2021 National Computing Colleges Conference (NCCC 2021)

Taif, Saudi Arabia 27 – 28 March 2021



IEEE Catalog Number: CFP21W21-POD **ISBN:**

978-1-7281-6720-6

Copyright © 2021 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

IEEE Catalog Number:	CFP21W21-POD
ISBN (Print-On-Demand):	978-1-7281-6720-6
ISBN (Online):	978-1-7281-6719-0

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400 Fax: (845) 758-2633 E-mail: curran@proceedings.com Web: www.proceedings.com



Table of Contents

Paper ID	Title
21	Energy efficiency and availability based on Multi-agent architecture in MCC1 Asmaa Alraizzah, Samar Alqhtani
28	Proactive Cooperative Communication Enabled Fifth Generation Wireless Sensor Network Using SCTP7 <i>Kanthavel R, Dhaya R</i>
29	Internet of Things (IoT) Security Requirements: Issues Related to Sensors12 Hussain Alqarni, Wael Alnahari, Mohammad Tabrez Quasim
41	A Modified Convolutional Neural Networks For MRI-based Images for Detection and Stage Classification Of Alzheimer Disease18 Majdah Alshammari, Mohammad Mezher
1003	The Beta distributed PSO, β-PSO, with application to Inverse Kinematics25 <i>Nizar Rokbani, Mohamed Slim, Adel M. Alimi</i>
1012	Text Segmentation of Historical Arabic Handwritten Manuscripts Using Projection Profile31 Arwa Alghamdi, Dareen Alluhaybi, Doaa Almehmadi, Khadijah Alameer, Sundos Bin Siddeq, Tahani Alsubait
1013	Efficient Low Complexity Sub-Channel Assignment for Downlink Non-Orthogonal Multiple Access Systems37 Mohammed Abd-Elnaby
1016	Health Monitoring IoT Device with Risk Prediction using Cloud Computing and Machine Learning42 Anindya Das, Zannatun Nayeem, Abu Saleh Faysal, Fardoush Hassan Himu, Tanvinur Rahman Siam
1023	Effects of Multi-Core Processors on Sequential Divide and Conquer Algorithms48 Fahd Alhaidari, Maissa A. Al Metrik
1024	Machine Learning Techniques for Network-based Intrusion Detection System: A Survey Paper54 Lubna Ali Hassan Ahmed, Yahia Abdalla Mohamed Hamad
1027	A Model-Driven Framework for Android Supporting Cross-Platform GUI Development61 Arsalan Ali, Muhammad Rashid, Farooque Azam, Yawar Rasheed, Muhammad Waseem Anwar
1030	Comparative Study of Common Density-based Clustering Algorithms67 Asmaa Alahmari, Amani Jamal, Hanan Elazhary
1034	A mobile cloud resourceful communication architecture (MRARIA) for resource-intensive applications73 Asharul Islam, Anoop Kumar, Ayman Qahmash, Sadaf Yasmin
1048	Symbolic Reliability Analysis of a Multi-State Network79 Ali Muhammad Ali Rushdi, Motaz Hussain Amashah

1049	Software to Assist a Health Practitioner in Caring of Covid-19 Home Isolated Patients83 Ashwag Maghraby, Fatima Alsakiti, Ashwaq Alsubhi, Rahaf Alghamdi
1050	Using Sampling Techniques and Machine Learning Algorithms to Improve Big Five Personality Traits Recognition from Non-verbal Cues87 <i>Dina Al-Hammadi, Roger K. Moore</i>
1054	Performance Analysis of LTE Codes System Using Various Modulation Techniques93 Othman O. Khalifa, Zahradden Ahmed, Abdelrahim N. Esgiar, Rashid A. Saeed, Aisha H. Abdalla
1058	Multi-State Reliability Evaluation of Local Area Networks98 Abdulaziz Ibrahim Al-Darrab, Ali Muhammad Ali Rushdi
1060	Sentiment Analysis to Measure Public Response to Online Education During Coronavirus Pandemic104 Yahya AlMurtadha, Mukhtar Ghaleb
1062	Evaluation of Artificial Neural Networks Performance Using Various Normalization Methods for Water Demand Forecasting109 Al-Batool Al-Ghamdi, Souad Kamel, Mashael Al-Khayyat
1065	Logistic Sine Map (LSM) Based Partial Image Encryption115 KIRAN, Parameshachari B D
1067	End-to-end optical character recognition for Bengali handwritten words121 Farisa Benta Safir, Abu Quwsar Ohi, M.F. Mridha, Muhammad Mostafa Monowar, Md. Abdul Hamid
1068	A Model-Driven Framework for Early Analysis of Kill Chain Attacks128 Syeda Samar Batool Shirazi, Muhammad Rashid, Farooque Azam, Yawar Rasheed, Muhammad Waseem Anwar
1069	Optimal Solution for Spectrum Sensing in Cognitive Radio Networks – Genetic Algorithm approach133 Khaja Fatima Kamal, Khaja Kamaluddin
1072	A multi-objective Gray Wolf algorithm for routing in IoT Collection Networks with real experiments139 Sihem Tlili, Sami Mnasri, Thierry Val
1073	Eye-Blink Detection System for Virtual Keyboard144 Afraa Z. Attiah, Enas F. Khairullah
1074	Understanding Responses to Phishing in Saudi Arabia via the Theory of Planned Behaviour150 Ahmed Abdullatif Alyahya, George R S Weir
1088	Predicting Myocardial Rupture after Acute Myocardial Infarction in Hospitalized Patients using Machine Learning156 Sana Al Azwari
1091	Extended User Preference Based Weighted Page Ranking Algorithm162 Huda Ali Alghamdi, Fahd Alhaidari
1092	Multi-Factor Authentication to Systems Login168 Bandar Omar Alsaleem, Abdullah I. Alshoshan
1096	Exploratory Data Analysis and Data Mining on Yelp Restaurant Review172

Eman Saeed Alamoudi, Sana Al Azwari

1097	Classify, Detect and Tell: Real-Time American Sign Language178 Zainy M. Malakan, Hezam A. Albaqami
1107	Tor Traffic Classification Based on Encrypted Payload Characteristics184 Pitpimon Choord, George Weir
1110	Smart Healthcare Framework for Asthma Attack Prediction and Prevention190 Eman Alharbi, Farrukh Nadeem, Asma Cherif
1114	Adenoid segmentation in X-ray images using U-Net196 Ali Abdullah Alshbishiri, Muath Abdulrahim Marghalani, Hassan Aqeel Khan, Rani Ghazi Ahmad, Mohammed Ali Alqarni, Muhammad Murtaza Khan
1117	Exploring relationship between COVID-19 cases and eating habits using data of London boroughs202 Abdulhadi Algbear, Mohammed Ali Alqarni, Muhammad Usman Ilyas, Muhammad Murtaza Khan
1118	A Novel Laboratory Experimental Platform Using LabVIEW and Multisim Environments207 Muhammad Yousuf Irfan Zia, Muhammad Rashid
1131	End-User Authentication Control in Cloud-based ERP Systems213 Nwanneka Eya, George Weir
1132	Arabic Sentiment Analysis of Eateries' Reviews: Qassim region Case study219 Leen Muteb Alharbi, Ali Mustafa Qamar
1133	A binary Sine Cosine-Modified Whale Optimization Algorithm for Feature Selection225 Marwa M. Eid, El-Sayed M. El-kenawy, Abdelhameed Ibrahim
1136	A Deep Learning based Sentiment Analysis on Bang-lish Disclosure231 Rabeya Basri, M.F. Mridha, Md. Abdul Hamid, Muhammad Mostafa Monowar
1140	Machine Learning Approaches for Load Balancing in Cloud Computing Services237 Dalia Abdulkareem Shafiq, Noor Zaman Jhanjhi, Azween Abdullah
1146	Comparing ML and DL Approaches to Diagnosis COVID-19 from CCGAN Augmented CTX Dataset245 Jehan Janbi ,Shaima Elnazer
1150	Performance Analysis of Dynamic Bijective S-Box Construction Algorithms251 Saleh Ibrahim
1154	Assessment Of Smart Metering System Routing Protocols In The Intelligent Grid255 Mohamed Hassan Abdel Hamied
1155	Modeling Class Diagram using NLP in Object Oriented Designing260 Nauman Bashir, Muhammad Bilal, Misbah Liaqat, Mohsen Marjani, Nadia Malik, Mohsin Ali
1156	Introducing Mobility Metrics in Trust-based Security of Routing Protocol for Internet of Things266 Syeda Mariam Muzammal, Raja Kumar Murugesan, NZ Jhanjhi
1159	Enhancing indoor wireless coverage through providing a new deployment plan for Picocell devices271

Abdullah Alhumaidi Alotaibi

1161	Towards the development of an information privacy protection awareness initiative for data subjects and organizations275 Hanifa Abdullah
1162	Machine Learning- based Predictive Model for Surgical Site Infections: A Framework282 Salha Al-Ahmari, Farrukh Nadeem
1167	Enhancement of Saudi License Plates Recognition System by Using Knowledge Transfer in ANNs288 Sameer Alsharif
1169	A Light-weight Watermarking-Based Framework on Dataset Using Deep Learning Algorithms293 Muhammad Tayyab, Mohsen Marjani, N.Z. Jhanji, Ibrahim Abaker Targio Hashem
1173	FoodieCal: A Convolutional Neural Network Based Food Detection and Calorie Estimation System299 Shahriar Ahmed Ayon, Chowdhury Zerif Mashrafi, Abir Bin Yousuf, Fahad Hossain, Muhammad Iqbal Hossain
1175	A Novel Region of Interest for Selective Color Image Encryption Technique based on New Combination between GLCM Texture Features305 Lahieb Mohammed Jawad
1178	A Review: Improvement of Segment Distance Ratio Method for Arabic Contour Data Approximation311 Ali Ukasha, Ali Alshanokie, Alwaled Alsharef and Saleh Abuazoum
1198	Automated Arrhythmia Diagnosis based on ECG Signal FilteringWavelet Transformation and Machine Learning319 Saeed Mian Qaisar, Fatmah Alkorbi
1200	Smart Grid Optimization by Implementing the Algorithm of Artificial Neural Network324 Zia Hameed, Naqash Raza, Zubair Ghafoor, Faiza Ahmad, Muhammad Rafay Khan Sial
1205	Developing a Performance-based Tool for Arabic Text Steganography331 Afra Ibrahim Alaqeel, Mohamed Saad Saleh
1209	Key-Based Enhancement of Data Encryption Standard For Text Security337 Omar Reyad, Hanaa M. Mansour, Mohamed Heshmat, Elnomery A. Zanaty
1210	Saudi Human Awareness Needs. A Survey in How Human Causes Errors and Mistakes Leads to Leak Confidential Data with Proposed Solutions in Saudi Arabia343 <i>Amal Hussain Alkhaiwani, Ghadah Abdullah Almalki</i>