

2024 Arab ICT Conference (AICTC 2024)

**Manama, Bahrain
27-28 February 2024**



**IEEE Catalog Number: CFP24S52-POD
ISBN: 979-8-3503-4209-3**

**Copyright © 2024 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:	CFP24S52-POD
ISBN (Print-On-Demand):	979-8-3503-4209-3
ISBN (Online):	979-8-3503-4208-6

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

Smart Weapon/Emotion Recognition System to Reduce Suicide Attempts	1
<i>Christel Al Hage, Mital Jebran, John Harb, Elio Aoun, Abdallah Kassem, Mustapha Hamad</i>	
Smart Attendance and Engagement Dashboard for Smart Education.....	6
<i>Aziman Abdullah, Pang Jieyu, Mazlina Abdul Majid</i>	
Computer Vision-Based Attendance System - A Review	11
<i>Wadima M. Alshamsi, Shamma H. Alghaithi, Taif A. Alkaabi, Salama R. Almheiri, Shayma K. Alshemeili, Yasir Hamid, Nedal Ababneh</i>	
Defining Thin Objects in Computer Vision.....	18
<i>Rabeea Jaffari, Syed Saad Ahmed, Manzoor Ahmed Hashmani, Syed Fahad Ahmed</i>	
Enhancing Collaborative Learning in CSCL Computer E-Learning: The Impact of a Feedback System on Student Engagement and Knowledge Exchange.....	25
<i>Mohammad Hallaymoun, Samer Shorman, Omer Awad Hag Hamid</i>	
Enhancing Cost Management with Building Information Modeling (BIM)	31
<i>Saraa N. K. Alasadi</i>	
Digital Transformation Towards Sustainability in Education: Overview on Metaverse System Adoption in E-Learning.....	37
<i>Janaki Bojiah, Mohanad Alfiras, Firas Mohammed Ibrahim, M. N. Mohammed, Salah Al-Zubaidi, K. R. Surendran</i>	
A Development of a Sentiment Analysis Model for the Bahraini Dialects.....	44
<i>Noor Khalifa, Hasan Kadhem</i>	
Pothole Severity Classification Using Structural Features Extracted from Segmented Images	52
<i>Ahmed Abul Hasanaath, Abdul Sami Mohammed, Lara Alotaibi, Maria Alabdulrahman, Abumuhammad Moinuddeen</i>	
Towards Efficient Motor Imagery EEG-Based BCI Systems Using DCNN	59
<i>Ali Al-Saegh, Shefa A. Dawwd, Jassim M. Abdul-Jabbar</i>	
Detecting Routing Attacks in WSN: A Novel Cartesian Product-Based Method.....	67
<i>Saad Salman Ahmed, Zainab Alansari, Mohammad Riyaz Belgaum</i>	
Toward an Efficient Credit Card Fraud Detection.....	73
<i>Aryam Alneyadi, Hanane Lamaazi, Mahra Alshamsi, Mariam Albaloushi, Mariam Alneyadi, Nasreddine Megrez</i>	
LCA Software Tools, CAD Tools and Engineering Design Processes: Challenges with Process Modelling for Sustainable Productions	79
<i>Omar Blibech</i>	
Risk Management for 5G-Enabled Internet of Things by Using Machine Learning: A Survey	87
<i>Aysha Alfaw, Wael Elmedany, Mhd Saeed Sharif</i>	
Digital Transformation in the Qatar Construction Industry for Sustainable Infrastructure: Drives and Barriers	95
<i>Nour Gharib, Chika Udeaja, Lucy Ogbenjuwa</i>	

Real Estate Predictive Analysis for the Kingdom of Bahrain Using Web Scraping and Machine Learning	101
<i>E. A. Alburshaid, Riyadh Ksantini</i>	
A New Approach to Design and Development of In-Pipe Inspection Robots	108
<i>M. N. Mohammed, H. S. S. Aljibori, Adnan N. Jameel Al-Tamimi, M. Alfiras, Fatema Al Jowder, Aysha Sharif, Salah Alani, Zuhair Nafea Alani, Sze Hui, Oday I. Abdullah</i>	
Discovery of Usage Pattern from E-Commerce Platform	113
<i>Mostafa El Tahawy, Elham Eskandarnia</i>	
Using Blockchain and Vazka Authentication for the Security of Smart Home Devices.....	121
<i>Wael Y. Rayes, Khouloud Samrouth, Nader Bakir</i>	
Intra-Slice Aggregated Defender - ISAD: Federated Learning Based Framework to Enhance 5G Intra-Slicing Security.....	126
<i>Nidal Baz, Rana Rahim</i>	
Optimization of 5G Radio Resources Provisioning Using Federated Deep Reinforcement Learning	134
<i>Kheir El Dine Baarini, Rana Rahim</i>	
Integration of Artificial Intelligence (AI) for Real-Time Analysis and Monitoring of a Ground Control Satellite Communication	140
<i>Youcef Benabdellah, Mohammed Amin Rabah, Zakarya Kourdi</i>	
Solution of IoT Security and Privacy Challenges: A Systematic Literature Review	145
<i>Jasim Alsafran, Wael Elmedany, Mhd Saeed Sharif</i>	
Unlocking the Potential of Brain-Computer Interfaces for Neurologically Disabled Individuals.....	155
<i>Tahani Alsaidi, Halima Alhosni, Nouf Alnakheili, Viswan Vimbi, Noushath Shaffi, Mufti Mahmud, Faizal Hajamohideen, Karthikeyan Subramanian</i>	
Smart Control and Monitoring System Based on IOTA Blockchain and LabVIEW	163
<i>Tariq Saadeddin, Abdallah Al-Zoubi</i>	
A Systematic Literature Review on Artificial Intelligence Applications for Internet of Things Security.....	169
<i>Bashayer Hussain, Wael Elmedany</i>	
Design and Analysis of an Omnidirectional Multi-Range Circularly Polarized Printed Patch Antenna	177
<i>Harmouch A. H., Harmouch A. M</i>	
Comparison on Difference Deep Learning Models for Building Damage Assessment Using xBD Dataset.....	181
<i>Reiko Benedict, Reinhart Brilian Winartio, Muhammad Faisal Adinata, Andries, Edy Irwansyah</i>	
Three-Dimensional (3D) Building Object Modelling in Monas and Its Surroundings Area, Jakarta Indonesia	187
<i>Leonardo Harlim, Alvin Christ Budi Agung, Mikail Crito Husada, Andries, Edy Irvansyah</i>	
WasteLess: A Cross Platform Mobile Application to Tackle Food Wastage.....	193
<i>Hamza Karani, Ganesh Bhutkar, Juwairia Sayyed, Fatima Khatib, Abu Ansari</i>	
Impact of E-Business and ICT on the Competitiveness of SMEs in International Market.....	199
<i>Atef Harb, Mony Trad, John Harb, Abdallah Kassem</i>	

Acoustic Performance of Building as a Tool to Save Economic Resources.....	204
<i>Wael Abdelhameed, Mohamed Alkoheji, Safa Awawdeh</i>	
PV Panels Models Investigation for the GCC and European Regions Using ICT	209
<i>Isa S. Qamber</i>	
Toward Sustainable Smart Cities in Bahrain: A Study on Power Generation Using Speed Breakers for Enhanced Energy Efficiency.....	214
<i>M. N. Mohammed, H. S. S. Aljibori, Adnan N. Jameel Al-Tamimi, M. Alfiras, Ali Hamza, Komail Elyas, Zuhair Nafea Alani, Oday I. Abdullah, Rabab Alayham Abbas Helmi, Ahmad Sukri Ahmad</i>	
Simulation Study on Heat Transfer Coefficient of Various Diameter and Material Rods as Heat Sinks for Renewable Energy Systems	220
<i>Ali Hussein Abdulkarim, Ahmed E. Ahmed, Hussein Al-Bayaty, Ahmed Mohammed Shakir, Hussein H. Hamed, Ayad Kakei, Mustafa Wahby Kanbar Jaber</i>	
Tree Counting with Deep Forest Algorithm for Kulon Progo District in Yogyakarta, Indonesia Using Pleiades Satellite Imagery.....	227
<i>David Wijaya, Ibrahim Seto Aditama, Stanley Armando Austen, Calvin Surya Widjaja, Bakti Amirul Jabar, Edy Irwansyah</i>	
Toward Sustainable Smart Cities in Bahrain: A Novel IoT-Based Smart School Bus Solution for Enhanced Children's Transportation Safety and Smart City Integration	232
<i>M. N. Mohammed, H. S. S. Aljibori, Adnan N. Jameel Al-Tamimi, M. Alfiras, Vigneswaren Subramanian, Aysha Sharif, Sherifa Al Jowder, Zuhair Nafea Alani, Oday I. Abdullah, Ahmad Sukri Ahmad</i>	
Bahrain's Urban Transformation: A Comprehensive Review of Smart City Development, Benefits, and Future Prospects.....	237
<i>M. N. Mohammed, H. S. S. Aljibori, Adnan N. Jameel Al-Tamimi, M. Alfiras, Zuhair Nafea Alani, Maryam Qusay, Nagham Khaled, M. A. Abdelgnei, Oday I. Abdullah</i>	
Enhancing School Safety and Management: A Face Recognition-IoT Based System for Attendance and Behavior Detection	244
<i>Asma Shayea, Mohab Mangoud</i>	

Author Index