

2023 10th International Conference on Electrical and Electronics Engineering (ICEEE 2023)

**Istanbul, Turkey
8-10 May 2023**



**IEEE Catalog Number: CFP23M39-POD
ISBN: 979-8-3503-0430-5**

**Copyright © 2023 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:	CFP23M39-POD
ISBN (Print-On-Demand):	979-8-3503-0430-5
ISBN (Online):	979-8-3503-0429-9

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

2023 10th International Conference on Electrical and Electronics Engineering (ICEEE) **ICEEE 2023**

Table of Contents

Preface	xvii
Conference Committee	xviii
Speakers	xxiii

Image Recognition and Detection Method

Hand Gesture Recognition Through Reflected Infrared Light Wave Signals	1
<i>Md Zobaer Islam (Oklahoma State University, USA), Li Yu (University of Windsor, Canada), Hisham Abuella (Oklahoma State University, USA), John F. O'Hara (Oklahoma State University, USA), Christopher Crick (Oklahoma State University, USA), and Sabit Ekin (Texas A&M University, USA)</i>	
Fire Classification using Attention-Based Deep-CNN in Digital Images	6
<i>Din Sami Ud (Donghua University, China), Sohail Muhammad (Donghua University, China), Fang Han (Donghua University \. Chna), Hayat Shoaib (Donghua University, China), and Hussain Muhammad Ather Iqbal (Donghua University, China)</i>	
A Compact 3D Printed Text-to-Braille Converting Device with Optical Character Recognition (OCR)	12
<i>Kemel Shomenov (Nazarbayev University, Kazakhstan), Adkhamzhon Yuldashov (Nazarbayev University, Kazakhstan), and Md. Hazrat Ali (Nazarbayev University, Kazakhstan)</i>	
Multi-Lane Detection System Based on Segmentation Model for Autonomous Vehicles	18
<i>Sinan Özen (AVL Research and Engineering Turkey, Turkey), Uygur Kaya (AVL Research and Engineering Turkey, Turkey), Abdurrahim Semiz (AVL Research and Engineering Turkey, Turkey), and Aysun Taşyapı Çelebi (Kocaeli University, Turkey)</i>	
Lung Cancer Detection from CT Images using Image Processing and Machine Learning Techniques	24
<i>Deema Sohrab Sawalha (An-najah National University, Palestine) and Adnan Salman (An-najah National University, Palestine)</i>	

Detection of Skin Cancer using Artificial Intelligent Techniques	31
<i>Ahmad Bataineh (Mechanical Engineering Department, Jordan University of Science and Technology, Jordan), Fatima Khwaileh (Mechanical Engineering Department, Jordan University of Science and Technology, Jordan), Ahmad Al Tawaha (Mechanical Engineering Department, Jordan University of Science and Technology, Jordan), and Mohammad Alfauri (Mechanical Engineering Department, Jordan University of Science and Technology, Jordan)</i>	
Detecting the Regions-of-Interest that Enclose the Tumors in Breast Ultrasound Images using the RetinaNet Model	36
<i>Mohammad I. Daoud (School of Electrical Engineering and Information Technology, German Jordanian University, Amman, Jordan), Aamer Al-Ali (School of Electrical Engineering and Information Technology, German Jordanian University, Amman, Jordan), Mostafa Z. Ali (Department of Network Engineering and Security, Jordan University of Science and Technology, Irbid, Jordan), Ismail Hababeh (School of Electrical Engineering and Information Technology, German Jordanian University, Amman, Jordan), and Rami Alazrai (School of Electrical Engineering and Information Technology, German Jordanian University, Amman, Jordan)</i>	

Intelligent Image Analysis and Processing

Innovative Application of Internal Audit Digitization Based on Portrait Technology: A Case Study of Pumped Storage Enterprises	41
<i>Fang Xie (State Grid Xinyuan Holdings Co., LTD, China), Huanqin Chen (State Grid Xinyuan Holdings Co., LTD, China), Jun Tang (State Grid Xinyuan Holdings Co., LTD, China), Jiarui Yong (Beijing Information Science and Technology University, China), Haoxuan Chen (Beijing Information Science and Technology University, China), and Li Zhang (Beijing Information Science and Technology University, China)</i>	
AI-Based Visual Odometry Implementation on an Embedded System	47
<i>Oğuzhan Büyüksolak (Istanbul Technical University, Turkey) and Ece Olcay Güneş (Istanbul Technical University, Turkey)</i>	
Design of a Low-Cost Prototype with 3D Printed Glasses for Real Time Eye-Tracking System	52
<i>Mario Rojas (Tecnologico de Monterrey, Mexico), Jorge A. Lopez (School of Engineering and Sciences, Tecnologico de Monterrey, Mexico), Frida S. Sosa (School of Engineering and Sciences, Tecnologico de Monterrey, Mexico), Christian R. Velasco (School of Engineering and Sciences, Tecnologico de Monterrey, Mexico), Pedro Ponce (Tecnologico de Monterrey, Mexico), David C. Balderas (Tecnologico de Monterrey, Mexico), and Arturo Molina (Tecnologico de Monterrey, Mexico)</i>	
Sparse Recovery for ISAR Imaging via Nuclear Norm Minimization	57
<i>Necmettin Bayar (Istanbul Technical University, Turkey), Isin Erer (Istanbul Technical University, Turkey), and Deniz Kumlu (Istanbul Technical University, Turkey)</i>	

Measurement of Trash Percentage for Mechanical Harvested Sugarcane using Multispectral Image	62
<i>Lalita Panduangnate (Khon Kaen University, Thailand), Arthit Phuphaphud (Khon Kaen University, Thailand), Jetsada Posom (Khon Kaen University, Thailand), and Khwantri Saengprachatanarug (Khon Kaen University, Thailand)</i>	
Adaptive Technique of Impulsive Noise Removal in Color Digital Images	68
<i>Bogdan Smolka (Silesian University of Technology, Poland), Monika Mendrela (Silesian University of Technology, Poland), Damian Kusnik (Silesian University of Technology, Poland), and Milena Smolka (AGH University of Science and Technology, Poland)</i>	
Improved Kidney Outlining in Ultrasound Images by Combining Deep Learning Semantic Segmentation with Conventional Active Contour	74
<i>Mohammad I. Daoud (German Jordanian University, Jordan), Ahmad Shtaiyat (German Jordanian University, Jordan), Hadeel A. Younes (The University of Jordan Hospital, Jordan), Mahasen S. Al-Najar (The University of Jordan Hospital, Jordan), and Rami Alazrai (German Jordanian University, Jordan)</i>	
A Critical Review of Spatial Domain Multiple Image Encryption Methods	79
<i>Mehmet Demirtaş (Necmettin Erbakan University, Türkiye)</i>	

Signal Detection, Analysis and Measurement

A Broadband Frequency-to-Voltage Converter for Sinusoidal Signals Based on Filters Design	85
<i>Anas Saleh Mohammed (King Fahd University of Petroleum & Minerals, Saudi Arabia) and Yaqub Mahnashi (King Fahd University of Petroleum & Minerals, Saudi Arabia)</i>	
Classification of High Frequency Transient Events Buried in Low Frequency Sampled PMU Data....	90
<i>Görkem Gök (Gazi University, Turkey; Defence Systems Technologies Business Sector, Turkey), Özgül Salor (Kyrgyz-Turkish Manas University, Kyrgyzstan; Gazi University, Turkey), and Müslüm Cengiz Taplamacioglu (Gazi University, Turkey)</i>	
DNN-SVM Automatic ECG Signals Heartbeat Classification	95
<i>Aissa Amrouche (Computational Linguistics Department CRSTDLA, Algeria), Ahcéne Abed (DIC Laboratory, Department of Electronics, University of Blida, Algeria), Nabil Hezil (Computational Linguistics Department CRSTDLA, Algeria), Miloud Zalagh (Speech Communication and Pathology Department CRSTDLA, Algeria), Khadidja Nesrine Boubakeur (Speech Communication and Pathology Department CRSTDLA, Algeria), and Aicha Zitouni (Speech Communication and Pathology Department CRSTDLA, Algeria)</i>	
A Triband Multifunction Frequency Selective Surface	100
<i>Gulab Shah (Nanjing University of Aeronautics and Astronauts, China), Qunsheng Cao (Electronics and Information Engineering, NUAU, China), Zain Ul Abidin (Electronics and Information Engineering, NUAU, China), Faisal Amin (Electronics and Information Engineering, NUAU, China), and Zaheer Ahmed Dayo (Huanggang normal university, China)</i>	

An Efficient 1D Autoencoder-Based Approach for R-Peaks Detection in Electrocardiogram Signals	106
<i>Ramazan Ozgur Dogan (Gumushane University, Turkiye), Hulya Dogan (Karadeniz Technical University, Turkiye), and Temel Kayikcioglu (Karadeniz Technical University, Turkiye)</i>	
Police Car Emergency Signaling System	111
<i>Renato Raul Sacara (Technical University of Cluj-Napoca, Romania) and Lorant Andras Szolga (Technical University of Cluj-Napoca, Romania)</i>	
Deep Learning-Based Diagnosis of Major Depressive Disorder using Electroencephalography Signals	116
<i>Atousa Hatami (Eastern Mediterranean University, Turkey) and Shahla Azizi (Eastern Mediterranean University, Turkey)</i>	
A Single Layer Miniaturized Band Stop Frequency Selective Surface with Oblique Stability	121
<i>Zain Ul Abidin (Nanjing university of Aeronautics and Astronautics, China), Qunsheng Cao (Nanjing university of Aeronautics and Astronautics, China), and Gulab Shah (Nanjing University of Aeronautics and Astronautics, China)</i>	
Generation and Spectrum Analysis of C Band ASE using Erbium-Doped Fibers with Different Properties	126
<i>Ozcan Akcesme (Gazi University, Turkey) and Murat Yucel (Gazi University, Turkey)</i>	

Intelligent Communication System and Data Network

E-Serve for Environment Monitoring using LoRaWAN	131
<i>Nor Azimah Khalid (Universiti Teknologi MARA (UiTM), Malaysia), Muhammad Alif Jamaludin (Universiti Teknologi MARA (UiTM), Malaysia), and Shapina Abdullah (Universiti Teknologi MARA (UiTM), Malaysia)</i>	
Stability Analysis of a Nanogrid Considering Communication Delay Time	139
<i>Jorge Helguero (University of Applied Sciences Kempten, Germany), Argo Rosin (Smart City Center of Excellence (Finest Twins), Estonia; Tallinn University of Technology (TalTech), Estonia), and Helmuth Biechl (University of Applied Sciences Kempten, Germany)</i>	
A Novel Secure Algorithmic Infrastructure for V2V Systems using Switched Beam Antenna System	144
<i>H.Ahmed Tahir (Multimedia University, Malaysia), Tiang Jun Jiat (Multimedia University, Malaysia), Azwan Mahmud (Multimedia University, Malaysia), and Chung Gwo Chin (Multimedia University, Malaysia)</i>	
ESMAC: Enhanced S-MAC Protocol on Network Topologies to Improve Energy-Efficient in Wireless Sensor Networks	149
<i>Ahmad Faiz Mazlan (Universiti Sultan Zainal Abidin, Malaysia), Mohd Fadzil Abdul Kadir (Universiti Sultan Zainal Abidin, Malaysia), Ahmad Aiman Shallahuddin (Universiti Sultan Zainal Abidin, Malaysia), Mohamad Afendee Mohamed (Universiti Sultan Zainal Abidin, Malaysia), Ahmad Faisal Amri Abidin (Universiti Sultan Zainal Abidin, Malaysia), and Wan Suryani Wan Awang (Universiti Sultan Zainal Abidin, Malaysia)</i>	

Performance Enhancement of Multicarrier NOMA for 5G NR System	154
<i>Raya. K Mohammed (Al-Nahrain University, Iraq) and Nasser N. Khamiss (Al-Nahrain University, Iraq)</i>	
Lightweight Authentication and Communication Protocol for IoT Devices	159
<i>Watanyou Yodthong (Mahanakorn University of Technology, Thailand) and Mudarmeen Munlin (Mahanakorn University of Technology, Thailand)</i>	
Beamforming Network for 5G Applications	164
<i>Mohamed A. Raafat (Mathematics Department, German International University, Egypt), A.M.M.A. Allam (Department of Communication Engineering, German University in Cairo, Egypt), Mahmoud.A. Helala (Department of Communication Engineering, German University in Cairo, Egypt), M.G. Ghanem (Department of Communication Engineering, German University in Cairo, Egypt), Diaa E. Fawzy (Faculty of Engineering, Izmir University of Economics, Türkiye), M. Atef Abbas (Department of Electronics and Communication, Arab Academy for Science and Technology, Egypt), Mohamed Fathy Abo Sree (Department of Electronics and Communication, Arab Academy for Science and Technology, Egypt), and M.S.H. Salah El-Din (Department of Electronics and Communication, Arab Academy for Science and Technology, Egypt)</i>	
On Premises IIoT Architecture for Capturing, Storing and Visualizing Production Data	169
<i>Fabian Hensler (Würth Elektronik eiSos, Germany), Alexander Jesser (Institute ICPS, Hochschule Heilbronn, Germany), Heinz Frank (Hochschule Heilbronn, Germany), Nico Strebe (Würth Elektronik eiSos, Germany), Marius Kappler (Würth Elektronik eiSos, Germany), and Steffen Mütsch (Würth Elektronik eiSos, Germany)</i>	
Indoor Quality Assessment of 4G/5G Mobile Service Providers in Muscat Governorate of Oman ...	178
<i>Majan Abdullah Al Jahdhami (A'Sharqiyah University (ASU), Oman), Rajaa Mohammed Al-Alawi (A'Sharqiyah University (ASU), Oman), Ayman A. El-Saleh (A'Sharqiyah University (ASU), Oman), and Abduraqeb Alhammadi (Universiti Teknologi Malaysia, Malaysia)</i>	

Modern Information Theory and Application

A Comparative Study of Machine Learning Methods for Intrusion Detection	184
<i>Fadi Sibai (Gulf University for Science and Technology, Kuwait), Abu Asaduzzaman (Wichita State University, USA), and Ahmad Sibai (University of South Florida, USA)</i>	
BAC TTS Corpus: Rich Arabic Database for Speech Synthesis	189
<i>Aissa Amrouche (Computational Linguistics Department CRSTDLA, Algeria), Youssouf Bentrchia (Computational Linguistics Department CRSTDLA, Algeria), Nabil Hezil (Computational Linguistics Department CRSTDLA, Algeria), Khadidja Nesrine Boubakeur (Speech Communication and Pathology Department CRSTDLA, Algeria), Nawel Behloul (Speech Communication and Pathology Department CRSTDLA, Algeria), Miloud Zalagh (Speech Communication and Pathology Department CRSTDLA, Algeria), Ahcène Abed (DIC Laboratory, Department of Electronics, University of Blida 1 Algeria), and Leila Falek (Spoken Communication and Signal Processing Laboratory, USTHB Algiers, Algeria)</i>	

The Role of WhatsApp Group to Support Post Pandemic Teaching and Learning	194
<i>Rozaini Ahmad (Sunway College, SCKL, Malaysia), Malissa Maria Mahmud (Continuing Education (PACE) Sunway University, Malaysia), Yazilmiwati Yaacob (Sunway College, SCKL, Malaysia), and Muhamad Safwan Mohd A'seri (Sunway College, SCKL, Malaysia)</i>	
MYbody: Augmented Reality Mobile App for Understanding Body Boundaries using MADLC	200
<i>Zan Azma Nasruddin (Universiti Teknologi MARA, Malaysia), Nor Hapiza Mohd Ariffin (Dhofar University, Oman), Nurul Syakila Abdul Rashid (Universiti Teknologi MARA, Malaysia), and Irwan Mazlin (Universiti Teknologi MARA, Malaysia)</i>	
Self-Adaptive Genetic Algorithm For Permutation Flow Shop Scheduling Problems	207
<i>Cihanser Çalışkan (Yaşar University, Turkey) and Kazım Erdoğan (Yaşar University, Turkey)</i>	
Factors Influencing the Adoption of Responsible AI	214
<i>Uday Nedunuri (SP Jain School of Global Management, India)</i>	
Design and Development of a Medical Assistant Robot for Hospitals: An Approach with IoT-Powered Physiological Monitoring and Patient Interaction	219
<i>Sajedul Islam Bappi (East Delta University, Bangladesh), Toufiq Ahmed (East Delta University, Bangladesh), Kazi Muhammad Asif Ashrafi (East Delta University, Bangladesh), and Muhammad Samiul Alam (East Delta University, Bangladesh)</i>	
Comparison of Quantum-Digital to Thermal Method in AC Voltage Measurements	224
<i>Mehedin Arifović (Voltage Laboratory of TÜBİTAK Ulusal Metroloji Enstitüsü (UME), Türkiye), Naylan Kanatoğlu (Voltage Laboratory of TÜBİTAK Ulusal Metroloji Enstitüsü (UME), Türkiye), and Tezgül Coşkun Öztürk (Voltage Laboratory of TÜBİTAK Ulusal Metroloji Enstitüsü (UME), Türkiye)</i>	

System Model Analysis and Optimization Calculation

Connecting User Emotions and User Experience (UX) Among University Students During Open Distance Learning	229
<i>Zan Azma Nasruddin (Universiti Teknologi Mara, Malaysia), Aida Wati Zainan Abidin (Universiti Teknologi Mara, Malaysia), Nor Hapiza Mohd Ariffin (Dhofar University, Oman), Mohd Khairul Azmi Hassan (International Islamic University Malaysia, Malaysia), and Rahmah Mokhtar (Universiti Malaysia Pahang, Malaysia)</i>	
Students' Satisfaction Towards Blackboard: An Integration of Technology Acceptance Model for Quality eLearning	236
A Model for the Disclosure of Probe Attacks Based on the Utilization of Machine Learning Algorithms	241
<i>Hani Al-Mimi (Al-Zaytoonah University of Jordan, Jordan), Nesreen A. Hamad (Al-Zaytoonah University of Jordan, Jordan), and Mosleh M. Abualhaj (Al-Ahliyya Amman University, Jordan)</i>	
A Deep Reinforcement Learning Approach for DNN Collaborative Inference in Mobile Edge Computing	248
<i>Mingchu Li (Dalian University of Technology, China), Li Yang (Dalian University of Technology, China), and Junhao Huang (Dalian University of Technology, China)</i>	

Production-Ready Deep Learning Model Optimization for Anomaly Detection in Photovoltaic Systems	255
<i>Zoubir Barraz (Hassan II Institute of Agronomy and Veterinary Medicine - Rabat, Morocco; Green Energy Park Research Platform, Morocco), Ibtihal Ait Abdelmoula (Green Energy Park Research Platform, Morocco), Nassim Lamrini (National Schools of Applied Sciences, Morocco; Green Energy Park Research Platform, Morocco), and Imane Sebari (Hassan II Institute of Agronomy and Veterinary Medicine - Rabat, Morocco)</i>	
Modeling of HEMT Devices Through Neural Networks: Headway for Future Remedies	261
<i>Lida Kouhalvandi (Department of Electronics and Telecommunications, Politecnico di Torino, Italy; Dogus University, Turkey) and Simona Donati Guerrieri (Department of Electronics and Telecommunications, Politecnico di Torino, Italy)</i>	

Antenna Structure Design and Performance Analysis

Design and Implementation of Smart Watch Textile Antenna for Wi-Fi Bio Medical Applications in Millimetric Wave Band	268
<i>A.M.M.A. Allam (Faculty of Information and Engineering Technology, German University in Cairo, Egypt), M.G. Ghanem (Faculty of Information and Engineering Technology, German University in Cairo, Egypt), Diao E. Fawzy (Izmir University of Economics, Türkiye), Mohamed A. Raafat (Department of Mathematics-Engineering, German International University, Egypt), M. Atef Abbas (Department of Electronics and Communication, Arab Academy for Science and Technology, Egypt), Mohamed Fathy Abo Sree (Department of Electronics and Communication, Arab Academy for Science and Technology, Egypt), and M.S.H. Salah El-Din (Department of Electronics and Communication, Arab Academy for Science and Technology, Egypt)</i>	
Noise Cancellation with Adaptive Filters on the Public Radio Spectrum	273
<i>Çağlar Özçetin (Istanbul Technical University, Turkey) and Sedef Kent (Istanbul Technical University, Turkey)</i>	
Compact Octagonal Patch Antenna Array with Enhanced Isolation and Cross Polarization	279
<i>Zuhair M. Hejazi (Yarmouk University, Jordan) and Asem S. Al-Zoubi (Yarmouk University, Jordan)</i>	
An Ultra-Wideband Textile-Based Perfect Superstrate Metamaterial Absorber for 6G Applications	286
<i>A.M.M.A. Allam (Faculty of Information and Engineering Technology, German University, Egypt), Mahmoud.A. Helala (Faculty of Information and Engineering Technology, German University, Egypt), M.G. Ghanem (Faculty of Information and Engineering Technology, German University, Egypt), Mohamed A. Raafat (Department of Mathematics-Engineering, German International University, Egypt), Diao E. Fawzy (Izmir University of Economics, Türkiye), Gökberk Akarsu (Faculty of Engineering, Izmir University of Economics, Türkiye), M. Atef Abbas (Department of Electronics and Communication, Arab Academy for Science and Technology, Egypt), Mohamed Fathy Abo Sree (Department of Electronics and Communication, Arab Academy for Science and Technology, Egypt), and M.S.H. Salah El-Din (Department of Electronics and Communication, Arab Academy for Science and Technology, Egypt)</i>	

Development of Liquid Crystal Display Printed Antennas for Millimeter-Wave Applications	292
<i>Sheng Huang (The University of New South Wales, Australia), King Yuk Chan (The University of New South Wales, Australia), and Rodica Ramer (The University of New South Wales, Australia)</i>	
Examination of Effects of Shipboard Conducting Structures on Electrical Characteristics of HF Antennas	297
<i>Baturalp Türegün (ASELSAN Inc., Türkiye) and Nursel Akçam (Gazi University, Türkiye)</i>	
SIGW Based Array of Hexagonal Slot Antennas for Sub-6 Cellular LTE/5G Applications	302
<i>Abdel Megid Mahmoud Allam (German University in Cairo (GUC, Egypt), Hesham Kamal Khalil (Arab Academy for Science, Technology, and Maritime Transport, Egypt), Hussein Hamed Ghouz (Arab Academy for Science, Technology, and Maritime Transport, Egypt), and Mohamed Fathy Abo Sree (Arab Academy for Science, Technology, and Maritime Transport, Egypt)</i>	

Advanced Electronic Devices and Equipment Development

Electro-Optic Pulse Drive of Josephson Arbitrary Waveform Synthesizer at UME	307
<i>Tezgül Coskun Öztürk (Tübitak Ulusal Metroloji Enstitüsü (UME), Turkey), Ferhat Sametoglu (TüBITAK Ulusal Metroloji Enstitüsü (UME), Turkey), Mehedin Arifoviç (TüBITAK Ulusal Metroloji Enstitüsü (UME), Turkey), Marco Kraus (Physikalisch Technische Bundesanstalt (PTB), Germany), Ralf Behr (Physikalisch Technische Bundesanstalt (PTB), Germany), and Oliver Kieler (Physikalisch Technische Bundesanstalt (PTB), Germany)</i>	
Analysis of Inductively Coupled Circuits in Terms of Stability Issues	312
<i>Ioana-Gabriela Sîrbu (University of Craiova, Romania), Lucian Mandache (University of Craiova, Romania), Dan-Gabriel Stănescu (University of Craiova, Romania), and Mircea-Emilian Ardeleanu (University of Craiova, Romania)</i>	
Simulation of NO ₂ Gas Sensor Based on Multistrip Couplers Surface Acoustic Wave Devices	317
<i>Mohamed Moustafa (The American university in cairo, Egypt) and Mohamed Swillam (The American university in cairo, Egypt)</i>	
Optimizing Fused Deposition Modeling with ANN: Material Consumption and Tensile Strength Predictions	321
<i>Hani Nasuha Hadi Irazman (Universiti Malaysia Perlis, Malaysia), Mohd Sazli Saad (Universiti Malaysia Perlis, Malaysia), Mohamad Ezral Baharudin (Universiti Malaysia Perlis, Malaysia), Azuwir Mohd Nor (Universiti Malaysia Perlis, Malaysia), and Mohd Zakimi Zakaria (Universiti Malaysia Perlis, Malaysia)</i>	
Magnetic Shielding Simulation for a Low Noise Atomic Comagnetometer	327
<i>Murat Salim Karabinaoglu (TUBITAK-UME, Turkey), Esra Koc (TUBITAK-UME, Turkey), and Bekir Cakir (Kocaeli University, Turkey)</i>	

TiO ₂ /SiO ₂ -Filled Composite with Spatial Permittivity Distribution for Application in FGM Spacer	333
<i>Satia Zaputra (Bandung Institute of Technology, Indonesia; Kebangsaan University of the Republic of Indonesia, Indonesia), Muhammad R Fabio (Bandung Institute of Technology, Indonesia), Rachmawati Rachmawati (Bandung Institute of Technology, Indonesia), Syarif Hidayat (Bandung Institute of Technology, Indonesia), and Suwarno Suwarno (Bandung Institute of Technology, Indonesia)</i>	
Evaluation of Vibrational Activity of Laminated Cases of Traction Electric Machines According to Actual Condition	338
<i>Genadijs Kobenkins (Riga Technical University, Latvia), Marks Marinbahs (Riga Technical University, Latvia), Anatolijs Bizans (Riga Technical University, Latvia), Nikita Rilevs (Riga Technical University, Latvia), and Olegs Sliskis (Riga Technical University, Latvia)</i>	
Analysis and Design of a Piezoelectric Fan System for Advanced Cooling Applications	343
<i>Simin Yilmaz Aksu (ASELSAN Inc., Turkey) and Bünyamin Tamyurek (Gazi University, Turkey)</i>	
Re-Configurable Power Divider Based on Printed Ridge Gap Waveguide Technology	349
<i>Mohamed Mamdouh M. Ali (Department of Electrical Engineering, Faculty of Engineering, Assiut University, Egypt), Shoukry I. Shams (Department of Electrical Department, Concordia University, Canada), Mahmoud Elsaadany (Department of Electrical Department, Concordia University, Canada), Diaa E. Fawzy (Faculty of Engineering, Izmir University of Economics, Turkey), A.M.M.A. Allam (Information and Engineering Technology, German University, Egypt), M. Atef Abbas (Department of Electronics and Communication, Arab Academy for Science and Technology, Egypt), Mohamed Fathy Abo Sree (Department of Electronics and Communication, Arab Academy for Science and Technology, Egypt), and M.S.H. Salah El-Din (Department of Electronics and Communication, Arab Academy for Science and Technology, Egypt)</i>	

Electrical Control and Automation

Study on Accumulated Water and Surface Charge Effect of Capacitive High Voltage DC Bushing..	354
<i>Shiling Zhang (Chongqing Electric Power Research Institute, China) and Xiping Jiang (Chongqing Electric Power Research Institute, China)</i>	
Reliability and Availability Analysis for Electronic Circuit Design	362
<i>Sabri Sevimçok (TOBB University of Economics and Technology and Aselsan Inc., Turkey) and Tolga Girici (TOBB University of Economics and Technology, Turkey)</i>	
Performance Analysis of Power Devices for Bridgeless Totem-Pole PFC at Different Switching Frequencies	368
<i>Enes Çatlioglu (Istanbul Technical University, Turkey) and Deniz Yildirim (Istanbul Technical University, Turkey)</i>	

Development of a Power Transformer for a Fast Charging Station	375
<i>Nikolay Volskiy (Design bureau Charge Evolution, ltd. Moscow, Russian Federation) and Mikhail Krapivnoi (Design bureau Charge Evolution, ltd. Moscow, Russian Federation)</i>	
Influence of Space Between the Lower and Upper Windings on the Leakage Reactance of the Split-Winding Transformer	381
<i>Kamran Dawood (Astor Enerji, Turkey), Semih Tursun (Astor Enerji, Turkey), and Ismet Kaymaz (Astor Enerji, Turkey)</i>	
An Interphase Permanent Fault Identification Method for Distribution Network Considering the Influence of Detection Signal Frequency	386
<i>Rong Zhang (Xi'an Polytechnic University, China), Wenquan Shao (Xi'an Polytechnic University, China), Yuxin He (Xi'an Polytechnic University, China), and Changcheng Liu (Xi'an Polytechnic University, China)</i>	
Current Control of Grid-Connected Simplified Split-Source Converters (???) for Single Phase Photovoltaic Microinverter Application	391
Experimental Measurement of Non-Linear Characteristics of Frequency and Temperature Variation of Dry Type Typical Electrical Equipment for HVDC Valve Hall	397
<i>Shiling Zhang (Chongqing Electric Power Research Institute, China)</i>	

Modern Control Theory and Technology

Implementation and Performance Analysis of Multi Channel ARINC 429 Controller on FPGA	405
<i>Serhat Türk (Gebze Technical University, Turkey) and Serdar Süer Erdem (Gebze Technical University, Turkey)</i>	
A Two-Tier Control Algorithm Based on XGBoost Model to Speed up Smart-Grids Management ..	411
<i>Sara Noorollah (Department of Electrical Engineering Qazvin Branch, Islamic Azad University, Iran)</i>	
Data-Driven Determination of the Governing Equations of the Continuously Stirred Tank Reactor	416
<i>Benaissa Dekhici (Laboratoire d'Automatique de Tlemcen, University of Tlemcen, Algeria), Boumediene Benyahia (Laboratoire d'Automatique de Tlemcen, University of Tlemcen, Algeria), and Brahim Cherki (Laboratoire d'Automatique de Tlemcen, University of Tlemcen, Algeria)</i>	
Robust Controller Design for Time Delay Systems with Varying Parameters	423
<i>Mehmet Nur Alpaslan Parlakçi (Istanbul Bilgi University, Türkiye)</i>	
Effect of Electrical Vehicles Participation Rate on Time Delayed Load Frequency Control	428
<i>Mustafa Saka (Iskenderun Technical University, Turkey), Merve Demirci (Gazi University, Turkey), Ibrahim Eke (Kirikkale University, Turkey), Haluk Gozde (Turkish Aerospace Industries, Turkey), Mahir Dursun (Gazi University, Turkey), and M. Cengiz Taplamacioglu (Gazi University, Turkey)</i>	
Digital Twin for Oyster Mushroom Cultivation Monitoring System	434
<i>Syfa Nur Lathifah (Institut Teknologi Bandung, Indonesia) and Albarda Albarda (Institut Teknologi Bandung, Indonesia)</i>	

Design and Development of a Smart "Baby NO CRY" Cradle	439
<i>Anel Zhumabekova (Nazarbayev University), Nurbakyt Marat (Nazarbayev University), Nurtelek Sagynbayev (Nazarbayev University), and Md. Hazrat Ali (Nazarbayev University)</i>	

Power Supply System and Power Drive Technology

The Optimal Parameters Matching of Hybrid Energy Storage System for Battery Electric Vehicle	444
<i>Ye Liu (Chongqing University, China), Chaowei Tang (Chongqing University, China), Xin Yang (Chongqing University, China), and Yiwei Zhong (Chongqing University, China)</i>	
The Analysis of Charging EVs in Parking Lot with Mode-3 22 kW Charger Powered by Grid-Connected 1 MW Solar Power Plant using PVsyst	450
<i>Ahmet Sayma (Gazi University, Turkey) and M. Cengiz Taplamacioglu (Gazi University, Turkey)</i>	
Reducing Charging Costs for Electric Vehicles with Bi-Directional Charging	455
<i>Emircan Zincircioğlu (Özyeğin University, Türkiye) and Özkan Bebek (Özyeğin University, Türkiye)</i>	
Optimal Pricing of Multi Virtual Power Plants Based on Stackelberg Game and Genetic Algorithm	459
<i>Zijian Chang (State Key Laboratory of Networking and Switching Technology, Beijing University of Posts and Telecommunications, China), Weiwei Miao (State Grid Jiangsu Electric Power Company, China), Shaoyong Guo (State Key Laboratory of Networking and Switching Technology, Beijing University of Posts and Telecommunications, China), and Wenjing Li (State Grid Informatin&TelecommunicationGroup, China)</i>	
Construction of A 1:7 Scaled Autonomous Car for Conducting Vehicle Dynamic Experiments	464
<i>Muhammad Rehan Siddiqi (RMIT University, Australia), Hormoz Marzbani (RMIT University, Australia), and Reza Nakhaie Jazar (RMIT University, Australia)</i>	
Predicting Power Quality Disturbance Events from Weather Conditions using Gaussian Mixture Model and Decision Tree	469
<i>Ali Asheibi (A'Sharqiyah University, Oman), Ashraf Khalil (Technical University of Denmark, Denmark), and Zakariya Rajab (University of Benghazi, Libya)</i>	
Energy Management Trade-off: Virtual Optimization of Hybrid Electric Vehicles	475
<i>Egemen Karabiyik (AVL Research & Engineering Turkey, Turkey), Sarper Ozkaynak (AVL Research & Engineering Turkey, Turkey), Nathan De Kerpel (AVL List GmbH, Austria), and Alexander Pichler (AVL List GmbH, Austria)</i>	
Probabilistic Power Flow Analysis of Power Systems with PV and Wind using Monte Carlo Method	480
<i>Abdulkerim Iskenderoglu (Recep Tayyip Erdogan University, Turkey) and Ömer Gül (Istanbul Technical University, Turkey)</i>	

An Eco-Friendly Smartphone-Charging Locker with a Solar Panel and Multi-Factor Authentication	486
<i>Fadi Sibai (Gulf University for Science and Technology, Kuwait), Noora Amino (Prince Mohammad Bin Fahd University, Saudi Arabia), Raghad Alghamdi (Prince Mohammad Bin Fahd University, Saudi Arabia), Raneem Mohammed (Prince Mohammad Bin Fahd University, Saudi Arabia), and Razan Albahrani (Prince Mohammad Bin Fahd University, Saudi Arabia)</i>	
Proton Exchange Membrane Fuel Cell Thermal System Modeling and Control	491
<i>Tuna Han Özdemir (Yıldız Technical University, AVL Research and Engineering, Turkey) and Claudia Fernanda Yaşar (Yıldız Technical University, Turkey)</i>	
Passive Architecture and Renewable Energy's Integration	500
<i>Benoudjafer Cherif (Department of Electrical Engineering Bechar, Algeria University of Bechar, Algeria), Hammou Hanina Samah (Department of Architecture University of Biskra, Algeria), and Fezzeoui Naïma (Department of Mechanical Engineering Bechar, Algeria University of Bechar, Algeria)</i>	
Author Index	507