

# **2021 Fourth International Conference on Electrical, Computer and Communication Technologies (ICECCT 2021)**

**Erode, India  
15 – 17 September 2021**

**Pages 1-580**



**IEEE Catalog Number: CFP2133R-POD  
ISBN: 978-1-6654-4751-5**

**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:	CFP2133R-POD
ISBN (Print-On-Demand):	978-1-6654-4751-5
ISBN (Online):	978-1-6654-1480-7

**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

COVID-19 PREVENTION MELIORATION: FACE MASK AND SOCIAL DISTANCING DETECTION.....	1
<i>Aishwarya S, Nirmalrani V, Saravanan P</i>	
SOFTWARE COMPLEXITY REDUCTION THROUGH THE PROCESS AUTOMATION IN SOFTWARE DEVELOPMENT LIFE CYCLE.....	7
<i>Dinuka R. Wijendra, K. P. Hewagamage</i>	
A SECURED QUANTUM KEY EXCHANGE ALGORITHM USING FERMAT NUMBERS AND DNA ENCODING.....	14
<i>Partha Sarathi Goswami, Tamal Chakraborty, Abir Chattopadhyay</i>	
AUTOMATED LYMPH NODES CLASSIFICATION USING FACTORIZED CONVOLUTION- BASED CNN .....	22
<i>Hitesh Tekchandani, Shrish Verma, Narendra D. Londhe</i>	
VISUAL MALWARE CLASSIFICATION USING TRANSFER LEARNING .....	28
<i>Anavi Khetarpal, Abhishek Mallik</i>	
AN AUTHENTICATION ALGORITHM FOR MITIGATING DOS ATTACKS IN WIRELESS BODY SENSOR NETWORKS .....	33
<i>Nombulelo Zulu, Deon Du Plessis, Tshimangadzo Tshilongamuledzhe, Topside Mathonsi</i>	
ANIMAL BREED CLASSIFICATION AND PREDICTION USING CONVOLUTIONAL NEURAL NETWORK PRIMATES AS A CASE STUDY .....	41
<i>Sujatha Kamepalli, Venkata Krishna Kishore Kolli, Srinivasa Rao Bandaru</i>	
CATALOGUING OF CORONARY HEART MALADY USING MACHINE LEARNING ALGORITHMS.....	48
<i>D. Cenitta, R. Vijaya Arjunan, Prema K V, Vidya Bai G</i>	
ATTACK AND ANOMALY PREDICTION IN IOT NETWORKS USING MACHINE LEARNING APPROACHES.....	54
<i>Binu P. K, Kiran M, Sreehari M. V</i>	
SECURITY AGAINST SSDF ATTACKS USING NOVEL ATTACK MITIGATION MECHANISM FOR COGNITIVE RADIO NETWORKS.....	60
<i>G. Manoranjan, Madhavarapu Chandan, G. Karthik, Rabinarayan Satpathy, S. Sugumaran</i>	
STUDY ON ROUTING IN VANETS – A QOS PERSPECTIVE.....	66
<i>Ganeshkumar N, Sanjay Kumar</i>	
DESIGN OF MEDI-CHAIN: A BLOCKCHAIN AND CLOUD BASED HEALTH RECORD SYSTEM.....	74
<i>S. P. Arane, V. V. Mandhare, P. S. Vikhe</i>	
AN OVERVIEW OF RELEVANT LITERATURE ON DIFFERENT APPROACHES TO WORD SENSE DISAMBIGUATION.....	80
<i>Pavithra C P, Supriya Mandal</i>	
CONSTRUCTION OF REVERSE LOGISTICS NETWORK OF WASTE ELECTRICAL APPLIANCES.....	86
<i>Li Qin Hu, Amit Yadav, Hong Liu, Md. Mehedi Hassan, Swarnali Mollick</i>	

TEXT-BASED IMAGE RETRIEVAL USING CAPTIONING .....	94
<i>Ashwath Krishnan, Sudhanva Rajesh, Shylaja Ss</i>	
TEST EVALUATION METRICS AND TEST CASE PRIORITIZATION IN THE DYNAMICS OF SOFTWARE TESTING .....	99
<i>Shantanu Mukherjee, Sandip Roy, Pinaki Pratim Acharjya</i>	
MACHINE LEARNING-BASED CONGESTION CONTROL ROUTING STRATEGY FOR HEALTHCARE IOT ENABLED WIRELESS SENSOR NETWORKS.....	107
<i>Kamal Upreti, Nishant Kumar, Mohammad Shabbir Alam, Ankit Verma, Mauparna Nandan, Amit Kumar Gupta</i>	
MULTIPLE FEATURE-BASED GLAUCOMA DETECTION FROM OPTIC IMAGES USING SUPPORT VECTOR MACHINE .....	113
<i>N S Jeya Shyla, W R Sam Emmanuel</i>	
ASSESSMENT OF SHORELINE CHANGE DETECTION IN ALAPPAD REGION KERALA USING GEOSPATIAL TECHNOLOGY .....	119
<i>Akshay Satish, Geetha P</i>	
SOFTWARE DEFECTS DETECTION AND PREVENTION THROUGH VIRTUALIZATION.....	126
<i>Jean Paul Turikumwe, Cheruiyot Wilson, Anne Kibe</i>	
ABSTRACTIVE TEXT SUMMARIZER: A COMPARATIVE STUDY ON DOT PRODUCT ATTENTION AND COSINE SIMILARITY .....	130
<i>Karthik Viswanath S, Naveen L, Ananda Raj, Rajalakshmi S, Angel Deborah S</i>	
BUILDING AN AI MODEL ON ECG DATA FOR IDENTIFYING BURNOUT/STRESSED HEALTHCARE WORKERS INVOLVED IN COVID-19 MANAGEMENT.....	138
<i>Akhil Mahajan, Manu Kumar Shetty, Girish M. P., Mohit D. Gupta, Anubha Gupta</i>	
ENGLISH TO INDIAN LANGUAGE AND BACK TRANSLITERATION WITH PHONETIC TRANSCRIPTION FOR COMPUTATIONAL LINGUISTICS TOOLS BASED ON CONVENTIONAL TRANSLITERATION SCHEMES.....	144
<i>Jayashree Nair, Riyaz Ahammed</i>	
FISHY ACTION RECOGNITION FROM CROSS-EVENT INTEGRATED VIDEO DATASET BASED ON DEEP 3D AND MIXED CNN MODELS .....	150
<i>Raisa Begum, Md Sajjatul Islam</i>	
AN UNSUPERVISED LEARNING APPROACH FOR VISUAL DATA COMPRESSION WITH CHAOTIC ENCRYPTION .....	155
<i>Bharti Ahuja, Rajesh Doriya</i>	
A PEEK INTO ONE’S EMOTION THROUGH PEN: ANALYZING INDIVIDUAL’S EMOTION THROUGH THEIR THOUGHTS EXPRESSED ON VARIOUS SOCIAL MEDIA PLATFORMS USING ENSEMBLE CLASSIFIER .....	159
<i>Shalini Shree, Arshdeep Singh Chudhey</i>	
CLASSIFICATION OF DDOS ATTACKS AND FLASH EVENTS USING SOURCE IP ENTROPY AND TRAFFIC CLUSTER ENTROPY.....	164
<i>Srinath Sureshkumar</i>	
CRIME PREDICTION AND FORECASTING USING VOTING CLASSIFIER .....	169
<i>Dhanush M, Hasifa A S, Merin Meleet</i>	

SECURE STORAGE OF ELECTRONIC MEDICAL RECORDS(EMR) ON INTERPLANETARY FILE SYSTEM(IPFS) USING CLOUD STORAGE AND BLOCKCHAIN ECOSYSTEM.....	174
<i>Swadhin Routray, Raghavendra Ganiga</i>	
EDGE CLUSTERING COEFFICIENT BASED LABEL INITIALIZATION FOR LABEL PROPAGATION ALGORITHM TO DETECT COMMUNITY STRUCTURES IN COMPLEX NETWORKS.....	183
<i>Jyothimon Chandran, V Madhu Viswanatham</i>	
DEEP LEARNING APPROACHES FOR DETECTION OF COVID-19 USING CHEST X-RAY IMAGES.....	190
<i>Hridya Krishna R, Vaishnavi K P, M Anagha Ramadas, Nikita Chanalya, Anjali Manoj, Jyothisha J Nair</i>	
SECURE SHARING OF TEXT BASED DATA USING HYBRID ENCRYPTION ALGORITHMS IN A CLIENT-SERVER MODEL.....	198
<i>Swadhin Routray, Dhruv Raipure, Shamanth R Nayak K, Nisha P Shetty</i>	
LINEAR TEXT TRANSFORMATION FOR PRE-PRINTED DOCUMENT.....	204
<i>N. Shobha Rani, Aishwarya Govinda Rao, Pruthvi T R</i>	
ANALYSIS OF IOT BIG WEATHER DATA FOR EARLY FLOOD FORECASTING SYSTEM.....	209
<i>J. Michael Antony Sylvia, M. Pushpa Rani, Bashiru Aremu</i>	
A FBMC BASED ISDB-TB DIGITAL TV FRAME PROPOSAL.....	215
<i>Jefferson Jesus Hengles Almeida, Paulo Batista Lopes, Cristiano Akamine</i>	
TWITTER BOT DETECTION USING MACHINE LEARNING ALGORITHMS.....	221
<i>Nirdhum Narayan</i>	
BARE-METAL HYPERVISOR VIRTUAL SERVERS WITH A CUSTOM-BUILT AUTOMATIC SCHEDULING SYSTEM FOR EDUCATIONAL USE.....	225
<i>Matthew Chan</i>	
SIGN LANGUAGE TRANSLATOR USING DEEP LEARNING TECHNIQUES.....	230
<i>Supriya Krishnamurthi, Indiramma M</i>	
DATA CLUSTERING USING BACTERIAL COLONY OPTIMIZATION WITH PARTICLE SWARM OPTIMIZATION.....	235
<i>K. Tamilarisi, M. Gogulkumar, K. Velusamy</i>	
ENSEMBLE AND MULTI MODEL APPROACH TO ENVIRONMENTAL SOUND CLASSIFICATION.....	240
<i>Niranjana K, Shankar Kumar S, Vedanth S</i>	
A COMPARATIVE ANALYSIS OF SUPERVISED MACHINE LEARNING ALGORITHM FOR AGRICULTURE CROP PREDICTION.....	245
<i>Krupa Patel, Hiren B. Patel</i>	
PARAMETRIC ANALYSIS ON HEART DISEASE PREDICTION USING ENSEMBLE BASED CLASSIFICATION.....	250
<i>Parvathaneni Rajendra Kumar, Suban Ravichandran, S. Narayana</i>	

PARAMETRIC EXAMINATION ON OPTIMIZED DEEP LEARNING BASED MELANOMA DETECTION.....	263
<i>Abhinandan Kumar Tiwari, Manoj Kumar Mishra, Amiya Ranjan Panda, Bikramaditya Panda</i>	
SMART CITY GIS MAPPING AND ANALYSIS OF INTRUSION DETECTION.....	271
<i>Ali Mahdi Aldabbagh, Muhammad Ilyas</i>	
AN EFFECTIVE ENSEMBLE MODEL TO PREDICT EMPLOYMENT STATUS OF GRADUATES IN HIGHER EDUCATIONAL INSTITUTIONS .....	275
<i>N. Premalatha, S. Sujatha</i>	
PREDICTING THE EARLY RE-ADMISSION OF DIABETIC PATIENTS USING DIFFERENT DATA MINING TECHNIQUES .....	279
<i>Zainab T. Al-Ars, Ali Mahdi Aldabbagh</i>	
SUMMARY GENERATION USING DEEP LEARNING .....	287
<i>Perpetua F. Noronha, Madhu Bhan</i>	
A NOVEL APPROACH TO CLASSIFY ENGLISH HANDWRITTEN CHARACTER USING CONVOLUTIONAL NEURAL NETWORKS.....	294
<i>Rupesh Sharma, Prashant Sharma, Naresh Purohit</i>	
RECOGNITION OF STUDENT EMOTIONS IN AN ONLINE EDUCATION SYSTEM.....	299
<i>Sai Manvitha Enadula, Akshith Sriram Enadula, Rama Devi Burri</i>	
SECURITY AND PERFORMANCE EVALUATION OF SOFTWARE DEFINED NETWORK CONTROLLERS AGAINST DISTRIBUTED DENIAL OF SERVICE ATTACK.....	303
<i>Vidhi Bhavsar, Chairunnisa Sahrial, Bhargavi Goswami</i>	
DESIGNING NEIGHBORHOOD AREA NETWORKS OF SMART GRID USING SOFTWARE DEFINED NETWORKS.....	311
<i>Kunal Thakre, Bhargavi Goswami</i>	
PREDICTION MODEL FOR PREVENTING SUICIDE ATTEMPTS USING MACHINE LEARNING.....	317
<i>Jayashree Agarkhed, Monika Reddy</i>	
AN ANALYSIS OF DEPRESSION DETECTION MODEL APPLYING DATA MINING APPROACHES USING SOCIAL NETWORK DATA.....	323
<i>Saurabh Arora, Sushant Bindra, Musheer Ahmad, Tanvir Ahmad</i>	
OPTIMIZING HADOOP PARAMETER FOR SPEEDUP USING Q-LEARNING REINFORCEMENT LEARNING .....	330
<i>Nandita Yambem, A. N. Nandakumar</i>	
ANDROID APP SIZE REDUCTION: ANALYSIS AND DIFFERENT METHODOLOGY .....	337
<i>Rishikesh Kumar</i>	
ISOLATED GUJARATI HANDWRITTEN CHARACTER RECOGNITION (HCR) USING DEEP LEARNING (LSTM) .....	342
<i>Bhargav Rajyagor, Rajnish Rakholia</i>	
A COMPARISON BASED APPROACH ON MUTUAL AUTHENTICATION AND KEY AGREEMENT USING DNA CRYPTOGRAPHY .....	348
<i>Kurunandan Jain, Prabhakar Krishnan, Vaishnavi V Rao</i>	

AN EFFICIENT BLACK WIDOW OPTIMIZATION WITH SIGNCRYPTION BASED IMAGE ENCRYPTION TECHNIQUE.....	354
<i>S. Kaliswaran, M. Y. Mohamed Parvees</i>	
OPTIMAL BIDIRECTIONAL LONG SHORT TERM MEMORY MODEL FOR MEDICAL DATA CLASSIFICATION.....	360
<i>M. Raja, M. Y. Mohamed Parvees</i>	
AD PREDICTION USING CLICK THROUGH RATE AND MACHINE LEARNING WITH REINFORCEMENT LEARNING.....	366
<i>A. Lakshmanarao, S. Ushanag, B. Sundara Leela</i>	
REFERENCE STACK FOR STEGANOGRAPHIC APPLICATIONS.....	371
<i>Pramod George Jose, Kurunandan Jain, Prabhakar Krishnan</i>	
AUTOMATIC SLEEP STAGE SCORING ON RAW SINGLE-CHANNEL EEG : A COMPARATIVE ANALYSIS OF CNN ARCHITECTURES.....	379
<i>Nirali Parekh, Bhavi Dave, Raj Shah, Kriti Srivastava</i>	
BOGUS USER PROFILE DETECTION ON MATRIMONIAL SITES USING MACHINE LEARNING APPROACH.....	387
<i>Vaibhav Vasani, Tejas Khanolkar, Vignesh Sunder Raman, Debdatta Kundu, Tirth Shah</i>	
CLOUD BASED DATA CENTER ENERGY EFFICACY SYSTEM USING END-TO-END & DENIABLE ENCRYPTION METHODOLOGIES.....	392
<i>Prabha. B, Ramesh. K</i>	
RABBITMQ QUEUING MECHANISM OF PUBLISH SUBSCRIBE MODEL FOR BETTER THROUGHPUT AND RESPONSE.....	397
<i>Abhishek Pathak, C. Kalaiarasan</i>	
DATA-DRIVEN PREPROCESSING TECHNIQUES FOR EARLY DIAGNOSIS OF DIABETES, HEART AND LIVER DISEASES.....	404
<i>Simrn Gupta, Uditi Namdev, Vanshay Gupta, Vatsal Chheda, Kiran Bhowmick</i>	
TEST CASE OPTIMIZATION BASED ON SPECIFICATION DIAGRAMS AND SIMULATION INVOCATION RELATIONSHIP.....	412
<i>Mani Padmanabhan</i>	
PARKINSON'S NEURODEGENERATIVE DISEASE PREDICTION WITH ROBUST METHODS OF MACHINE LEARNING.....	418
<i>Anusha Papasani, Nagaraju Devarakonda, Zdzislaw Polkowski</i>	
AN IMPROVED GAUSSIAN MIXTURE METHOD BASED BACKGROUND SUBTRACTION MODEL FOR MOVING OBJECT DETECTION IN OUTDOOR SCENE.....	426
<i>Supriya Agrawal, Prachi Natu</i>	
LIDAR POINT CLOUD DATA PROCESSING IN AUTONOMOUS VEHICLES.....	434
<i>Vani Suthamathi Saravananarajan, Rung-Ching Chen, Long-Sheng Chen</i>	
A LOW COST IOT BASED REMOTE MONITORING AND FEEDBACK COLLECTION MECHANISM FOR EXHIBITS.....	439
<i>Shatadal Ghosh, Nataraj Dasgupta, Sriparna Saha</i>	
SENTIMENT ANALYSIS OF TWITCH.TV LIVESTREAM MESSAGES USING MACHINE LEARNING METHODS.....	444
<i>Aryan Chouhan, Aayush Halgekar, Ashish Rao, Dhruvi Khankhoje, Meera Narvekar</i>	

EFFICIENT SECURITY MODEL FOR PERVASIVE COMPUTING USING MULTI-LAYER NEURAL NETWORK.....	449
<i>Jayashree Agarkhed, Geetha Pawar</i>	
CHRONOLOGICAL POOR AND RICH TUNICATE SWARM ALGORITHM INTEGRATED DEEP MAXOUT NETWORK FOR HUMAN ACTION AND ABNORMALITY DETECTION.....	454
<i>Bhagya Jyothi K L, Vasudeva</i>	
A MONADIC FRAMEWORK FOR REAL-TIME 2D MULTI PERSON POSE DETECTION FOR CAPTURED IMAGES AND VIDEOS.....	463
<i>Challapalli Jhansi Rani, Nagaraju Devarakonda, K. W. S. N Kumari</i>	
GATAC: GRADIENT AND ADAPTIVE THRESHOLD INTEGRATED ACTIVE CONTOUR FOR DIABETIC MACULAR EDEMA SEGMENTATION.....	469
<i>Shweta, Shridevi Soma</i>	
NATIVE AND NON-NATIVE ENGLISH SPEECH CLASSIFICATION: A PREMISE TO ACCENT CONVERSION .....	476
<i>Abhinav Sharma, Muskaan Bhargava, Akshay Vijay Khanna</i>	
BRAIN SENSING WITH WEARABLE HEADBAND(ACP2).....	484
<i>Nasrin Akter, Nijar Hossain, Abdus Sattar</i>	
IDENTIFYING FAKE RICE USING COMPUTER VISION IN PERSPECTIVE OF BANGLADESH.....	491
<i>Md. Asif Mahmud Ridoy, Md. Fahim Sarker, Shuvo Datta, Abdus Sattar</i>	
PERFORMANCE ANALYSIS OF SSD AND FASTER RCNN MULTI-CLASS OBJECT DETECTION MODEL FOR AUTONOMOUS DRIVING VEHICLE RESEARCH USING CARLA SIMULATOR .....	497
<i>Dr Niranjan, Bc Vinaykarthik, Mohana</i>	
PERCEPTION OF BLITHE MUSIC ON THE BRAIN .....	503
<i>Shwetha Sridhar, V Varshini, P Florina Jane, B Geethanjali, Mahesh Veezhinathan</i>	
DEER HUNTING OPTIMIZATION WITH DEEP NEURAL NETWORK FOR AUTOMATED ARRHYTHMIA DIAGNOSIS IN ECG SIGNALS.....	511
<i>G. Jaffino, J Prabin Jose, M Sundaram</i>	
IMPROVED SPEAKER IDENTIFICATION SYSTEM BASED ON MFCC AND DMFCC FEATURE EXTRACTION TECHNIQUE.....	516
<i>G. Jaffino, R. Raman, J Prabin Jose</i>	
AUTOMATION SOLUTION FOR SOFTWARE TESTING OF CAN BASED ECUS.....	521
<i>Vaijayanti Gajul, Jitendra Kumar D. Mishra, Sarika Tavhare</i>	
GUIDED FILTERING BASED REAL TIME FLOOD AREA IDENTIFICATION ON BITEMPORAL SATELLITE IMAGES .....	527
<i>Anju Asokan, J. Anitha</i>	
STRONG SINGLE-ARM LATCH COMPARATOR WITH REDUCED POWER CONSUMPTION .....	531
<i>Gurram Jithin, G. B. V. S. V Prasad, J. V. N Sai Krishna, Kirti S. Pande</i>	
DESIGN AND IMPLEMENTATION OF EFFICIENT STOCHASTIC NUMBER GENERATOR.....	537
<i>Sanjith Reddy P V, Sai Sanath Potnuru, T Sai Venkatesh, Sonali Agrawal</i>	



FLOATING POINT ARITHMETIC UNIT WITH MULTI-PRECISION FOR DSP APPLICATIONS.....	544
<i>M. Vishnupriya, B. Nancharaiah</i>	
REGIONAL CONGESTION AWARE ODD EVEN ROUTING WITH FAIR ARBITRATION FOR NETWORK ON CHIP.....	552
<i>Rohith Somisetty, V. S. S. Karthik, M. R. S. Srujan, M. Vinodhini</i>	
CIRCULAR-SHAPED FRACTAL MICROSTRIP PATCH ANTENNA WITH SQUARE-SHAPED SLOTS FOR VARIOUS WIRELESS APPLICATIONS .....	558
<i>Faeza Abbas Abid, Fatima Faydhe Al-Azzwi, Ruaa Ali Khamees</i>	
PEDESTRIAN DETECTION IN EXTREME WEATHER.....	565
<i>Divya Seshadri M, Indhuja U S, Amutha R</i>	
WEB SCRAPING BASED SMART IRRIGATION SYSTEM WITH TELEGRAM ALERTS FOR FARMERS .....	571
<i>Nagarjuna Telagam, U. Somanaidu, B. Naresh, M. Arun Kumar, K. Nehru</i>	
QUANTUM COMPUTING: CHALLENGES AND OPPORTUNITIES.....	577
<i>Sachin Aralikatti</i>	
SOC VERIFICATION FOR THE AXI INTERCONNECT BASED ON THE STATIC FIXED-PRIORITY SCHEDULING ALGORITHM .....	581
<i>Ahmed Noami, B. Pradeep Kumar, Chandra Sekhar Paidimarry, Nada Safi, Amr A. Alammari</i>	
INTELLIGENT DEEP LEARNING BASED POTHOLE DETECTION AND REPORTING SYSTEM.....	587
<i>Rohitaa R, Sangoju Shreya, Amutha R</i>	
FRACTAL KOCH CURVE MSA ARRAY BASED ON SRR WITH ENHANCED RADIATION CHARACTERISTICS FOR 5.24 GHZ WLAN APPLICATION.....	592
<i>A. Swetha, K. Rama Naidu</i>	
DEVELOPMENT OF C BAND PATCH ANTENNA FOR WLAN AND SATELLITE APPLICATIONS USING METAMATERIAL.....	599
<i>Priyal Doshi, Milind Shah, Khyati Chavda</i>	
CNN BASED END TO END LEARNING STEERING ANGLE PREDICTION FOR AUTONOMOUS ELECTRIC VEHICLE.....	604
<i>D V Prasad Mygapula, Adarsh S, Sajith Variyar V V, Soman K P</i>	
ELECTRONIC TUNABLE BI-QUAD FILTER USING MO-CCCDTA.....	610
<i>Sagar Surendra Prasad, Sadaf Tasneem, Bindu Priyadarshini, Rajeev Kumar Ranjan</i>	
NANO CYLINDRICAL DIELECTRIC RESONATOR ANTENNA USING TITANIUM DIOXIDE FOR WI-FI APPLICATIONS .....	616
<i>Balunarayanan R, Aiswarya S, C O Sreekala, Sreedevi K Menon</i>	
CASCADED LPF/BSF WITH STEPPED IMPEDANCE LOOP RESONATOR FOR RF APPLICATIONS.....	622
<i>Manu Shankar S, Aiswarya S, Sreedevi K Menon</i>	
A REVIEW-AND-REVIEWER BASED APPROACH FOR FAKE REVIEW DETECTION.....	628
<i>Janhavi Bhopale, Rugved Bhise, Arthav Mane, Kiran Talele</i>	

AN END-TO-END 1D-RESCNN MODEL FOR IMPROVING THE PERFORMANCE OF MULTI-PARAMETER PATIENT MONITORS.....	634
<i>S. Ramya, C. Santhosh Kumar, Pooja Muralidharan</i>	
DESIGN AND SIMULATION OF ENERGY EFFICIENT ROUTING PROTOCOLS FOR UNDERWATER WIRELESS SENSOR NETWORKS .....	638
<i>Charan Kumar A M, K Nagamani</i>	
A NOVEL APPROACH FOR EMOTION RECOGNITION FOR POSE INVARIANT IMAGES USING PROTOTYPICAL NETWORKS.....	646
<i>Sriharish Ramakrishnan, Harshitha Ravishankar, Priyasa Das, Suja Palaniswamy</i>	
DEVELOPMENT OF CONFIGURABLE STATIC RANDOM ACCESS MEMORY (SRAM) FOR SPACE APPLICATIONS.....	653
<i>Padmapriya K., Shivani Prasad Bondapalli, B. K. S. V. L. Varaprasad, Rahul Anilkumar, Debjyoti Mallik, Sajjade Faisal Mustafa</i>	
CLASSIFICATION OF CAPSULE ENDOSCOPY IMAGES BASED ON FEATURE CONCATENATION OF DEEP NEURAL NETWORKS.....	661
<i>Shreya Biradher, Aparna P.</i>	
AUTOMATIC CELL BALANCING WITH SWITCHED CAPACITOR FOR MULTI CELL CONNECTIVITY .....	665
<i>Aruna Devi B, Aarthi N</i>	
GEOLOCATION CLUSTERING FOR RADIO RESOURCE MANAGEMENT IN 6G NETWORKS.....	672
<i>Shashank Shekhar, A Gopalakrishna Pai, H Srikanth Kamath</i>	
LOCALISED FM DIGITAL AUDIO BROADCASTING USING WIFI MESH NETWORKS .....	679
<i>Ashvin Verma, Somesh Kar, Priyanshi Ahuja</i>	
PAPR REDUCTION OF FBMC-OQAM SYSTEMS USING LOGARITHMIC ROOTING COMPANDING .....	686
<i>Anam Mobin, Anwar Ahmad</i>	
THE SIUQRD AND MATERN 5/2 GPR MODELS DESCRIBING THE COVID-19 PANDEMIC IN INDIA .....	692
<i>Basudha Pal, Vikas R Bhat, Anitha. H</i>	
DWT, DCT AND SVD BASED HEXAGONAL IMAGE COMPRESSION.....	698
<i>Prathibha Varghese, G. Arockia Selva Saroja</i>	
MODIFIED INERTIA WEIGHT APPROACH IN PSO ALGORITHM TO ENHANCE MMSE EQUALIZATION .....	704
<i>D. C. Diana, S. P. Joy Vasantha Rani</i>	
URBAN FLOOD SUSCEPTIBILITY MAPPING OF KOCHI TALUK USING REMOTE SENSING AND GIS .....	709
<i>Shilpa Shreekumar, Dhanya Madhu, Aswani Kumar Akella</i>	
A DUAL-PATH CNN BASED AGE-RELATED MACULAR DEGENERATION DETECTION .....	715
<i>Sabi S, Varun P Gopi</i>	
USUAL AND UNUSUAL HUMAN ACTIVITY RECOGNITION IN VIDEO USING DEEP LEARNING AND ARTIFICIAL INTELLIGENCE FOR SECURITY APPLICATIONS .....	721
<i>Ajeet Sunil, Manav Hiren Sheth, Shreyas E, Mohana</i>	

HIGH-PERFORMANCE ANALYSIS OF RECESSED GATE ALN/ $\beta$ -GA <sub>2</sub> O <sub>3</sub> HEMT .....	727
<i>Tushar Shivam, B S Saini, Ramesh K Sunkaria, Ravi Ranjan</i>	
IMPLEMENTATION OF YOLOV4 ALGORITHM FOR MULTIPLE OBJECT DETECTION IN IMAGE AND VIDEO DATASET USING DEEP LEARNING AND ARTIFICIAL INTELLIGENCE FOR URBAN TRAFFIC VIDEO SURVEILLANCE APPLICATION .....	732
<i>Umesh Parameshwar Naik, Varadi Rajesh, Rohith Kumar R, Mohana</i>	
PERFORMANCE COMPARISON OF ONOFIC AND LECTOR BASED APPROACHES FOR LEAKAGE POWER REDUCTION .....	738
<i>Sagar Yadav, Kunwar Singh</i>	
LBP AND IRIS FEATURES BASED HUMAN GENDER CLASSIFICATION USING RADIAL SUPPORT VECTOR MACHINE .....	744
<i>Mohit Payasi, Kanchan Cecil</i>	
DIRECT INK WRITING AS AN ECO-FRIENDLY PCB MANUFACTURING TECHNIQUE FOR RAPID PROTOTYPING.....	751
<i>Hanumanth Rao C., B. K. S. V. L. Varaprasad, Sanket Goel</i>	
POWER AND DELAY OPTIMIZATION OF MASTER SLAVE SR FLIP FLOP USING QFGMOS FOR LOW POWER APPLICATIONS .....	758
<i>Unnati Chansoria, Shweta Gautam</i>	
INVESTIGATION OF RF/ANALOG PERFORMANCE OF LG=16NM PLANNER IN <sub>0.80</sub> GA <sub>0.20</sub> AS TFET .....	763
<i>Saravanan M, Eswaran Parthasarathy</i>	
ARTIFICIAL (OR) FAKE HUMAN FACE GENERATOR USING GENERATIVE ADVERSARIAL NETWORK (GAN) MACHINE LEARNING MODEL.....	767
<i>Mohana, Daanish Mohammed Shariff, Abhishek H, Akash D</i>	
HEART FAILURE PREDICTION USING XGBOOST ALGORITHM AND FEATURE SELECTION USING FEATURE PERMUTATION.....	772
<i>Shubham Kaushik, Rajesh Birok</i>	
TEMPERATURE DEPENDENT DC AND AC PERFORMANCE OF ALGAN/GAN HEMT ON 4H-SIC .....	778
<i>Preethi Elizabeth Iype, V Suresh Babu, Anju S</i>	
SPECTRAL UNMIXING BASED ON JOINT SPARSITY AND TOTAL VARIATION USING REMOTE SENSING DATA.....	783
<i>Moturi Mounika, Srinivas Bachu, Naluguru Udaya Kumar</i>	
A CMOS RF-TO-DC RECTIFIER WITH 86% PCE AT INPUT POWER OF -14 DBM @ 2.4GHZ FOR RF ENERGY HARVESTER.....	788
<i>Lakshmi Kadali, Suresh Kumar Manumanthu, S. V. Jagadeesh Chandra</i>	
REGION OF INTEREST BASED MEDICAL IMAGE COMPRESSION USING DCT AND CAPSULE AUTOENCODER FOR TELEMEDICINE APPLICATIONS .....	793
<i>Bindu P. V., Jabeena Afthab</i>	
AN EXHAUSTIVE APPROACH OF APPLICATION LAYER PROTOCOLS IN IOT.....	800
<i>Suresh. R, Roopa. M</i>	

AN EFFICIENT SCHEME FOR COMPRESSION OF ELECTRO CARDIAC SIGNAL USING DIVIDE AND CONQUER ALGORITHM.....	806
<i>Thelapolu Shalini, Srinivas Bachu, Naluguru Udaya Kumar</i>	
PERFORMANCE ENHANCEMENT OF TRAINING BASED CHANNELESTIMATION IN MIMO-OFDM SYSTEM .....	810
<i>Vijayalakshmi M</i>	
MAXIMIZATION OF ENERGY EFFICIENCY IN CR BASED IOT SYSTEMS USING PSO AND GA ALGORITHMS .....	815
<i>Juttu Ramesh, Ajay Thammana, V Sudha</i>	
UWB TRANSMISSION THROUGH HUMAN THORAX BEHIND A WALL FOR NON- INVASIVE CARDIAC DETECTION.....	820
<i>Kedar Nath Sahu, Paramananda Jena</i>	
AUTOMATED BRAIN TUMOR DETECTION MODEL USING MODIFIED INTRINSIC EXTREMA PATTERN BASED MACHINE LEARNING CLASSIFIER.....	824
<i>K. Sakthidasan Sankaran, A S Poyyamozi, Shaik Siddiq Ali, Y. Jennifer</i>	
SAR ANALYSIS OF HUMAN HEAD MODEL USING COMMON ANTENNAS OF 4G LTE MOBILE COMMUNICATIONS.....	830
<i>Md. Ebtidaul Karim, A. B. M. Aowlad Hossain</i>	
A 5G MIMO ANTENNA ARRAY WITH FRACTAL GROUND FOR SMARTPHONES.....	835
<i>Gopu G Nair, Sanoj Viswasom, Santhosh Kumar S</i>	
BIG DATA BASED SYSTEM FOR BIOMEDICAL IMAGE CLASSIFICATION.....	843
<i>Priyanka R, Shrinithi S, Gandhiraj R</i>	
ENHANCEMENT ANALYSIS OF PLC TRANSFORMED OFDM WITH WHT PRECODING.....	849
<i>Naveen Kumar Bandari, Ajay Thammana, S. V. Jagadeesh Chandra</i>	
PERFORMANCE ANALYSIS OF FILTER BASED MULTIUSER SPREAD SPECTRUM OVER HIGH FREQUENCY COMMUNICATION .....	855
<i>Balaji. L, Sriharini. G, Pooja. S, Dhanalakshmi. A</i>	
TEMPERATURE INDEPENDENT ON PLASTIC OPTICAL FIBER EVANESCENT WAVE SENSOR.....	861
<i>S. Ravi Kumar, K. Sunil Kumar, J. Babu, S. V. Jagadeesh Chandra</i>	
AN EXPERIMENTAL STUDY FOR COMPARING DIFFERENT METHOD FOR TIME SERIES FORECASTING PREDICTION & ANOMALY DETECTION .....	867
<i>Rishik Sharma, Neha Singh, Shilpi Birla</i>	
TUNABLE LOW VOLTAGE LOW POWER OPERATIONAL TRANSCONDUCTANCE AMPLIFIER FOR BIOMEDICAL APPLICATION .....	871
<i>Gori Shankar, Gaurav Kumar Soni, Bijesh Kumar Singh, Bharat Bhushan Jain</i>	
NOISE AND IM3 HARMONICS CANCELLING IN TWO-STAGE WIDEBAND DIFFERENTIAL LNA.....	877
<i>G. Amarnath, Vinod A, D. Sudha</i>	
EMPLOYING ANALOG CIRCUITS BY NEURAL-NETWORK BASED MULTI-LAYER- PERCEPTRON .....	881
<i>G. Amarnath, Srinivas Akula, Vinod A</i>	

ARTIFICIAL NEURAL NETWORK BASED STATISTICAL-ANALYSIS OF HIGH-SPEED-INTERCONNECT-SYSTEMS .....	884
<i>G. Amarnath, Vinod A, Biyyani Srinivasa Rao</i>	
RELAY COORDINATION IN DG INTEGRATED SYSTEM .....	888
<i>Sanjay Varghese John, Mabel Ebenezer</i>	
ENHANCED POWER SHARING OF DROOP CONTROLLED DIFFERENTLY RATED INVERTERS IN STANDALONE AC MICROGRID .....	893
<i>Shamsher Ansari, Aseem Chandel, Mohd Tariq</i>	
A NOVEL TECHNIQUE FOR OPTIMAL ALLOCATION OF RDG UNITS ON DISTRIBUTION NETWORK .....	899
<i>Omar Muhammed Neda</i>	
DEVELOPMENT AND ANALYSIS OF ADAPTIVE PID CONTROLLER USING LMS ALGORITHM FOR DISTRIBUTION GENERATION-INVERTER .....	904
<i>Nalini Karchi, D B Kulkarni</i>	
SPEED CONTROL OF THREE PHASE PERMANENT MAGNET SYNCHRONOUS MOTOR USING SLIDING MODE CONTROLLER .....	911
<i>Reshma M S, Beena N.</i>	
IMPROVEMENT OF TRANSIENT STABILITY BY TEACHING LEARNING BASED OPTIMIZATION TUNED AVR ASSOCIATED PSS SYSTEM .....	917
<i>N D V Prasad Pandalaneni, S Saravanan, Abolfazl Mehbodniya, Rudresh S J</i>	
REACTIVE POWER CONTROL OF A REAL VALUED DVC GRID CONNECTED MICROGRID SYSTEM WITH THE HELP OF OPTIMALLY PLACED PMUS .....	922
<i>Suman Ghosh, Chandan Kr. Chanda, Jiban Krishna Das</i>	
VOLTAGE HARMONICS-BASED ISLANDING DETECTION FOR GRID-TIED PHOTOVOLTAIC SYSTEMS .....	927
<i>Fossy Mary Chacko, Jayan M. V., Prince A.</i>	
A 0.9-20 GHZ IMAGE REJECTION RECEIVER FOR SOFTWARE-DEFINED RADIOS .....	932
<i>Shilpa Mehta, Xue Jun Li</i>	
LOAD FORECASTING BY THE MAIN GRID CONTROLLER USING ANN AND THE IMPLEMENTATION OF DEMAND RESPONSE USING MICRO-CONTROLLER .....	938
<i>Seema P N, Gopika Korambil Gopalan, Manjula G Nair</i>	
A RELIABLE DENGUE DISEASE DETECTION METHODOLOGY USING FUZZY LOGIC .....	943
<i>E. Manoj Kumar Reddy, K. V. V. Lokesh Kumar, R. Rajkumar, L. Naga Yoshita, Manitha P. V.</i>	
DESIGN OF HIGHLY NONLINEAR ASYMMETRIC BORED CORE HEXAGONAL PHOTONIC CRYSTAL FIBER WITH LARGE NEGATIVE DISPERSION .....	949
<i>Shovasis Kumar Biswas, Rishad Arfin, Syed Athar Bin Amir, Zunayeed Bin Zahir, Ashfia Binte Habib, Riasat Khan</i>	
FAULT PREDICTION IN TRANSMISSION LINE USING GOOSE PROTOCOL AND ARTIFICIAL NEURAL NETWORK .....	955
<i>Sanjay Kumar, Arvind Kumar Singh, Md. Abul Kalam</i>	

VALIDATING RESPONSE OF WEARABLE PROTOTYPE DEVICE ON ESTIMATING GAIT PATTERN.....	962
<i>R. Jayarajan, G. Nallavan</i>	
DESIGN AND PERFORMANCE ANALYSIS OF ZETA, SEPIC AND CUK CONVERTER BASED BLDC MOTOR DRIVE FOR SOLAR WATER PUMPING APPLICATION .....	968
<i>Shalini Chauhan, Himanshu Singh</i>	
ANALYSIS OF EDGE DETECTION FOR ROAD LANES THROUGH HARDWARE IMPLEMENTATION .....	974
<i>Md Hasibul Hasan, Debashish Kr Das</i>	
OPTIMAL SIZING OF BESS FOR INDUSTRIAL PEAK SHAVING APPLICATIONS CONSIDERING DIFFERENT ELECTRICITY BILLING RATES.....	980
<i>José Andrés Saaravia-Guerrero, Elisa Espinosa-Juárez</i>	
SIMPLE PREDICTIVE TORQUE CONTROL FUNCTIONED PMSM DRIVE FOR ELECTRIC VEHICLES.....	986
<i>Ravi Eswar Kodumur Meesala, Sivaprasad Athikkal, Ranjeev Arul David, Divyashree Srinivasan</i>	
EFFECT OF LOAD SHARING ON THE EFFICIENCY OF THE SYSTEM FOR IDENTICAL LINE RESISTANCES.....	991
<i>Anupama R Itagi, Manjula Narasagondar, Manjula Betadoor, Narmada, Pavitra G. Dummawad</i>	
FEEDBACK CONTROLLER DESIGN FOR A DC-DC BUCK CONVERTER .....	995
<i>N Nitesh Kumar, Shankaragouda R Patil, Prabhudeva, Srikanth S, Shama Ravichandran</i>	
HYBRID SPACE VECTOR PWM FED INDUCTION MOTOR DRIVE CONTROL .....	1000
<i>Aman Kumar, Akhil, Sayedane Masodi, Joseph Peter, Sivaprasad Athikkal</i>	
A TWO INPUT TWO OUTPUT STEP UP TYPE TRANSFORMERLESS DC-DC CONVERTER.....	1005
<i>Sivaprasad Athikkal, Ravi Eswar Kodumur Meesala, Joseph Peter, Raman Kumar, Rahul Kumar Singh, Amit Kumar</i>	
A VOLTAGE MODULATED DIRECT POWER CONTROLLED FUEL CELL - BATTERY SYSTEM CONNECTED TO A WEAK AC GRID.....	1011
<i>L. Arun</i>	
NEURAL REPRESENTATION OF TEMPORALLY JITTERED VOWELS: A COMPUTATIONAL MODEL OF AUDITORY AGING .....	1017
<i>Vishnu Narayanan, Harshavardhan Settibhakitni</i>	
A SURVEY COMPARISON OF SWITCHED INDUCTOR AND SWITCHED INDUCTOR QUASI ZSI TOPOLOGIES .....	1025
<i>Bharath Kumar Narukullapati, Sravani Kosanam</i>	
EVALUATION OF WORKSPACE AND COUPLED MOTIONS OF AN ELECTROHYDRAULIC PARALLEL MANIPULATOR .....	1031
<i>Rajarshi Bhattacharjee, Soumalya Kundu, Shouvik Chaudhuri</i>	
DESIGN OF 5MW PV POWER PLANT IN IRAQ IN AL-SHARQIYAH DIYALA SUBSTATION .....	1039
<i>Wadhah Esmaeel Ibraheem, Adnan Ahmed Abdurraheem</i>	

TECHNO-COMMERCIAL ANALYSIS OF A SOLAR POWERED ELECTRIC VEHICLE CHARGING STATION FOR CHENNAI, INDIA .....	1046
<i>Aanya Singh, Nikhil P G, Jai Prakash Singh</i>	
METASURFACE DESIGN BASED ON S-SHAPED SPLIT RING RESONATOR FOR LINEAR-TO-CIRCULAR POLARIZATION CONVERSION .....	1051
<i>Erfeng Li, Xue Jun Li, Boon-Chong Seet</i>	
DESIGN A MULTIPORT DC-DC CONVERTER FOR HYBRID RENEWABLE NANO-GRID SYSTEM .....	1054
<i>Afshin Balal, Farzad Shahabi</i>	
INVESTIGATIONS OF RAMP BASED 2LI AND MODULATING WAVE BASED 3LI FED INDUCTION MOTOR DRIVE .....	1059
<i>Debangana Ganguly, Abhraneel Roy, Joseph Peter</i>	
ROBUST SLIDING MODE CONTROL STRATEGY APPLIED TO IFOC INDUCTION MOTOR DRIVE .....	1065
<i>Shaija P J, Asha Elizabeth Daniel</i>	
CAPACITOR CLAMPED BOOST INVERTER FOR FUEL CELL-BASED DISTRIBUTED GENERATION SYSTEM WITH BATTERY BACK UP .....	1071
<i>Dogga Raveendhra, Praveen J, Poojitha Rajana</i>	
MITIGATION OF ELECTRICAL INERTIA OF PE CONVERTERS IN SOLAR POWERED HESS SYSTEM FOR REMOTE AREA POWER SYSTEM APPLICATIONS USING SYNERGETIC CONTROLLER.....	1077
<i>Dogga Raveendhra, J Praveen, Poojitha Rajana</i>	
HSL COLOR SPACE FOR POTATO PLANT DETECTION IN THE FIELD .....	1085
<i>Taher Deemyad, Anish Sebastain</i>	
MITIGATING CURRENT SPIKES IN VFD INDUCTION MOTOR BY OPTIMIZING MOTOR DESIGN AND CONTROL PARAMETERS.....	1093
<i>Sunny V. John, K. S. Rama Rao, R. Srinivasa Rao</i>	
PMU BASED REALTIME FAULT DETECTION ALGORITHM FOR TRANSMISSION LINE FAULTS.....	1101
<i>V P Vishal, P S Shenil</i>	
IMPACT OF LARGE 132/33 KV POWER TRANSFORMER ON DISTANCE PROTECTION IN BANGLADESH .....	1106
<i>Aktabujjaman, Naruttam Kumar Roy, Md Maruf Hossain Khan</i>	
PERFORMANCE ASSESSMENT OF NMPC BASED MPPT CONTROLLER AND EXTENDED KALMAN FILTER FOR A WIND/PV HYBRID SYSTEM.....	1114
<i>T. Rampradesh, C. Christober Asir Rajan</i>	
NOVEL REGENERATIVE BRAKING CONTROLLERS FOR ELECTRIC VEHICLE DRIVEN BY BLDC MOTOR .....	1118
<i>Athira. M., Shenil P. S.</i>	
LANE PREDICTION BY AUTONOMOUS VEHICLE IN HIGHWAY TRAFFIC USING ARTIFICIAL NEURAL NETWORKS.....	1124
<i>Namratha Raj, Kusumika Krori Dutta, Archit Kamath</i>	

DESIGN AND COMPARISON OF PSO, SA AND GA TUNED PID CONTROLLER FOR BALL BALANCER ARRANGEMENT .....	1129
<i>Apoorv Surana, Bharat Bhushan</i>	
ALGORITHMIC ANALYSIS ON OPTIMIZED PI CONTROLLER BASED 7-LEVEL INVERTER .....	1134
<i>Gayathri Devi K. S, P Sujatha Therese, M. Eugene Prince</i>	
SENSOR TECHNOLOGY AND REGULATION METHOD FOR SUSTAINING THE PH VALUE IN SUGAR MECHANIZED PROCESS .....	1142
<i>Kalavathi Devi. T, Mouleeshuwaraprabhu. R, Uma Devi. S, Sakthivel. P, Poojashri. V, Swetha. A, Vasuki. P</i>	
HYBRID BIO-INTELLIGENCE SALP SWARM ALGORITHM FOR MAXIMUM POWER POINT TRACKING (MPPT) OF PHOTOVOLTAIC SYSTEMS UNDER GRADUAL CHANGE IN IRRADIANCE CONDITIONS .....	1147
<i>Mohd Nasrul Izzani Jamaludin, Mohammad Faridun Naim Bin Tajuddin, Jubaer Ahmed, Thangaparakash Sengodan</i>	
POWER GENERATION IMPROVEMENT USING ACTIVE WATER COOLING FOR PHOTOVOLTAIC (PV) PANEL.....	1154
<i>Mohamad Shukor Bin Abdul Rahim, Mohammad Faridun Naim Bin Tajuddin, Mohd Sazli Saad, C. Nalini, Zahratul Laili Bt Edaris, Md. Hasanuzzaman</i>	
INVESTIGATION ON PERTURBATION STEP-SIZE AND FREQUENCY OF P&O ALGORITHM FOR MPPT UNDER DYNAMIC WEATHER CONDITIONS.....	1160
<i>Nur Afida Muhammad, Mohammad Faridun Naim Bin Tajuddin, Rachid Boukenoui, C. Nalini, Syahrul Ashikin Azmi, Ali Saleh Aziz</i>	

**Author Index**