
Ebru PEKEL	199
Ece Nur ÇAKAR	229
Eduard Alexandru STOICA.....	61
Efsun COSKUN.....	51
Ekin AKKOL.....	99
Elanur AKDAĞ	179
Elif KARTAL	57, 183
Emrah AYDEMİR	165
Emre AKADAL	187



Emre KARAGÖZ.....	65, 71
Emrullah HAYTA	91
Ercüment GÜVENÇ.....	173
Erdem UÇAR.....	147
Erman COŞKUN.....	139
Ersin KARAMAN23, 73, 157, 179, 181, 245	
Ersin NAMLI	185
Esma Ergüner ÖZKOÇ	225
Esra CENGİZ	49
Esra Kahya OZYIRMIDOKUZ	61
Esra ÖZMEN	181, 245
Evrım ÇETİNKAYA.....	21
Eyüp AKÇETİN.....	31, 213
Faruk TAKAOĞLU	135
Fatih GÜRSES	59
Fatih KAYAALP.....	167
Fatma Önay KOÇOĞLU.....	197
Fatma Seray DEMIRKAN	39
Ferdi SONMEZ	135
Ferhan DEMİRKOPARAN.....	127
Feyzi KAYSI.....	165
Fulden NEOMAN	79
Gizem ÖĞÜTÇÜ.....	225
Gökay Burak AKKUŞ.....	147
Gökçe KARAHAN ADALI	111
Gökhan SILAHTAROĞLU ..75, 109	
Gözde Nur KÜTÜKCÜ	81
Gülay EKREN.....	143, 223
Güler ERKAL KARAMAN 179, 181	
Gülin Tuğçe SÖYLEYİCİ.....	217
Gülşah ÇİFÇİ	17
Gülten DEMİRAL.....	207
Gülten ŞENKUL GÖNGÖRMÜŞ	225
H. Kemal İLTER	113
Hadi POURMOUSA	27, 227

Hakan AŞAN	87
Hakan KÖR*.....	243
Halil ARSLAN	17
Halil CİCİBAŞ.....	169
Halil İbrahim CEBECİ.....	139
Halil İbrahim ZEYBEK	153
Handan ÇAM.....	153, 157, 159
Hasan DAĞ.....	83, 105
Hasan ERBAY	163, 243
Hasan GÜRBÜZ.....	77
Hasret ÇOMAK	xxxvi
Hüseyin ÇAKIR.....	81
Immas NURHAYATI.....	171
Indupurnahayu SUNARIAMAN	171
İbrahim YILDIZ.....	237
İdil ATASU.....	37
İhsan Hakan SELVİ	151
İhsan PENÇE	47
İkram DAŞTAN.....	29
İlker Güven YILMAZ	57
İnanç KABASAKAL	101
İzel İlkim BORUCU	115
İzzet Gökhan ÖZBİLGİN	15, 141
J.R. REAGAN.....	xxxix
Kadir Alpaslan DEMİR	85, 169
Kadir KESKİN.....	145
Kai-Ingo VOIGT.....	25
Kenan KAFKAS	117
Kerem KAYABAY	97
Kumru UYAR.....	61
Kutan KORUYAN.....	43
Kübra ÇALIŞKAN	33
Küçük Hüseyin KOC	247
L. Özge ORAL.....	65
M. Hanefi CALP.....	119, 123
M.Erdal BALABAN	111
Mahmut Ensar GÖKTAŞ.....	245



Mansur BEŞTAŞ.....	105
Mazlum ÖZÇAĞDAVUL.....	219
Mehmet Ali AKYOL.....	97
Mehmet AYDIN.....	175
Mehmet BAYĞIN.....	149
Mehmet Cem BÖLEN.....	23
Mehmet CEYHAN.....	247
Mehmet HACIBEYOĞLU.....	215
Mehmet Hakan SATMAN.....	187
Mehmet IŞIK.....	107
Mehmet Nafiz AYDIN 117, 125, 133	
Mehmet ŞİMŞEK.....	167
Melda KOKOÇ.....	7
Melih ENGİN.....	59, 243
Melike AYDIN.....	43
Melike ŞİŞECİ ÇEŞMELİ.....	47
Meltem ÖZTURAN.....	37
Mert Onuralp GÖKALP 97, 121, 131	
Merve ER KARA.....	189
Merve Simge USUK.....	151
Metin BARIŞ.....	183
Metin ZONTUL.....	91
Mohamad SOUBRA.....	41
Muhammed Çağrı AKSU.....	73
Muhammed Emin KARABACAK 67	
Muhittin IŞIK.....	83
Murat Can AKTAŞ.....	181
Murat GEZER.....	45
Murat KOMESLİ.....	115
Murat Paşa UYSAL.....	21
Murat SAKAL.....	173
Murat TOPALOĞLU.....	99
Musab Talha AKPINAR.....	55, 93
Mustafa AGAOĞLU.....	35
Mustafa Hilmi ÇOLAKOĞLU.....	xxxviii
Mustafa İlker ERDURSUN.....	155

Mustafa KESKİNKILIÇ.....	233
Mustafa Lemi ELYAKAN.....	17
Mustafa POLAT.....	205
Mustafa SOBA.....	207
Mustafa ÜNVER.....	15
Nabiha AZİZİ.....	69
Nafiz ÜNLÜ.....	147
Nebahat AKGÜN ÇOMAK.....	254
Neda ALIPOUR.....	27, 227
Nil Esra DAL.....	217
Nilüfer PEMBEÇİOĞLU.....	254
Nurcan BOZKAYA ÖZDEMİR 113, 219	
Oğuz KAYNAR.....	127, 135
Onur DOĞAN.....	87
Ourania ARETA.....	93
Ömer BOYACI.....	155, 163
Ömer Faruk AKMEŞE.....	155, 163
Ömer Özgür TANRIÖVER.....	41
Özge DÖNMEZ.....	159
Özge Hüsnüye NAMLI.....	195
Özgür TANRIÖVER.....	211
P. Erhan EREN.....	97, 121, 131, 137
Prof. Dr. Sushil K. Sharma.....	xxxiii
Puspa Eosina HOSEN.....	171
Rabia SAYLAM.....	233
Ramazan MURADİ.....	33
Recep BENZER.....	3
Resmiye NASİBOĞLU.....	51
Sadi Evren SEKER.....	5
Safiye Hilal ERGÜN.....	59
Said ALTINIŞIK.....	161
Sakirin TAM.....	211
Salih Serkan KALELİ.....	149
Samet EKİZ.....	157
Secil BAL TASTAN.....	35
Seda ONAYLI.....	157
	259



Selin ÇOBAN.....	131
Seniye Ümit OKTAY FIRAT	189
Serkan ALTUNTAŞ.....	177
Serkan UZUNDÖNEKOĞLU.....	95
Sevgi ÖZKAN YILDIRIM .	161, 241
Sevinç GÜLSEÇEN	9, 165, 239
Sinan TOKLU	167
Sona MARDIKYAN	39
Soraya CHERIGUENE	69
Souad GUESSOUM	69
Sultan ZAVRAK	167
Süleyman ERSÖZ	7
Süleyman Muhammed ARIKAN	3
Ş. Alp BARAY.....	197
Şebnem AKAL.....	129
Şükran ARMUTLU.....	207
Şükrü Ufuk ULADI.....	49
Talha BUZRUL.....	245
Taner ŞENTÜRK	95
Tansu PANCAR.....	241
Törehan GÖREN.....	107
Tuğba KOÇ	235
Tuğçe ASLAN	11, 229
Tuğsel Çisil KILIÇ.....	217
Tuncay ERCAN	209, 221
Tuncay ÖZCAN	195, 197, 199
Türkay DERELİ	177

Türksel KAYA BENSGHIR	53, 119, 123, 225
Ufuk ÇELİK	31, 213
Ufuk TÜREN	53
Uğur KELEŞ	193
Umut KAYA	145
Umut ŞENER.....	137
Ümit Cengiz UYSAL.....	67
Üstün ÖZEN	23, 157, 159, 179, 181, 227, 245
Vahap TECİM.....	65, 71, 103
Veli Özcan BUDAK	45
Vildan ATEŞ.....	19
Volkan SERT	177
Yalçın ÖZKAN.....	255
Yasemin KORKUT	139
Yasin GÖRMEZ	127
Yavuz SİLİĞ	91
Yenal ARSLAN	141
Yunus Emre IŞIK.....	127
Yusuf Yalcin İLERİ.....	215
Yücel YILMAZ	53
Zehra Nur CANBOLAT	109
Zeki ÖZEN	57, 183
Zerrin AYVAZ REİS.....	249
Ziya Nazim PERDAHCI.....	117
Zümrüt ECEVİT SATI	191, 193



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