

2024 International Conference on Frontiers of Information Technology (FIT 2024)

**Islamabad, Pakistan
9-10 December 2024**



**IEEE Catalog Number: CFP2474R-POD
ISBN: 979-8-3315-1051-0**

**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:	CFP2474R-POD
ISBN (Print-On-Demand):	979-8-3315-1051-0
ISBN (Online):	979-8-3315-1050-3
ISSN:	2334-3141

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

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

Optimizing Microgrid Efficiency Through Advanced Data Analytics for Enhanced Load Management	1
<i>Khuram Shahzad, Sohail Iqbal</i>	
Blockchain Enabled Secure and Efficient DDoS Attack Detection Mechanisms in Connected Internet of Vehicles Using Federated Learning	7
<i>Muhammad Dilshad, Adeel Anjum, Madiha Haider Syed</i>	
WHYe: A UAV Multispectral and In-Field RGB Imaging-Based Framework for Field Scale Wheat Yield Estimation	13
<i>Nisar Ali, Ahmed Mohammed, Abdul Bais, Jatinder S. Sangha</i>	
Fine-Tuning Generative Pre-Trained Transformers for Clinical Dialogue Summarization.....	19
<i>Isabel Ronan, Sabin Tabirca</i>	
Advanced Deep Learning Driven Geospatial Analysis for GLOF Risk Reduction: A Case Study from Pakistan's Northern Mountain Ranges	25
<i>Nauman Ali Murad, Abinta Mehmood Mir, Nazia Shahzadi</i>	
Enhancing 6G Network Security Through Cognitive Radio and Cluster-Assisted Downlink Hybrid Multiple Access	31
<i>Umar Ghafoor, Adil Masood Siddiqui</i>	
Enhanced Classification of Alzheimer's Disease Using Deep Learning and Machine Learning Models with MRI Scans	37
<i>Amna Salahudin, Eeman Qadeer, Ayesha Ahmed, Labiba Gillani Fahad</i>	
SimPark: An Agent-Based Vehicle Parking Framework for Smart Cities	43
<i>Abdullah Saeed Ahmad Tahir, Hira Toheed Butt, Junaid Sajid, Asad Waqar Malik</i>	
Cross-Platform Integration in Legacy Mobile Apps for Code Reuse and Reduced Development Efforts.....	49
<i>Hannan Arif, Hafiz Syed Muhammad Bilal, Fahad Ahmed Satti, Syed Imran Ali, Muhammad Moazam Fraz</i>	
Advance Networking Paradigms: Integrating Artificial Intelligence into Software-Defined Wireless Networks	55
<i>Sohaib Manzoor, Ali Raza, Jerzy Domzal</i>	
An Empirical Study to Investigate the Impact of Sustainable Practices in Agile Software Development	61
<i>Muhammad Taha Sohail, Shuja Mughal, Ume Abiha, Assad Abbas, Mazhar Ali, Samee U. Khan</i>	
A Collaborative CNN-LSTM Framework with Attention Mechanism for Aspect-Based Sentiment Analysis.....	67
<i>Israr Ur Rehman, Zulfiqar Ali, Zahoor Jan</i>	
Demand Response Management of Grid-Connected Nano-Grid Using Data Driven Algorithms.....	73
<i>Ruqayya Manzoor, Shakil R Sheikh, Muhammad Faisal</i>	

Forecasting Water Consumption Trends in Palestine: A Hybrid Time Series Approach	79
<i>Hafiz Umer Draz, Muhammad Kamran Khan, Muhammad Hamza Farooq, Muhammad Usman Ghani</i>	
Novel Design of a Wideband Low-Noise Amplifier with Adjustable Gain for Underwater Applications.....	85
<i>Saqib Ali, Khurram Shehzad, Umar Hamid, Khurram Ali, Junaid Arshad, Ahmed Nazir</i>	
Drone-Based Activity Recognition Via Dynamic Features and Deep Learning.....	91
<i>Yawar Abbas, Ahmad Jalal</i>	
Small Data, Big Impact: A Multi-Locale Bone Fracture Detection on an Extremely Limited Dataset Via Crack-Informed YOLOv9 Variants	97
<i>Ammar Ahmed, Abdul Manaf, Ali Shariq Imran, Zenun Kastrati, Sher Muhammad Daudpota</i>	
Image-Based Criticality-Aware Fire Detection	103
<i>Alina Arshad, Jawwad Ahmed Shamsi, Muhammad Burhan Khan, Narmeen Zakaria Bawany</i>	
3D-SViT-UNET: An Effective Framework for Enhanced Brain Glioma Segmentation.....	109
<i>Sadam Hussain, Usman Sadiq, Labiba Fahad, Ahmad Raza Shahid</i>	
An Integrated IOT Based System for Dengue Vector Surveillance and Control	115
<i>Ayman Aslam, Salman Atif, Hira Zafar, Rao Taha, Danial Tariq</i>	
Satellite Land Cover Monitoring Development and Assessment of Plantation Activities in Khyber Pakhtunkhwa, Pakistan During 2007-2024	121
<i>Ibrar Ul Hassan Akhtar, Said Rahman, Shafiq Khan</i>	
Localization in Wireless Communications Using Deep Learning with Feature Reduction Techniques.....	127
<i>Shehzad Ahmad, Alam Zaib, Irfan Ullah, Shahid Khattak</i>	
Drone-Based Human Surveillance Using YOLOv5 and Multi-Features.....	132
<i>Laiba Zahoor, Ahmad Jalal</i>	
DFN-SCNC: Detecting Fake News Based on Social Context and News Content: A Hybrid Approach Using BERT and Bi-GRU	138
<i>Sehrash Safdar, Muhammad Wasim</i>	
Empowering Smart Vehicles: Giving Authority with LLM and SSI	144
<i>Ahsan Altaf, Adeel Anjum</i>	
CMBT Net: A Deep Learning Based Approach for Automatic Feature Extraction and Classification of Electrocardiograms (ECGs)	150
<i>Tayyib Ul Hassan, Hasan Fakhar</i>	
AI-Based Speed Adaptive Fault Diagnosis in Induction Motors Using Vibration Signal	156
<i>Muhammad Atif, Faisal Khan, Shoaib Azmat, Amina Bibi</i>	
LTI Model Order Reduction Using Wild Horse Optimization Algorithm	162
<i>Muhammad Ali Mughal, Muhammad Hassib Ullah Khan</i>	
Enhancing Access Control, Authorization, and Accountability in Cyber-Physical Systems Using Machine Learning.....	168
<i>Isaac Adom, Muhammad Awais, Mohsin Raza, Umar Khan, Omer Chughtai</i>	

Analysis of Chaotic Sequences Based Radar ECCM Scheme Against DRFM Repeat Jammers	174
<i>Hassan Yusuf, Arooj Khan, Tariq Ullah, Muhammad Rehan Khalid, Fayyaz Ahmad Siddiqui</i>	
NLP Search Engine for the Legal Ordinance and Cases	180
<i>Muhammad Asfand-E-Yar, Roheen, Farrah, Muhammad Abdullah, Burhan Ud Din Abbasi, Syed Hassan Tanvir</i>	
Improving Transfer Learning and Domain Adaptation in Smart Homes: The Role of Dynamic Domain Adaptation Layer	186
<i>Hasina Attaullah, Anum Kiani, Thorsten Jungeblut</i>	
Social Media Data: Challenges, Mitigation Strategies, and Opportunities for Disaster Management	192
<i>Samia Abid, Bhupesh Kumar Mishra, Usama Younis, Dhavalkumar Thakker, Nishikant Mishra</i>	
Exploring Data-Driven Real Estate Price Prediction in a Developing Country: The Case of Pakistan.....	198
<i>Touseef Tahir, Ghulam Fatima</i>	
Trans-GAN: A Deep Learning Paradigm for Multi-Type Anomaly Detection in Network Traffic	203
<i>Muhammad Zeeshan, Maasooma</i>	
Rainwater Harvesting for Urban Flood Mitigation: A BIM-GIS Integrated Approach	209
<i>Chaudhry Hamza Haidar, Ahsen Maqsoom, Sandeerah Choudhary, Muhammad Shahzad, Muhammad Hassan Khalid</i>	
Exploring the Impact of Software Security Best Practices	215
<i>Muhammad Hasib Aslam, Ali Afzal Malik</i>	
Side-Scan Sonar Bottom Line Detection Based on Local Statistical Properties and Multiscale Morphological Algorithms	221
<i>Jingyao Zhang, Xuerong Cui, Juan Li</i>	
Effective Diabetes Prediction: Integrating Ensemble Learning with LIME for Robust Results	227
<i>Syeda Aqsa Habib Gilani, Madiha Haider Syed, Adeel Anjum</i>	
Comparative Analysis of Machine Learning-Driven and Traditional Method for User Requirement Analysis in Software Development	233
<i>Jamshaid Basit, Tahir Ehsan, Danish Hanif, Farhan Nawaz Cheema, Muhammad Sohail, Muhammad Umair</i>	
Personality Prediction Using Multiple Textual Datasets and Deep Learning Models	239
<i>Faiza Arshad, Arslan Shaukat, Seemab Latif</i>	
Automatic Classification and Detection of Insect Pests Using Deep Transfer Learning.....	245
<i>Asaf Raza, Javed Ali Khan, Ijaz Ahmad, Muhammad Wasif Nisar</i>	
Experimental Analysis of Deep Learning Techniques for Leukemia Cancer Classification Using Micro Gene Array Dataset.....	251
<i>Syyeda Shifa Fatima, Sidra Sultana, Nazia Perwaiz, Tahira Anwar Lashari, Farzana Jabeen</i>	
Intelligent Multimodal Human Behavior Recognition Using Inertial and Video Sensors.....	257
<i>Iqra Aijaz Abro, Ahmad Jalal</i>	
Handwritten Hindko Text Recognition Using Deep Neural Network	263
<i>Tanveer Ahmed, Sohail Khan, Khalil Khan</i>	

Improving Software Effort Estimation by Adjusting for Over-Commitment	269
<i>Rehan Aziz, Valeena Afzal, Zeeshan Ali Rana, S. A. M. Gilani</i>	
Credit Card Fraud Detection Using Deep Neural Network with Shapley Additive Explanations.....	275
<i>Chidinma Faith Onyeoma, Husnain Rafiq, Daniel Jeremiah, Vinh Thong Ta, Muhammad Usman</i>	
Resolving Community Parking Issues: An IoT Enabled Statistical and Deep Learning Approach for Enhanced Urban Parking Management	281
<i>Tayyib Ul Hassan, Aamina Binte Khurram, Sarah Iqbal, Asad Waqar Malik, Muhammad Moazam Fraz</i>	
Quantum Enhanced Federated Learning with Differential Privacy.....	287
<i>Shoaib Ullah, Madam Hussain Shah, Adeel Anjum</i>	
Powering the Wireless Wave: Design Optimization by GaN HEMT Fusion and Quarter-Wave Matching.....	293
<i>M. Saad Ikram, Mohsin Khalil, M. Farhan Shahid, M. Waqas Bashir</i>	
Merging UAV-Derived Metrics with Crop Physiology to Estimate Sunflower Yield.....	299
<i>Usama Athar, Muhammad Ali, Zuhair Zafar, Haris Khurshid, Karsten Berns, Muhammad Moazam Fraz</i>	
Flood Susceptibility Mapping in District Jhang Using Remote Sensing and Advanced Machine Learning Techniques.....	305
<i>Adnan Abbas Shah, Muhammad Farooq Iqbal</i>	
Transforming Heart Disease Detection with BERT: Novel Architectures and Fine-Tuning Techniques.....	311
<i>Muhammad Usman Javeed, Muhammad Shafqat Ali, Asma Iqbal, Muhammad Azhar, Shafqat Maria Aslam, Ifra Shabbir</i>	
Process Mining Influence on Requirement Elicitation for Machine Learning	317
<i>Lin Chin-Ying, Jeewanie Jayasinghe Arachchige, Faiza A. Bukhsh</i>	
A Robust Anti-Jamming Method to Counter Shift Frequency Based Jamming False Targets.....	323
<i>Yasir Iqbal, Muhammad Rehan Khalid, Fayyaz Ahmad Siddiqui</i>	
Cost Effective Drone Detection with Deep Neural Networks for Day and Night Surveillance	329
<i>Muhammad Bilal, Sadaf Rehmat, Naeem Akhtar, Hafsa Gulzar</i>	
U-NET Based CT Image Reconstruction and Segmentation Using Deep Learning Layer Structure.....	335
<i>Altamash Ahmad Abbasi, Ashfaq Hussain Farooqi</i>	
AI-Based Biogas Fermentation Process Prediction Based on a Low-Cost Online Sensor System	341
<i>Carsten Wolff, Shazia Nadir Ali</i>	
An Optimization Approach Towards Optimal Sizing of Stand-Alone Microgrid with Renewable Energy Sources and Battery Management System	347
<i>Muhammad Arfa, Muhammad Bilal, Fazal Muhammad</i>	
Hate Speech Detection in Code-Mixed Datasets Using Pretrained Embeddings and Transformers	352
<i>Tooba Sohail, Atiqa Aiman, Ehtesham Hashmi, Ali Shariq Imran, Sher Muhammad Daudpota, Sule Yildirim Yayilgan</i>	
Medical Visual Question Answering Using Contrastive Language-Image Pre-Training	358
<i>Zahra Khalid Butt, Asma Khalid Butt, Tehseen Zia, Mutahra Khalid Butt</i>	

Design and Analysis of IoT-Based Control Panel for Switching Energy Meters to Reduce Power Tariff.....	364
<i>Syed Toqeer Haider, Saifullah Khan, Uzair Sharif Mughal, Jawad Saleem, Abdul Majid, Khizer Rafique</i>	
Employing Open Geospatial Data and Techniques in Achieving Effective Flood Awareness and Decision Support	370
<i>Kamran Aslam, Salman Atif, Javed Iqbal, Ali Tahir</i>	
Real-Time Deep Learning for Lung Disease Classification: A Step Forward	376
<i>Muhammad Hamza Nawaz, Junaid Ahmad, Muhammad Haroon, Muhammad Haseeb, Ahmad Salman</i>	
Archaeological Remote Sensing of Lahore Fort - Pakistan Using Multi-Temporal Drone, Thermal and RADAR Imagery	382
<i>Ridda Tanweer, Muhammad Imran Shahzad</i>	
Automated Gait Event Detection in Sports: A Novel Approach Using Ant Colony and XGBoost	388
<i>Wasim Wahid, Muhammad Hanzla, Hameed Ur Rahman, Ahmad Jalal</i>	
CAP - A Context-Aware Framework for Detection and Analysis of Packed Malware	394
<i>Muhammad Nouman Ahmed, Zafar Iqbal, Hassan Mahmood, Moiz Abdullah</i>	
Desynchronization Attack on URAP: Ultralightweight RFID Authentication Protocol.....	400
<i>Umar Mujahid, Wardah Nisar, Binh Tran, Madiha Khalid, Muhammad Najam-Ul-Islam</i>	
Empirical Insights into Product Security Challenges and Practices in Software Development	405
<i>Saima Rafti, Muhammad Azeem Akbar, Arif Ali Khan</i>	
Advanced Collision Warning and Management Strategies for Brake Failure in Commercial Vehicles	411
<i>Amil Roohani Dar, Faisal Riaz, Sohail Razzaq, Munam Ali Shah, Sheeba Razzaq</i>	
Simulating Blue Light Therapy for Enhanced Wound Healing Using COMSOL Multiphysics	417
<i>Minahil Kamal, Aleena Kamal, Faisal Amin, Zainab Asif, Mahnoor Waheed, Mashal Fatima</i>	
Enhancing Vehicle Routing with Time Windows: A Machine Learning-Driven Ant Colony Optimization Approach	423
<i>Khizer Tariq, Ali Awais Safdar, Mubashir Zaman, Syed Usman Ali Shah</i>	
MANet: A Deep Learning Framework for Multi-Cancer Microarray Analysis, Classification, and Visualization.....	429
<i>Haseeb Younis, Muhammad Azeem, Isabel Ronan, Rosane Minghim</i>	
Design and Development of RISC-V Based Virtual Cluster Using QEMU Simulator	435
<i>Tassadaq Hussain, Muhammad Wasay Tahir, Abdul Qadeer, Eduard Ayguade</i>	
Aerial Vehicle Classification Via YOLOv8 and Deep Learning for Traffic Surveillance	441
<i>Ghulam Mujtaba, Muhammad Ovais Yusuf, Ahmad Jalal</i>	
Analyzing Seawater Inundation Extent During the Extremely Severe Cyclone Biparjoy Through Scenario Modeling Approach	447
<i>Tahreem Zafar, Ibrahim Zia, Bassam Nasir, Rizwan Akhter</i>	
Blind Spreading Code Classification and Parameters Estimation for Non-Cooperative DSSS Interception.....	453
<i>Muhammad Rehan Khalid, Habibullah Soomro, Muhammad Shoaib Iqbal, Fayyaz Ahmad Siddiqui</i>	

Wheat Fusarium Head Blight Disease Severity Estimation Using UAS Multispectral Imagery and Machine Learning.....	459
<i>Ubaid Ur Rehman Janjua, Maitiniyazi Maimaitijiang, Bruce Millett, Dalitso Yabwalo, Kamila Dilmurat, Mohammad Maruf Billah, Shahid Nawaz Khan, Madalyn Shires, Sunish K. Sehgal, Shaukat Ali</i>	
Characterizing Forest Cover Dynamics in the Khyber Pakhtunkhwa Region Using Remote Sensing.....	465
<i>Kashif Khan, Muhammad Fahim Khokar, Shahid Nawaz Khan, Junaid Aziz Khan</i>	
Software Defect Prediction Using Stacking Ensemble Combined with Oversampling Technique	471
<i>Tufail Muhammad, Mustajab Hussain, Muhammad Imran</i>	
Intelligent Priority-Driven Resource Allocation for Efficient Management in Heterogeneous Networks	477
<i>Muhammad Irfan Mushtaq, Omer Chughtai, Muhammad Naeem</i>	

Author Index