

The Institution of Electronics and Telecommunication Engineers

IETE Journal of Research

Volume 66 • No. 1 • January-February 2020



http://mc.manuscriptcentral.com/tijr

Subscriber Copy: Not for Resale

Cost: Rs. 18.00

Volume 66 Number 1 January-February 2020.

CONTENTS

Editorial

SUBSCRIBED

1 Scanning the Issue Shiban K Koul

Articles

- 3 Detection of Highly Motivated Time Segments in Brain Computer Interface Signals Onder Aydemir
- 14 Digital Calibration of Memory Errors in Passive Sigma-Delta Modulator Rasoul Moradi, Ebrahim Farshidi and Mohamad Soroosh
- 22 Flexible and Compact Spiral-Shaped Frequency Reconfigurable Antenna for Wireless Applications Ashfaq Ahmad, Farzana Arshad, Syeda Iffat Naqvi, Yasar Amin, Hannu Tenhunen and Jonathan Loo
- 30 Human Epithelial Type-2 Cell Image Classification Using an Artificial Neural Network with Hybrid Descriptors B. S. Divya, Kamalraj Subramaniam and H.R. Nanjundaswamy
- 42 Improved Reduced-Order Modeling Using Clustering Method with Dominant Pole Retention Sharad Kumar Tiwari and Gagandeep Kaur
- 53 Investigation and Development of 3D Printed Biodegradable PLA as Compact Antenna for Broadband Applications Pramod Kumar, Santanu Dwari, Utkarsh, Shailendra Singh and Jitendra Kumar
- 65 Model Predictive Control for Three-Level Cascaded H-bridge D-STATCOM Y. Srinivasa Rao and M. K. Pathak
- 77 Multi-resonant Bowtie Antenna with Modified Symmetric SRR for Wireless Applications Rajesh Kumar, Malay Ranjan Tripathy and Daniel Ronnow
- 85 Numerical Modelling of Interconnect Electromigration Under Non-DC Stressing Conditions Zhenyu Wu, Chao Li, Zebo Zhao and Yintang Yang
- 91 Optimal Control of DFIG Wind Energy System in Multi-machine Power System using Advanced Differential Evolution Ayyarao S. L. V. Tummala, Hemanth K. R. Alluri and P. V. Ramanarao
- 103 Performance Evaluation and Filter Design Aspects of Single-Phase Inverter under Different Loading Conditions Pritha Roy, Jitendra Nath Bera, Gautam Sarkar and Sumana Chowdhuri
- 115 Supercapacitor Module Solely Powering DC–DC Buck Converter for Hand-Held Applications Aditya S. Sengupta, Ajoy K. Chakraborty and Bidyut K. Bhattacharyya

न्द्रीय पुस्तकलिय (CENTA) LI सिक्किम विश्वविद्यालय Sikkim University

Volume 66 Number 2 March-April 2020

CONTENTS

Editorial

125 Scanning the Issue Shiban K Koul

ban K Koul

Articles

- 127 A Low Power CMOS UWB LNA with Dual-band Notch Filter Using Forward Body Biasing Maryam Babasafari and Mostafa Yargholi
- 139 A Modified Framework for Multislice Image Fusion for High Contrast Liver Cancer Detection B. Lakshmi Priya, K. Jayanthi, Biju Pottakkat and G. Ramkumar
- 150 A New Symmetric Multimodal MIMO Antenna with Reduction of Modal Correlation Coefficient Using TCM *P. Mohamadi, G. R. Dadashzadeh and M. Naser-Moghadasi*
- 160 An Illumination Pre-processing Method Using the Enhanced Energy of Discrete Wavelet Transform for Face Recognition A. Thamizharasi and Jayasudha J. S.
- 172 Compact Microstrip Diplexer Based on CRLH Metamaterial Concept M. Danaeian
- 182 Design and Analysis of Memristor-based Combinational Circuits Anuradha Singh
- 192 Distributed Control for DC Microgrid Based on Optimized Droop Parameters Shivam and Ratna Dahiya
- 204 Dynamic Economic Dispatch Incorporating Photovoltaic and Wind Generation using Hybrid FPA with SQP Anum Abid, Tahir Nadeem Malik, Farah Abid and Intisar Ali Sajjad
- 214 Facial Action Unit Intensity Detection by Extracting Complimentary Information using Distance Metric Learning Neeru Rathee, Dinesh Ganotra and Ajay Rathee
- 224 Fuzzy-based Security-Driven Optimistic Scheduling of Scientific Workflows in Cloud Computing J. Angela Jennifa Sujana, T. Revathi and S. Joshua Rajanayagam
- 242 Reconfigurable Corner Truncated Square Microstrip Patch Antennas for Wireless Communication Applications Anantha Bharathi, Lakshminarayana Merugu and P. V. D. Somasekhar Rao
- 256 Sliding Mode Control of Induction Motor Drive Based on Feedback Linearization Ambrish Devanshu, Madhusudan Singh and Narendra Kumar
- 270 Thermal Analysis of Light Source for Optogenetics Experiments Rabinder Henry and Velmathi Guruviah

केन्द्रीय पुस्तकालय / Central Library
ः सिविकम विश्वविद्यालय
Sikkim University

Volume 66 Number 3 May-June 2020

CONTENTS

Editorial

287 Scanning the Issue Shiban K Koul

SUBSCRIBED

Articles

- 290 Video Copyright Protection Using Chaotic Maps and Singular Value Decomposition in Wavelet Domain S. Ramakrishnan and S. Ponni alias Sathya
- 303 A Simple but Efficient EEG Data Compression Algorithm for Neuromorphic Applications Geevarghese Titus and M. S. Sudhakar
- 315 An Efficient FPGA Realization of Seizure Detection from EEG Signal Using Wavelet Transform and Statistical Features V. Geethu and S. Santhoshkumar
- 326 Backstepping Model Predictive Controller for Blood Glucose Regulation in Type-I Diabetes Patient Akshaya Kumar Patra, Alok Kumar Mishra and Pravat Kumar Rout
- 341 Cloud-based Battery Replacement Scheme for Smart Electric Bus System Jinyong (Tim) Kim, Jaehoon (Paul) Jeong, Hyoungshick Kim and Jung-Soo Park
- 353 Design of an Improved Differentially Fed Antenna Array for RF Energy Harvesting Deepak Kumar and Kalpana Chaudhary
- 359 EPE-Based Pilot Relaying Scheme Immune to SIR Variations Om Hari Gupta and Manoj Tripathy
- 370 Lung Parenchyma Segmentation: Fully Automated and Accurate Approach for Thoracic CT Scan Images S. Pramod Kumar and Mrityunjaya V. Latte
- Novel Text Steganography Using Natural Language Processing and Part-of-Speech Tagging Barnali Gupta Banik and Samir Kumar Bandyopadhyay
- 396 Optimal Localization and Sizing of UPFC to Solve the Reactive Power Dispatch Problem Under Unbalanced Conditions Shilpa S. Shrawane Kapse, Manoj B. Daigavane and Prema M. Daigavane
- 414 Robust 2-DOF FOPID Controller Design for Maglev System Using Jaya Algorithm Debdoot Sain, Subrat Kumar Swain, Tapas Kumar and Sudhansu Kumar Mishra
- 427 Visual Tracking Using Kernelized Correlation Filter with Conditional Switching to Median Flow Tracker C. S. Asha and A. V. Narasimhadhan

केन्द्रीय पुस्तकालय) Central Libral स्थितकम व्यक्तिविद्यालय Sikkim University

Volume 66 Number 4 July-August 2020

CONTENTS

Editorial

SUBSCRIRED

439 Scanning the Issue Shiban K Koul

Articles

- 442 Adaptive PID Controller with P&O MPPT Algorithm for Photovoltaic System Jyotirmaya Sahoo, Susovon Samanta and Shamik Bhattacharyya
- 454 Analysis on the Grounding Architecture of a Technology Demonstrator Vehicle P. Aziya Nizin, Antony P.P., R. G. Harikumar Warrier and Shooja A.
- Fabrication of Tin Oxide Nanoparticles for CO₂ Gas Sensing Layer

 Prakash Viswanathan, Ashish Kumar Patel, Jayant Pawar, Amit Patwardhan and Rabinder Henry
- 466 Generalized Characteristic Ratios: Definition, Assignment, and Application Mohammad Tabatabaei
- 478 MOS Amplifier Design Methodology for Optimum Performance Abir J. Mondal, Paromita Bhattacharjee, Pinaki Chakraborty and Bidyut K. Bhattacharyya
- 491 Multi-Resolution-Analysis-based Line-to-Ground Fault Detection in a VSC-Based HVDC System Debopoma Kar Ray, Surajit Chattopadhyay and Samarjit Sengupta
- Parallel Inductor Multilevel Current Source Inverter for Input Ripple Current Reduction in PEM Fuel Cell Applications Nik Fasdi Nik Ismail, Nasrudin Abd. Rahim, Siti Rohani Sheikh Raihan and Yusuf Al-Turki
- 518 Sleep Apnea Diagnosis by DWT-Based Kurtosis, Radar and Histogram Analysis of Electrocardiogram Santanu Chattopadhyay, Gautam Sarkar and Arabinda Das
- 527 Sub-1 V, 5.5 ppm/°C, High PSRR all CMOS Bandgap Voltage Reference Sadeque Reza Khan
- TDOA and RSSD Based Hybrid Passive Source Localization with Unknown Transmit Power Zengfeng Wang, Hao Zhang, Tingting Lu, Xing Liu, Zhaoqiang Wei and T. Aaron Gulliver
- Threshold Voltage Modelling of Linearly Graded Binary Metal Alloy Gate Electrode with DP MOSFET Priyanka Saha and Subir Kumar Sarkar
- Unknown Inputs Observer-Based Output Feedback Predictive Controller for an Activated Sludge Process Feten Smida, Taoufik Ladhari, Salim Hadj Saïd and Faouzi M'sahli
- Unsupervised Event Detection Using Self-learning-based Max-margin Clustering: Analysis on Streaming Tweets Swati Gupta and Biplab Banerjee
- Wide Bandgap Zinc Oxide Thin Films Prepared by RF Magnetron Sputtering at Room Temperature Gaurav Saxena and Roy Paily

न्द्राय पुलाकाराज्यसम्बद्धारायारः सिक्किम विश्वविद्यालय Sikkim University

CONTENTS

Editorial

587 Scanning the Issue Shiban K Koul

Articles

- 590 Reconfigurable Microstrip Patch Antenna with Switchable Polarization Rajesh K. Singh, Ananjan Basu and Shiban K. Koul
- 600 Microwave Near-field Imaging of Biological Samples Using a Microstrip Resonator Probe Fatemeh Kazemi, Farahnaz Mohanna and Javad Ahmadi-Shokouh
- 608 Analytical Model of Gate to Channel Capacitance for Nanoscale MOSFETs Arun Kumar Chatterjee and B. Prasad
- 617 Normal Mode Helical Antenna on Small Circular Ground Plane Suman P. Wadkar, B. G. Hogade, S. M. Rathod, Hemant Kumar and Girish Kumar
- Development of 3DTV Emission Multiplexer and Reception-Signal Status Analyzer for ATSC 8-VSB & MDTV Hybrid 3DTV Services
 Sung-Hoon Kim, Dong-Wook Kang, Kyeong-Hoon Jung and Ki-Doo Kim
- 635 Wind Speed Prediction Using Wavelet Decomposition Based on Lorenz Disturbance Model Yagang Zhang, Chenhong Zhang, Shuang Gao, Penghui Wang, Fenglin Xie, Penglai Cheng and Shuang Lei
- 643 UWB Dual-Band Notched Conical Dielectric Resonator Antenna with Improved Gain Upali Aparajita Dash and Sudhakar Sahu
- 654 Realization of RFID-Based DAS Using an RF Transceiver and Huffman Coding Soumen Ghosh and Palash Kumar Kundu
- Design Automation and Testing of MEDA-Based Digital Microfluidic Biochips: A Brief Survey Pampa Howladar, Pranab Roy and Hafizur Rahaman
- 677 CAD Layout Analysis for Defect Inspection in Semiconductor Fabrication Abhishek Vikram, Vineeta Agarwal and Anshul Agarwal
- A Robust Two-axis Tilt Angle Sensor Based on Air/Liquid Two-phase Dielectric Capacitive Sensing Structure
 Ha Tran Thi Thuy, Tiep Dang Dinh, Tuan Vu Quoc, Thinh Pham Quoc, Masahiro Aoyagi, My Bui Ngoc, Van Thanh Dau
 and Tung Thanh Bui
- 697 Imperialist Competitive Algorithm with Effective Assimilation Strategy: A Comparative Study on Numerical Benchmark Functions
 Elnaz Davoodi, Ebrahim Babaei and Behnam Mohammadi-ivatloo
- 711 An MCS with Iterative Multi-dimensional Hamming Product Codes Parvathi Chandrasekaran and Ramesh Balasubramanyam
- 720 A LabVIEW-based Real-Time GUI for Switched Controlled Energy Harvesting Circuit for Low Voltage Application MD Adnan Shahrukh Khan, R. K. Rajkumar, C. V. Aravind, Y. W. Wong and M. I. F. Bin Romli

केन्द्रीय पुष्टकोल्पि द्विणासी Library सिकिकमें विश्वविद्यालय Sikkim University

CONTENTS

Special Issue on "Design Optimization"

Guest Editorial

731 Design Optimization Jayadeva

Articles

- 733 Efficient CNN Accelerator on FPGA S Kala and S Nalesh
- 741 A Low-Power VLSI Implementation of RFIR Filter Design using Radix-2 Algorithm with LCSLA Kasarla Satish Reddy and Hosahally Narayangowda Suresh
- 751 A Double-Balanced Up-Conversion Mixer Using 90 nm CMOS Technology for 60 GHz Spectrum Frequency Majid Alotaibi
- 756 Optimized Structural Compressed Sensing Matrices for Speech Compression Yuvraj V Parkale and Sanjay L Nalbalwar
- 772 Energy-Efficient Resource Allocation in Multicell Large-Scale Distributed Antenna System with Imperfect CSI Meha Mahajan and Wonsik Yoon
- 781 Design Optimization for Programmable Microfluidic Devices Integrating Contamination Removal and Capacity-Wastage-Aware Washing

 Piyali Datta, Arpan Chakraborty and Rajat Kumar Pal
- 797 Scheduling Interdependent Smart Appliances with Mixed-Preemption Policy for Peak Load Minimization Nilotpal Chakraborty, Arijit Mondal and Samrat Mondal
- 806 Efficiency Enhancement in a Wireless Power Transmission System Using Parasitic Components Kim Ho Yeap, Agnes Ruey Chyi Cheah, Kee Choon Yeong, Takefumi Hiraguri, Shunya Yokoyama, Isamu Shitara, Kazuhiro Hirasawa and Ryoji Wakabayashi
- 815 Non-conventional Multiband Patch Antenna Design with Filtering Aspect Based on Genetic Algorithm Khelil Fertas, Soufiane Tebache, Farid Ghanem, Smail Tedjini and Rabia Aksas
- 823 Novel Detectors for Massive MU-MIMO Communications Ye-Shun Shen, Fang-Biau Ueng and Chin-Yang Kung
- 841 Performance and Energy Conservation of 3GPP IFOM Protocol for Dual Connectivity in Heterogeneous LTE-WLAN Network Shubhada Gadqil, Shashi Ranjan and Abhay Karandikar