

# **2022 International Conference on Emerging Trends in Electrical, Control, and Telecommunication Engineering (ETECTE 2022)**

**Lahore, Pakistan  
2 – 4 December 2022**



**IEEE Catalog Number: CFP22CX8-POD  
ISBN: 978-1-6654-9243-0**

**Copyright © 2022 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:	CFP22CX8-POD
ISBN (Print-On-Demand):	978-1-6654-9243-0
ISBN (Online):	978-1-6654-9242-3

**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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# TABLE OF CONTENTS

<b>Design &amp; Development of a Prototype Compressed Air Energy Storage Mechanism.....</b>	<b>16</b>
<i>Ahsan Tanveer; Farooq Khan; Muhammad Usman; Mohammad Abdul Aziz Irfan</i>	
<b>Beetle Bee Algorithm Applied to Trajectory Tracking Control of OMNI Manipulator .....</b>	<b>22</b>
<i>Xu Zhang; Jason Gu; Muhammad Usman Asad; Umar Farooq; Ghulam Abbas</i>	
<b>Robust Propulsion Control for a Class of X-rudder Autonomous Underwater Vehicle .....</b>	<b>27</b>
<i>Muhammad Mudassir; Umair Kamal; Hasnain Aslam; Azib Gulzar</i>	
<b>Edge Computing and Computational Task Offloading Analysis - A Review Study .....</b>	<b>33</b>
<i>Tanzeel Zaidi; Samia Aziz; Muhammad Usman; Awais Azam; Adeel Ashraf</i>	
<b>Leveraging training strategies of artificial neural network for classification of multiday electromyography signals.....</b>	<b>40</b>
<i>Muhammad Akmal; Sohail Khalid; Mehwish Moiz; Muhammad Jamshed Abbass; Muhammad Farrukh Qureshi; Zohaib Mushtaq</i>	
<b>Electromyography and Speech Controlled Prototype Robotic Car using CNN Based Classifier for EMG.....</b>	<b>45</b>
<i>Zahid Ul Hassan; Nouman Bashir; Afaq Iltaf</i>	
<b>Mitigating flight performance errors in UAVs through hybrid MRAC controller.....</b>	<b>50</b>
<i>Nimra Afzaal; Aeshna Tanveer; Sadia Murawwat; Sabaina Aleem; Fatima Syeda</i>	
<b>A Systematic Review on Control Strategies of Three Stage Generator for More Electric Aircraft Power System .....</b>	<b>58</b>
<i>Muhammad Arif Anwar; Li Wang; Khurram Karim Qureshi; Ghulam Abbas; Umar Farooq</i>	
<b>Classification of rice leaves diseases by deep CNN-transfer learning approach for improved rice agriculture .....</b>	<b>63</b>
<i>Mehwish Moiz; Muhammad Akmal; Usman Javed; Muhammad Shakeel Ishtiaq</i>	
<b>Modeling and Parametric investigation of vibration energy harvesting using bimorph piezoelectric beam with a tip mass .....</b>	<b>69</b>
<i>Salman Khan; Muhammad Sohail Malik; S. Mustaq Ahmad; Massab Junaid; Sadia Bakhtiar</i>	
<b>Two-Stage Hybrid-Filtering Based Fault Detection &amp; Classification method for Active Distribution Networks .....</b>	<b>75</b>
<i>Faisal Mumtaz; Haseeb Hassan Khan; Muhammad Usman Haider; Muhammad Bin Younas; Muhammad Yasin Mohsin; Muhammad Zeeshan</i>	
<b>Simulation Analysis of Solar Thermal Water Heating System for Climate of Lahore .....</b>	<b>81</b>
<i>Muhammad Umer; Ayaz Akbar; Saad Dilshad; Naeem Abas</i>	

<b>An Inverter-Fed Cockcroft-Walton Multiplier Based High Voltage DC Source for Tokamak .....</b>	<b>87</b>
<i>Naseer Ahmed; Noman Khan; Tanveer Abbas</i>	
<b>Robust Method of Lithium Ion Coin Half-Cell Fabrication.....</b>	<b>93</b>
<i>Muhammad Sufyan Arshad; Jawad Arif; Zubair Rehman</i>	
<b>Modelling and Optimal Control of Human Voluntary Motion in 3D for Bipedal.....</b>	<b>99</b>
<i>Badar Ali; Asif Mahmood Mughal</i>	
<b>Classification of White Blood Cells Subtype Using MCDCNN .....</b>	<b>106</b>
<i>Muhammad Sufyan Arshad; Jawad Arif</i>	
<b>HMSIW Miniaturized Bandpass Filter Loaded with Two Elliptic Complementary Split-Ring Resonators for S-Band Applications.....</b>	<b>112</b>
<i>Hichem Boubakar; Mehadjji Abri; Ayesha Akram; Mohamed Benaissa; Sarosh Ahmad</i>	
<b>The Role of Activation Function in Neural NER for a Large Semantically Annotated Corpus.....</b>	<b>116</b>
<i>Muhammad Saad Amin; Luca Anselma; Alessandro Mazzei</i>	
<b>Single Point Positioning using BeiDou BDS-3 Constellation .....</b>	<b>122</b>
<i>Talha Yamin Satti; Muhammad Shujjah; Salma Zainab Farooq</i>	
<b>Functional Link NN based Adaptive Fuzzy Control for Nonlinear Dynamic Systems.....</b>	<b>126</b>
<i>Muhammad Tahir Abbas; Rabiah Badar</i>	
<b>The FE Approach for Data Cleaning of Phase Measurement Units .....</b>	<b>132</b>
<i>Muhammad Zain Yousaf; Muhammad Ahmad Khan; Muhammad Faizan Tahir; Chen Zhichu; Fazal Badshah; Saqib Khalid</i>	
<b>Machine Learning for Area-Wide Monitoring of Surface Level Concentration of NO<sub>2</sub> Using Remote Sensing Data .....</b>	<b>138</b>
<i>Ehtasham Naseer; Abdul Basit; Muhammad Khurram Bhatti; Muhammad Adnan Siddique</i>	
<b>Autonomous Vehicle Health Monitoring Based on Cloud-Fog Computing.....</b>	<b>144</b>
<i>Nida Jabeen; Ashfaq Niaz; Runfang Hao; Muhammad Usman Shoukat; Fahim Niaz; Mehran Arshad Khan</i>	
<b>Propagation Channel Characterization of 28 GHz and 36 GHz Millimeter-Waves for 5G Cellular Networks .....</b>	<b>150</b>
<i>Saima Zafar; Sheraz Saleem</i>	
<b>Cyberbullying Detection in Urdu Language using Machine Learning .....</b>	<b>157</b>
<i>Sara Khan; Amna Qureshi</i>	
<b>A Secure BlockChain framework for IoT Healthcare. ....</b>	<b>163</b>
<i>Sameen Fatima; Muhammad Aun; Dr. Shafique Hussain; Badar Ul Din; Waseem Sajid; Nimra Shehzadi; Rimsha Jameel</i>	
<b>Data Security Model in Cloud Computing Environment .....</b>	<b>169</b>

<i>Sameen Fatima; Muhamma Yasir Saleem; Dr. Shafique Hussain; Badar Ul Din; Waseem Sajid; Nimra Shehzadi</i>	
<b>An Outlook of Wind Energy Technology: Prospects and Challenges for Pakistan .....</b>	<b>175</b>
<i>Saqib Khalid; Haleema Ushaq; Hadia Ushaq; Kashif Bashir; Muhammad Arslan Shahid</i>	
<b>Energy Conservation of Three-Phase Induction Motors Through IoT-Enabled Intelligent Operation Management System .....</b>	<b>181</b>
<i>Abdullah Sabir; Fahad Ilyas; Dr.Tauseef Tauqeer; Muhammad Sohaib</i>	
<b>State of the Art Optimal Design of an Interior PM Synchronous Motor for EV Applications .....</b>	<b>187</b>
<i>Muhammad Usman Sardar; Dou Manfeng; Umar Saleem; Mannan Hassan; Muhammad Kashif Nawaz</i>	
<b>Wavelet NeuroFuzzy based STATCOM Control .....</b>	<b>193</b>
<i>Farman Ullah Jan; Rabiah Badar</i>	
<b>Outliers Detection and Repairing Technique for Measurement Data in the Distribution System .....</b>	<b>199</b>
<i>Muhammad Ahmad Khan; Muhammad Zain Yousaf; Muhammad Faizan Tahir; Abdullah Qadoos; Mazhar Ali; Ahmad Raza</i>	
<b>Cardiovascular Disease Detection Using Multiple Machine Learning Algorithms and their Performance Analysis .....</b>	<b>205</b>
<i>Zainab Ali; Noman Naseer; Hammad Nazeer</i>	
<b>A simulation-based parametric study for determining the relation between geometric parameters of a vertical helical coil with external heat transfer coefficient .....</b>	<b>212</b>
<i>Saqib Ayuob; Muhammad Qaiser Bashir; Mariam Mahmood; Jamsheed Sajid; Tehreem Asif</i>	
<b>Analysis of COVID-19 effects on Wellbeing - Study of Reddit posts using Natural Language Processing techniques .....</b>	<b>218</b>
<i>Hassam Abro; Zafi Shah; Haseeb Abbasi</i>	
<b>Embedded Hash Codes for Image Similarity Detection and Tamper Proofing .....</b>	<b>225</b>
<i>Sajid Nazir; Mohammad Kaleem</i>	
<b>Investigation of Synchronous Reluctance Machines for Feed Drive Axes in Machine Tools .....</b>	<b>230</b>
<i>Tiandong Xi; Sebastian Kehne; Marcel Fey; Christian Brecher</i>	
<b>A Study on the Design and Analysis of a Bidirectional IPT System for EV wireless charging by Using Switch-Controlled Capacitor .....</b>	<b>236</b>
<i>Tahir Hafeez; Muhammad Numan; Akif Zia; Hammad Ali Qureshi; Hasaan Farooq</i>	
<b>5th order Modeling, Control and Steady-State Validation of Wind Turbine Based on DFIG .....</b>	<b>242</b>
<i>Muhammad Uzair Khalid; Hassan Abdullah Khalid; Afzaal Khan; Hasaan Farooq; Muhammad Muzammil Farooqi</i>	

<b>Survival Rate Prediction of Blood Cancer (Leukemia) Patients Using Machine Learning Algorithms .....</b>	<b>248</b>
<i>Zarish; Bilal Wajid; Umar Rashid; Sajida Zahid; Faria Anwar; Fahim Gohar Awan; Abdul Rauf Anwar; Imran Wajid</i>	
<b>Energy Consumed Involvement for Circuit-Aware Cognitive Nodes in A Green Powered Cognitive Scheduler .....</b>	<b>252</b>
<i>Junaid Imtiaz; Talha Shakil; Arslan Ansari</i>	
<b>A Scholarly Review of Methods for Optimizing Interior Permanent Magnet Synchronous Motors Used in EVs .....</b>	<b>256</b>
<i>Muhammad Usman Sardar; Dou Manfeng; Umar Saleem; Muhammad Kashif Nawaz; Mannan Hassan</i>	
<b>Whispering gallery mode resonators: An alternate platform for Ti:sapphire lasers and amplifiers .....</b>	<b>262</b>
<i>Farhan Azeem; Luke Trainor; Ang Gao; Maya Isarov; Dmitry Strelakov; Harald Schwefel</i>	
<b>Cognitive Improvement Estimation using EEG Imaging after tDCS.....</b>	<b>268</b>
<i>Mudassar Ayub; Kalim Ullah; Dr Muhammad Jawad Khan; Hasaan Farooq; Afzaal Khan</i>	
<b>Performance Analysis of Dual Axis Solar Tracking System Actuated Through Serial Manipulators .....</b>	<b>274</b>
<i>Syed Saad Farooq; Junaid Attique; Syed Amjad Ahmad; Muhammad Umer Farooq; Mumtaz Ahmad Qaisrani</i>	
<b>Driven coherence controlled atomic tunneling through high-quality cavities .....</b>	<b>280</b>
<i>Fazal Badshah; Zeyun Shi; Jin Xie; Muhammad Zain Yousaf; Qing He; Haiyang Zhang; Rahmatullah; Muqaddar Abbas</i>	
<b>A Portable Real Time Health Inspection system for Cotton and Potato Crop using Drone .....</b>	<b>286</b>
<i>Saman Khan; Nimra Latif; Huzafa Adnan; Ikramullah Khosa</i>	
<b>A Secure Framework for IoT Healthcare Data using Hybrid Encryption. ....</b>	<b>291</b>
<i>Sameen Fatima; Dr Shafiq Hussain; Nimra Shehzadi; Badar Ul Din; Waseem Sajid; Yasir Saleem; Muhammad Aun</i>	
<b>Estimation of Weibull Distribution Parameters by Analytical Methods for the Wind Speed of Jhimpir, Pakistan – A Comparative Assessment.....</b>	<b>298</b>
<i>Ghulam Abbas; Jason Gu; M. Usman Asad; Valentina Emilia Balas; Umar Farooq; Irfan A. Khan</i>	
<b>Sensitivity Analysis of Grid-Connected Single-Phase Photovoltaic Inverters to Fast Voltage Sag Disturbance .....</b>	<b>303</b>
<i>Awais Ahmad; Hossein Dehghani Tafti; Georgios Konstantinou; Branislav Hredzak; John Fletcher</i>	
<b>Trustworthy Communication Channel for the IoT Sensor Nodes Using Reinforcement Learning.....</b>	<b>309</b>
<i>Shakir Zaman; Dr. Muhammad Munwar Iqbal; Haseeb Tauqeer; Mohsin Shahzad; Ghulam Akbar</i>	
<b>Real-Time Detection, Recognition, and Surveillance using Drones .....</b>	<b>315</b>

<i>Ayesha Mariam; Memoona Mushtaq; Munwar Iqbal</i>	
<b>Parametric Estimation and Optimization of Automatic Drip Irrigation Control System using Fuzzy Logic.....</b>	<b>320</b>
<i>Sikandar Ali</i>	
<b>EEG-based Engagement Index for Video Game Players .....</b>	<b>326</b>
<i>Ghulam Ruqeyya; Tehmina Hafeez; Sanay Muhammad Umar Saeed; Aleeza Ishwal</i>	
<b>Differential Privacy Made Easy.....</b>	<b>332</b>
<i>Muhammad Aitsam</i>	
<b>Text Document Classification Using Deep Learning Techniques .....</b>	<b>339</b>
<i>Safia Rehman; Dr. Syed Aun Irtaza; Marriam Nawaz; Hareem Kibriya</i>	
<b>Author Index</b>	