

# **2020 International Symposium on Recent Advances in Electrical Engineering & Computer Sciences (RAEE & CS 2020)**

**Islamabad, Pakistan  
20 – 22 October 2020**



**IEEE Catalog Number: CFP20X96-POD  
ISBN: 978-1-6654-1546-0**

**Copyright © 2020 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:	CFP20X96-POD
ISBN (Print-On-Demand):	978-1-6654-1546-0
ISBN (Online):	978-0-7381-3109-2

**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

DEVELOPMENT OF A LOW-COST SENSOR-BASED ADAPTIVE GRIPPER .....	1
<i>Muhammad Waleed Khan, Asifullah Khan, Akhtar Khurshid, Muzamil Ali</i>	
IMPLEMENTATION OF MODIFIED TANGENT BUG NAVIGATION ALGORITHM FOR FRONT WHEEL STEERED AND DIFFERENTIAL-DRIVE ROBOTS .....	7
<i>Sofia Yousuf, Muhammad Bilal Kadri</i>	
DESIGN AND ANALYSIS OF A 3D PRINTED COMPLIANT MODIFIED JANSEN'S LINKAGE BY USING CARTWHEEL FLEXURES .....	13
<i>Faizan Javed, Arslan Khalid, Atique Ahmad</i>	
TOC GENERATION IN PDF DOCUMENT FOR SMART AUTOMATED COMPLIANCE ENGINE .....	18
<i>Muzammil Hussain Shahid, Muhammad Arshad Islam</i>	
FRACTIONAL ORDER SLIDING MODE CONTROL FOR VOLTAGE SOURCE VOLTAGE CONVERTERS UNDER RECONFIGURATION .....	23
<i>Toqeer Ahmed, Asad Waqar, Tanveer Hussain, Essam A. Al-Ammar, Muhammad Zahid, Habib Ur Rahman Habib</i>	
AN ONLINE FRACTIONAL OPEN-CIRCUIT VOLTAGE MAXIMUM POWER POINT TRACKING (MPPT) ALGORITHM BASED ON SLIDING MODE CONTROL.....	29
<i>Ahsan Nadeem, Hadeed Ahmed Sher, Ali Faisal Murtaza, Nisar Ahmed</i>	
IDENTIFICATION OF MALWARE FAMILIES FOR CREATING GENERIC SIGNATURES : USING DYNAMIC ANALYSIS AND CLUSTERING METHODS*.....	35
<i>Umm-E-Hani, Muhammad Ali, Maliha Ismail, Asifullah Khan, Hanif Durad</i>	
PREVENTION OF BEACONS COLLISION IN IEEE 802.15.6 UNDER COEXISTENCE .....	41
<i>Hamza Iqbal, Ehtasham Azhar, Samira Kanwal, Junaid Rashid, Tahira Nazir</i>	
IMPACT OF SHADING, DUST ACCUMULATION AND TEMPERATURE RISE ON THE PERFORMANCE OF SOLAR PV: THE CASE OF PAKISTAN.....	46
<i>Mariam Mughees, Munazza Sadaf, Sidra Khan, Amber Rasheed, Kamran Daniel, Hassan Erteza Gelani</i>	
WAVELET-HYBRIDIZED NEUROFUZZY FEEDBACK LINEARIZATION BASED CONTROL STRATEGY FOR PHEVS CHARGING STATION IN A SMART MICROGRID.....	52
<i>Muhammad Awais, Laiq Khan, Rabiah Badar, Sidra Mumtaz, Saghir Ahmad, Shafaat Ullah</i>	
SIMPLE ROBUST FIXED-TIME FAULT-TOLERANT ATTITUDE CONTROL FOR A CLASS OF RIGID SPACECRAFTS .....	58
<i>Muhammad N. Hasan, Muhammad Haris, Syed Jahanzeb H. Pirzada, Shiyin Qin</i>	
GIMBAL BASED ROBOTIC EYE FOR DYNAMIC SOCIAL ENVIRONMENT .....	64
<i>Atif Mahmood, Abdul Qayyum Khan, Ghulam Mustafa, Muhammad Abid, Aadil Sarwar Khan, Haroon Ur Rasheed</i>	
DESIGN OF FUZZY CONTROLLER FOR NON ISOLATED HIGH GAIN DC-DC CONVERTER.....	69
<i>Saad Ahmad, Abasin Ulasyar, Haris Sheh Zad, Abraiz Khattak, Kashif Imran</i>	

A NOVEL RECTIFIER TOPOLOGY WITH A CHOPPER OPERATING AT THE LINE FREQUENCY .....	75
<i>Tanveer Abbas, Noman Khan, M. Waqas Ayub, M. Bilal Aslam, Abdullah, Riaz Khan, Zia-Ur-Rehman</i>	
INTELLIGENT PREDICTOR USING CANCER-RELATED BIOLOGICALLY INFORMATION EXTRACTION FROM CANCER TRANSCRIPTOMES .....	81
<i>Tahira Shehzadi, Abdul Majid, Madiha Hameed, Aqeel Farooq, Aqsa Yousaf</i>	
SEPARATION PRINCIPLE WITH SECURE STATE ESTIMATION AND LYAPUNOV STABILITY OF CYBER-PHYSICAL SYSTEM UNDER SENSOR ATTACK.....	86
<i>Maryam Khan, Naeem Iqbal, Abdul Qayyum Khan</i>	
OUTPUT-FEEDBACK ROBUST MPC FOR A CLASS OF NONLINEAR SYSTEM .....	92
<i>Muhammad N. Hasan, Muhammad Haris, Syed Jahanzeb H. Pirzada, Shiyin Qin</i>	
NONLINEAR CONTROL DESIGN FOR AN ANTHROPOMORPHIC ARTIFICIAL HAND.....	98
<i>Arifa K. A. Qazi, Attaullah Y. Memon</i>	
LYMPHOCYTE ANNOTATOR: CD3+ AND CD8+ IHC STAINED PATCH IMAGE ANNOTATION TOOL .....	104
<i>Muhammad Mohsin Zafar, Zunaira Rauf, Anabia Sohail, Asifullah Khan</i>	
AUTONOMOUS NAVIGATION OF SWARMS IN 3D ENVIRONMENTS USING DEEP REINFORCEMENT LEARNING .....	110
<i>Muhammad Shahbaz, Asifullah Khan</i>	
ELECTROENCEPHALOGRAPHY-BASED NEURAL NETWORK APPROACH FOR EPILEPTIC SEIZURE DETECTION USING SPATIAL FEATURES .....	116
<i>Tayyiba Bibi, Aimen Rehman, Ghulam Ayesha Syed, Muhammad Adeel Asghar, Fawad</i>	
PREDICTION OF USER'S INTEREST BASED ON URDU TWEETS .....	122
<i>Faizan Ul Mustafa, Imran Ashraf, Anees Baqir, Usman Ahmad, Sanyam Malik, Sadaf Mehmood</i>	
A STACKED RESONANT HIGH VOLTAGE DC MODULATOR FOR INDUSTRIAL MAGNETRON .....	128
<i>Noman Khan, Tanveer Abbas, Zia-Ur-Rehman, Abdullah, Riaz Khan</i>	
ACTIVE PROSTHESIS OF HUMAN HAND .....	134
<i>Arshad Ali, Muhammad Ehsan Ul Haq Zaheer, Mian Muhammad Sharjeel Safdar, Usama Azhar, Ahmad Huzaiifa, Tanveer Abbas</i>	
SPACE AIR GROUND INTEGRATED NETWORK: COMMUNICATION NETWORK FOR AIR TRAFFIC CONTROL.....	139
<i>Syed Jahanzeb Hussain Pirzada, Muhammad Noman Hasan, Muhammad Haris, Zohaib Wahab Memon, Tongge Xu, Liu Jianwei</i>	
BAYESIAN OPTIMIZED LONG-SHORT TERM MEMORY RECURRENT NEURAL NETWORK FOR PROGNOSTICS OF THERMALLY AGED POWER MOSFETS .....	145
<i>Muhammad Haris, Muhammad Noman Hasan, Syed Jahanzeb Hussain Pirzada, Shiyin Qin</i>	
A NOVEL FLEXIBLE COMPACT MICROSTRIP ANTENNA FOR BIOMEDICAL APPLICATIONS.....	150
<i>Muhammad Tahir Hameed, Muhammad Yousaf, Muhammad Zahid, Adeel Akram, Yasar Amin</i>	

BRAIN TUMOR DETECTION FROM MRI IMAGES USING BAG OF FEATURES AND DEEP NEURAL NETWORK.....	154
<i>Saqlain Razzaq, Nimra Mubeen, Urwah Kiran, Muhammad Adeel Asghar, Fawad Fawad</i>	
HIGH-THROUGHPUT OPTIMIZATIONS OF AES ALGORITHM FOR SATELLITES.....	160
<i>Syed Jahanzeb Hussain Pirzada, Muhammad Noman Hasan, Zohaib Wahab Memon, Muhammad Haris, Tongge Xu, Liu Jianwei</i>	

**Author Index**