2024 15th National Conference on **Electrical and Electronics Engineering (ELECO 2024)**

Bursa, Turkiye 28-30 November 2024



IEEE Catalog Number: CFP2418H-POD ISBN:

979-8-3315-1804-2

Copyright © 2024 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:
 CFP2418H-POD

 ISBN (Print-On-Demand):
 979-8-3315-1804-2

 ISBN (Online):
 979-8-3315-1803-5

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400

Phone: (845) 758-0400 Fax: (845) 758-2633

E-mail: curran@proceedings.com Web: www.proceedings.com





Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



ELECO 2024 Proceedings

Table of Contents

Foreword

Committees

Conference Program

ID 3: Automatic Detection and Assessment of Barcodes on Document Images.....1

Erdem Cer¹, Mustafa Kamasak²

¹Domestic Cargo Services Inc.

²Faculty of Computer and Informatics, Istanbul Technical University

ID 4: A Comprehensive Review on Determining the Optimal Battery Size for Suitable Speed Profiles in Rail Systems.....5

Furkan Karakus¹, Aleyna Karsli¹, Husna Yildiz¹, Nevzat Bayrak¹, Ozan Erdinc²

¹Metro Istanbul Inc. R&D Center

²Department of Electrical Engineering, Yildiz Technical University

ID 5: Measurement and Analysis of Air Quality in Rail Transit Systems: A Case Study of the Istanbul Metro.....11

Furkan Karakus, Aynure Ozge Sahin, Husna Yildiz, Nevzat Bayrak, Fatih Gultekin Metro Istanbul Inc. R&D Center

ID 6: An Overview of Utilizing Regenerative Braking Energy from Rail Transit Vehicles for Charging Electric Vehicles.....17

Furkan Karakus¹, Husna Yildiz¹, Nevzat Bayrak¹, Ozgur Soy¹, Ozan Erdinc²

¹Metro Istanbul Inc. R&D Center

²Department of Electrical Engineering, Yildiz Technical University

ID 7: The Effect of the Number of Elements on Leakage Currents in Iced String Insulators.....24

Muhammed Bugracan Ozkucuk¹, Muhsin Tunay Gencoglu²

¹Malatya Turgut Ozal University, Faculty of Engineering and Natural Sciences, Department of Electrical and Electronics Engineering

²Firat University, Faculty of Engineering, Department of Electrical and Electronics Engineering

ID 8: Performance Analysis of Large Language Models on Turkish Question-Answer Texts 29

Metin Bilgin¹, Mehmet Bozdemir¹, Engin Demir^{1,2}



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



¹Department of Computer Engineering, Bursa Uludag University

²National Defense University

ID 9: Different Capacitance Multiplier Structures With Noise Analyses for Low Frequency Applications.....34

Burak Sakaci¹, Deniz Ozenli^{1,2}, H. Hakan Kuntman²

¹Department of Electronics Engineering, Ataturk Strategic Research and Graduate Education Institute, National Defense University

²Department of Electronics and Communication Engineering, Istanbul Technical University

ID 11: Torque Improvement in a Seven-Phase Machine by Injecting the Higher Current Harmonics.....39

Ali Akay

Department of Electrical and Electronics Engineering, Karabuk University

ID 13: Comparison and Analysis of LSTM-Capsule Networks and 3DConv-LSTM Autoencoder in Ambient Anomaly Detection.....44

Baris Kopuz, Nihan Kahraman

Department of Electronics and Communication Engineering, Yildiz Technical University

ID 15: Application of a 100 mm Linear Potentiometer for Speed Measurement in a Linear Motion System Using STM32F410 Microcontroller: Hardware Design and Software Development.....49

Serhat Cindemir¹, Burak Durmus²

¹Rollmech Automotive, Research and Development, Bursa, Turkiye ²Azimech High Technology Information and Defense Industry, Research and Development, Bursa

ID 16: Investigation of Force Measurement Processes of Load Cells Using STM32G030F6P6TR Microcontroller and HX711 24 Bit Analog to Digital Converter.....54

Suleyman Erdogan, Serhat Cindemir

Rollmech Automotive, Research and Development, Bursa, Turkiye

ID 19: High Initial Acceleration Chest Compression Device.....59

Ahmet Kagizman¹, Volkan Sezer²

¹Graduate School, Istanbul Technical University

²Department of Control and Automation Engineering, Istanbul Technical University

ID 20: Systematic Design of High-Pass Graph Filters via Low-Pass Graph Filters.....64 Kutay Gonen, Olcay Akay, Ozge Canli Usta

Dokuz Eylul University, Graduate School, Electrical and Electronics Engineering Program



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



ID 21: A Resonator Design for Mutual Coupling Reduction Between Microstrip Antennas in MIMO Applications at 28 GHz.....69

Ali Altan Gollu, Baran Polat, Dilara Semerci, Egemen Bilgin Faculty of Engineering, Department of Electrical and Electronics Engineering, MEF University

ID 23: Measurement of Geometric Dimensions of Hexagonal Type Washer Parts Using Machine Vision-Based Systems.....73

Ahmet Gokhan Poyraz^{1,3}, Ahmet Emir Dirik², Hakan Gurkan¹

¹Department of Electrical and Electronics Engineering, Bursa Technical University

²Uludag University, Department of Computer Engineering

³Dogu Pres R&D Center

ID 24: Estimating Remaining Useful Life of Lithium-Ion Batteries.....78

Merve Yenioglu, Engin Aycicek, Ozan Erdinc Department of Electrical Engineering, Yildiz Technical University

ID 29: Using Heuristic Algorithms in the Placement of Capacitors and Distributed Generation Systems to Reduce Losses and Voltage Variations in Energy Distribution Systems.....83

Sevgi Samyeli¹, Ahmet Dogan², Mustafa Alci¹

¹Department of Electrical and Electronics Engineering, Erciyes University

²Department of Electrical and Electronics Engineering, Nuh Naci Yazgan University

ID 31: The Role of Speed-Related Frequencies in Vibration-Based Mechanical Faults Detection in Induction Motor.....88

G. Nur Ayas¹, Taner Goktas¹, Muslum Arkan²

¹Department of Electrical and Electronics Engineering, Dokuz Eylul University

²Department of Electrical and Electronics Engineering, Inonu University

ID 32: Experimental Determination of the Performance Characteristics of a Medium Power Permanent Magnet Synchronous Motors.....93

Onur Demir, Feriha Erfan Kuyumcu, Yusuf Kep Istanbul Gedik University, Graduate School, Electrical and Electronics Engineering Program

ID 33: Evaluation of Background Subtraction and Pattern Recognition Methods for Classification of GPR B-Scan Data.....99

Besaret Kocak¹, Mehmet Sezgin², Aydin Yesildirek¹

¹Yildiz Technical University, Department of Mechatronic Engineering

²Istanbul Commerce University, Department of Electrical and Electronics Engineering

ID 34: Development of a P2 Hybrid Electric Vehicle Model and Optimization of the Regenerative Braking System in MATLAB Simulink.....104

Yalim Ozcaglayan^{1,2}

¹Department of Mechatronic Engineering Program, Graduate School, Bogazici



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



University

²AVL Turkiye Research and Engineering, Istanbul

ID 38: A Comprehensive Review of Battery Sizing Strategies for Energy Storage Integrated Charging Stations for Electric Vehicles.....108

Asya Mumine Coskun, Husna Yildiz, Ozan Erdinc Department of Electrical Engineering, Yildiz Technical University

ID 39: The Effect of Distance Between Microphone and Speaker on System Success in Active Noise Control (ANC) System.....115

Hikmet Karsiyaka^{1,2}, Omer Faruk Maden², Ahmet Emir Dirik³

¹Department of Electrical and Electronics Engineering, Bursa Technical University

²SEGER Sound and Electrical Equipment Ind. Inc.

³Department of Computer Engineering, Bursa Uludag University

ID 40: Low Noise Amplifier and Reflective Switch Design in 130-nm SiGe BiCMOS Technology for X and Ku Band Radar Applications.....120

Serkan Corbaci¹, Ertan Zencir², Ali Tangel¹

¹Department of Electronics and Communication Engineering, Kocaeli University ²Department of Electrical and Electronics Engineering, Turkish Aeronautical Association University

ID 41: A Swift Survey about Semantic Analysis in Document Verification.....125

Ahmet Toprak, Metin Turan

Istanbul Commerce University, Faculty of Engineering, Department of Software Engineering

ID 42: 1200V Series-Connected GAN-IGBT Hybrid Switch With Single Gate Driver.....130

Omer Faruk Goksu¹, Mehmet Onur Gulbahce², Serkan Dusmez³

¹Department of Electrical and Electronics Engineering, Fatih Sultan Mehmet Foundation University

²Department of Electrical Engineering, Istanbul Technical University

³Huawei Technologies Duesseldorf GmbH, Nuremberg Research Center

ID 43: Thermal Performance and Efficiency Analysis of Conventional and Active Clamp Forward Converters.....135

Murat Akkus, Emir Hasan Bakirdemir, Tolga Zeren, Omer Sefa Kaymakci, Erdem Akbov

Department of Electrical Engineering, Yildiz Technical University

ID 44: Graphene Based Fractal Structure 5G Microstrip Patch Antenna Design.....140

Beyza Nur Demirkoparan¹, Husnu Deniz Basdemir²

¹Faculty of Engineering and Natural Sciences, Department of Electrical and Electronics Engineering, Sivas Science and Technology University

² Faculty of Aviation and Astronautics, Sivas Science and Technology University



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



ID 45: Solar Radiation Forecasting using Multi-Reservoir Computing and Performance Analysis.....145

Gulnur Yilmaz Bingol¹, Ahmet Dogan², Enis Gunay¹

¹Department of Electrical - Electronics Engineering, Ercives University

²Department of Electrical - Electronics Engineering, Nuh Naci Yazgan University

ID 46: Federated Learning Application in Human Activity Recognition: The Impact of Aggregation Functions.....150

Berke Cansiz¹, Murat Taskiran²

¹Department of Biomedical Engineering, Yildiz Technical University

²Department of Electronics and Communication Engineering, Yildiz Technical University

ID 47: Investigation into the Performance of Impedance-Based Fault Location Algorithms in Medium Voltage Distribution Networks using COMTRADE Data.....155 Mert Rekir Atsever¹ Iron Simsek² Abuzer Vildiz² Nida Mesci³ Ersin

Mert Bekir Atsever¹, Irem Simsek², Abuzer Yildiz², Nida Mesci³, Ersin Can³, Mehmet Hakan Hocaoglu⁴

¹Department of Electronics Engineering, Gebze Technical University

²Camlibel Electricity Distribution Inc. CEDAS General Directorate

³Bogazici Electricity Distribution Inc. BEDAS General Directorate

⁴Department of Electrical and Electronics Engineering, Istanbul Commerce University

ID 48: Development of Greedy Auction-based Distributed Decision-Making Algorithm and Agent Communication Language in Swarm Unmanned Aerial Vehicles.....160

Erdem Can¹, Zeynep Yildirim¹, Yaprak Kaya¹, Mutullah Eser², Mustafa Namdar¹, Arif Basgumus³

¹Department of Electrical and Electronics Engineering, Kutahya Dumlupinar University, Kutahya

² Turkish Aerospace Industries Inc. Ankara

³Department of Electrical and Electronics Engineering, Bursa Uludag University, Bursa

ID 49: Machine Learning Based Root Cause Analysis of Monitor Performance Ratio.....165

Adnan Furkan Yildiz, Elif Nur Tafrali

AVL Turkiye Research and Engineering, Istanbul, Turkiye

ID 50: Design and Implementation of High-Power Density Phase-Shifted Full Bridge DC-DC Converter.....170

Suat Yildirmaz¹, Haci Bodur²

¹TUBITAK BILGEM - Yildiz Technical University

²Department of Electrical Engineering, Yildiz Technical University

ID 51: STSeqGNN - Location-Time Based Motion Characterization.....175

Emincan Keresteci¹, Mehmet Eren Bulut², Mehmet Burak Akgun², Bulent Tavli¹

¹ Department of Electrical and Electronics Engineering, TOBB ETU, Ankara

² Department of Computer Engineering, TOBB ETU, Ankara



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



ID 52: Literature Review on Multiband, High Gain Antenna Design for Terahertz Applications.....180

Zeynep Leyla Yildiz, Ali Saygin, Ali Kara Department of Electrical and Electronics Engineering, Gazi University

ID 53: Modeling and Simulation of OFDM Based Underwater Communication System.....185 Mert Kumcu¹, Mehmet Ali Cavuslu², Oktay Aytar¹

¹Department of Electrical and Electronics Engineering, Bolu Abant Izzet Baysal University

² Electronic Design Unit, Koc Information and Defense Technologies Inc.

ID 55: Vivaldi Antenna-Fed Switchable Beam-Scanning High-Gain Wide Band Parabolic Reflector Design.....190

Muhammed Turgut Ozdemiralp, Ahmet Serdar Turk, Alper Caliskan Faculty of Electrical and Electronics, Yildiz Technical University

ID 56: LoRa Supported Location Detection for Man Overboard (MOV) Situations.....198 Anil Cetin

Plan-S Satellite and Space Technologies

ID 57: Comparison of Parameter Estimation Methods for Determining the Parameters of the Battery Electrical Equivalent Circuit Model.....203

Ege Uzun¹, Mithat Can Camur¹, Bati Eren Ergun¹, Arda Akyildiz¹, Alparslan Zehir^{2,3}, Cavit Fatih Kucuktezcan¹, Ilhan Kocaarslan³, Mehmet Onur Gulbahce^{1,3}

¹Department of Electrical Engineering, Istanbul Technical University

²Department of Electrical and Electronics Engineering, Marmara University

³ITU Advanced Vehicle Technologies Application and Research Center, Istanbul Technical University

ID 58: Feasibility Assessment of Wireless Charging Application on Istanbul Metrobus Line.....208

Halit Alper Ozbas, Ekrem Ciliz, Arda Cetinkaya, Haluk Sari AVL Turkiye Research and Engineering, Istanbul, Turkiye

ID 59: A Detailed Examination of Material Selections for Windings in Dry Type Transformers.....213

Kamran Dawood, Muhammed Alperen Cakir, Furkan Gezer, Semih Tursun Special and Dry Type Transformers Design Department, Astor Energy

ID 60: On the Performance of NOMA-Based Cooperative Communication Systems with Best Relay Selection over Nakagami-m Fading Channels.....217

Ozgur Ozdemir, Ahmad Farouq Ibrahim Asous

Department of Electrical and Electronics Engineering, Konya Technical University

ID 61: Long Range Distributed Acoustic Sensing (DAS) Using Single-Ended In-Line Optical Amplification for Third Party Intrusion Detection over 70 km Single-Line Fiber.....222



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



S. Mulayim, E. Ozkan, E. Inci Samm Technology Communication Industry and Trade Inc., Kocaeli

ID 62: Real-Time Localization Application of MEKF-VDPL Algorithm on Autonomous Wheelchair in a Dynamic Environment.....226

Ozan Vahit Altinpinar, Volkan Sezer

Faculty of Electrical and Electronics Engineering, Intelligent and Autonomous Systems Laboratory, Istanbul Technical University

ID 63: Doppler Frequency Estimation and Tracking of Iridium NEXT Satellites.....231

Bugra Cinaroglu, Ahmet Serbes

Department of Electronics and Communication Engineering, Yildiz Technical University

ID 64: Frequency Tracking of Unknown Sinusoidal Signal.....236

Yigit Kartal

AVL Turkiye Research and Engineering, Istanbul, Turkiye

ID 65: Material Selection in Transformer Core Design for Cost and Performance Analysis.....241

Kamran Dawood, Furkan Gezer, Muhammed Alperen Cakir, Semih Tursun Special and Dry Type Transformers Design Department, Astor Energy

ID 66: Performance Optimization after Hardware Security in Analog Integrated Circuits.....246

Abdullah Bayram, Enes Saglican, Engin Afacan

λ Laboratory, Department of Electronics Engineering, Gebze Technical University

ID 67: Robust Delay-Dependent Stability Analysis of Pitch Angle Control Systems in Wind Turbines.....251

Berat Yakut^{1,2}, Saffet Ayasun¹

¹Department of Electrical and Electronics Engineering, Gazi University, Ankara ²ASELSAN, Ankara, Turkiye

ID 68: Disease Classification in Retinal Images Using Vision Transformer and Capsule Network.....256

Ozlem Hakdagli

Teracity Software Technologies Inc.

ID 69: Using Deep Learning Algorithms for Cyberattack Detection in IEC 61850-Based Power Systems.....261

Abdulvehhab Agin¹, Aysen Demiroren¹, Omer Usta^{1,2}, Bulent Orencik¹

¹Department of Electrical Engineering, Istanbul Technical University ²ENTES Electronics Inc.

ID 72: Battery Capacity Determination of Electric Vehicle Under Variable Temperature Conditions.....267

Hakki Yavuz¹, Tamer Saygili¹, Alican Gulisli¹, Vahit Baris Tavakol^{1,2}



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



¹AVL Turkiye Research and Engineering, Istanbul, Turkiye ²Kadir Has University, Faculty of Engineering and Natural Sciences, Department of

Mechatronic Engineering, Istanbul

ID 74: Battery Charging System Design with Modified Boost Type Rectifier fed LLC Resonant Converter.....271

Ahmet Erdem Yilmaz, Murat Ceylan, Abdulkadir Balikci Department of Electronics Engineering, Gebze Technical University

ID 76: Role of Solar Power Plants in Reducing Greenhouse Gas Emissions and Their Integration to Urban Areas.....276

Melis Kudal¹, Selin Ozcira Ozkilic²

¹Department of Energy Technologies, Yildiz Technical University

²Department of Electrical Engineering, Yildiz Technical University

ID 78: Improving Predictive Maintenance Performance with Limited Data under Different Operating Conditions with Transfer Learning.....281

Mehmet Musa Ozcan¹, Ugurhan Kutbay²

¹Gazi University, Graduate School / ASELSAN

²Gazi University, Faculty of Engineering

ID 79: Anomaly Detection in Crowded Scene.....286

Omer Cebeci, A. Koksal Hocaoglu

Department of Electronics Engineering, Gebze Technical University

ID 80: An Analysis on Quantum Radar Systems for Target Detection.....291

Murat Can Karakoc^{1,2}, Ozgun Ersoy¹, Asaf Behzat Sahin¹

¹Elektrik ve Department of Electronics Engineering, Ankara Yildirim Beyazit University

²Department of Electrical and Electronics Engineering, Erzurum Technical University

ID 81: Modified SWINIR Based Super Resolution Approach for Thermal Imagery.....295 Erman Eksi. Murat Taskiran

Department of Electronics and Communication Engineering, Yildiz Technical University

ID 82: Comparison of Different Axial-Flux Induction Generator Topologies in Variable Speed Wind Turbine Applications.....300

Bati Eren Ergun¹, Tugberk Ozmen², Mehmet Onur Gulbahce¹

¹Department of Electrical Engineering, Istanbul Technical University

²Department of Electrical and Energy, Manisa Celâl Bayar University

ID 85: Design and Optimization of Permanent Magnet Synchronous Motors with Segmented Stator for Robotic Actuators.....306

Sami Arslan¹, Ahmet Fenercioglu²

¹MCFLY Robotics Technologies

²Department of Mechatronic Engineering, Bursa Technical University



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



ID 86: Mass Estimation of Heavy-Duty Vehicle Using Machine Learning with Simulation-Generated Data.....313

Salih Bilgin, Gokcen Tuncer AVL Turkiye Research and Engineering, Istanbul, Turkiye

ID 87: Kalman Filter and Neural Network Algorithms Based Observer Estimation Benchmark.....318

Ataberk Yilmaz, Elif Atilla, Meric Devranoglu, Emre Sezgin, Yetkin Sayar AVL Turkiye Research and Engineering, Istanbul, Turkiye

ID 88: Driver Behavior Assessment Based on Vehicle Data and Passenger Feedback Using Machine Learning.....324

Sena Yazan, Salih Bilgin, Gizem Cakirbas, Burak Ustun AVL Turkiye Research and Engineering, Istanbul, Turkiye

ID 89: Design of a Broadband Metamaterial Solar Cell with Hilbert Fractal Geometry.....329

Yaren Yucel, Funda Akleman

Department of Electronics and Communication Engineering, Istanbul Technical University

ID 90: Increasing Average Output Power by using a Fuzzy Logic Based Maximum Power Point Tracking Method in Wind Power Plants.....334

Nihat Kursun, Ibrahim Gursu Tekdemir Faculty of Engineering and Natural Sciences, Department of Electrical and Electronics Engineering, Bursa Technical University

ID 91: Optimizing Fuel Cell System Power Using Fuzzy Logic Based PID Controller.....339

Burak Saricay¹, Fikret Caliskan²

¹AVL Turkiye Research and Engineering, Istanbul

²Department of Control and Automation Engineering, Istanbul Technical University

ID 93: Electro-Thermal Analysis Study in Two and Three Level Topologies for 200kW Bidirectional Power Converters Used in 1500VDC Battery Energy Storage System Applications.....344

Huseyin Enes Borcek¹, Erhan Demirok², Selamin Ozcelik¹

¹Research and Development Center, Pomega Energy Storage Technologies Inc.

²Department of Electrical and Electronics Engineering, Izmir Kâtip Celebi University

ID 94: Evaluation of Economic Applicability of Different Materials for Transformer Windings.....349

Kamran Dawood, Muhammed Alperen Cakir, Semih Tursun Special and Dry Type Transformers Design Department, Astor Energy

ID 95: Quadcopter Altitude Control Using Classical PID and Cascaded PID with Adaptive Feedforward Extension.....353

Feyzullah Emir Kucuk, Abdurrahman Yilmaz



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



Faculty of Electrical and Electronics, Department of Robotics and Autonomous Systems Engineering, Istanbul Technical University

ID 96: Fracture Detection with Different Antenna Arrays.....358

Yasemin Inci¹, Gulsah Yildiz Altintas², Cemanur Aydinalp²
¹Graduate School, Biomedical Engineering Program, Istanbul Technical University
²Department of Electronics and Communication Engineering, Istanbul Technical University

ID 97: Microstrip Patch Antenna Designs for WiFi/Bluetooth and 5G Applications.....363 Zeynep Ceyhan, Rama Almerstani, Cihan Dogusgen Erbas Department of Electrical and Electronics Engineering, Faculty of Engineering and Architecture, Istanbul Yeni Yuzyil University

ID 98: Solving XOR in Spike Neural Network (SNN) with Component-off-the-Shelf.....368 Sevde Vuslat Cikikci, Eren Orek, Ali Kagan Ozgen, Arda Yavuz, Tuba Ayhan Department of Electrical and Electronics Engineering, MEF University

ID 99: Energy Management Potential Analysis for Peak Demand Reduction for Energy Communities Containing Urban Houses and Hospitals.....373

Bengisu Eguz¹, Mustafa Alparslan Zehir²

¹Faculty of Engineering and Natural Sciences, Maltepe University ²Faculty of Engineering, Marmara University

ID 100: Design of RF Transceiver Module.....378

Busra Guzel^{1,2}, Tugberk Kaynak^{1,2}, Murat Ucuncu² ¹RFTR Electronics Inc.

²Department of Electrical and Electronics Engineering, Baskent University

ID 101: Determination of Positive and Zero Sequence Impedance Measurements and Parameters in AC Transmission Lines.....383

Bilal Canol, Rukiye B. Aymaz, Nuran Yorukeren Faculty of Engineering, Department of Electrical Engineering, Kocaeli University

ID 102: Determination of Optimal Component Values in Low-Pass Filter Design Using Red Fox Optimization Algorithm.....388

Pelin Dogan Sekreter, Ahmet Erdem Yilmaz, Atilla Uygur Department of Electronics Engineering, Gebze Technical University

ID 103: Development of a Real-Time Data-Supported Energy Consumption Model for Electric Buses.....393

Ilayda Kaya¹, Ege Uzun¹, Bati Eren Ergun¹, Arda Akyildiz¹, Yigit Cakiroglu¹, Alparslan Zehir^{2,3}, Cavit Fatih Kucuktezcan^{1,3}, Ilhan Kocaarslan³, Mehmet Onur Gulbahce^{1,3}

¹Department of Electrical Engineering, Istanbul Technical University

²Department of Electrical and Electronics Engineering, Marmara University

³ITU Advanced Vehicle Technologies Application and Research Center, Istanbul Technical University



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



ID 104: Improving Human-Like Driving Behavior in Autonomous Vehicles with Deep Reinforcement Learning and Action Filtering.....398

Mehmet Yasar Osman Ozturan, Ahmet Emir Dirik Department of Computer Engineering, Bursa Uludag University

ID 105: Creation of Positive and Zero Sequence Equivalent Circuit Models for Three-Winding Transformers.....403

Rukiye B. Aymaz, Bilal Canol, Bora Alboyaci Faculty of Engineering, Department of Electrical Engineering, Kocaeli University

ID 106: Comparative Analysis of Patch Antennas with Rectangular Slots for Laminate and Wearable Materials at 5G Networks.....409

Baris Gurcan Hakanoglu¹, Emine Agaya², Gonul Gulmez², Serkan Yalinsu²

¹Department of Electrical and Electronics Engineering, Atilim University

²Department of Electrical and Electronics Engineering, Bandirma Onyedi Eylul University

ID 107: Resonance in Transformers and Energizing.....415

Ismet Kaymaz¹, Mehmet Bayrak², Semih Tursun¹, E. Mustafa Yegin³

¹Astor Energy

²Faculty of Engineering, Sakarya University

³Faculty of Engineering, Kocaeli University

ID 108: Development of Object Detection Models Compatible with Edge TPU Accelerator for Low-Cost Single-Board Computers.....420

Ataberk Yilmaz¹, Ibrahim Erdem Uzuncayir¹, Bahadir Catalbas^{1,2}

¹Department of Control and Automation Engineering, Yildiz Technical University

² School of Physics, Georgia Institute of Technology, Atlanta, Georgia, ABD

ID 109: Design of Frequency Selective Surface-Based Patch Antenna Array for Ultra-Wideband Radar Systems.....425

Ercan Koseni¹, Ozgur Ozdemir²

¹TAY Software Technologies Inc.

²Department of Electronics and Communication Engineering, Istanbul Technical University

ID 110: A Machine Learning Approach for STEMI and NSTEMI Diagnosis Using Empirical Wavelet Transform of Multi-Lead ECG Signals.....430

Fatma Latifoglu¹, Merve Ince², Semra Icer¹, Aysegul Guven¹, Aigul Zhusupova³

¹Faculty of Engineering, Department of Biomedical Engineering, Erciyes University

²Graduate School, Biomedical Engineering Program, Erciyes University

³Faculty of Medicine, Department of Cardiology, Erciyes University

ID 112: Model for Positioning Stationary Battery Energy Storage Systems for Energy Efficiency in Urban Rail Transportation Systems.....435

Hasan Saim Unal¹, Mehmet Turan Soylemez²



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



¹Rail Systems Engineering Program, Istanbul Technical University

² Faculty of Electrical and Electronics Engineering, Istanbul Technical University

ID 113: Modeling the Effect of Vehicle Mass and Center of Gravity Height on Adaptive Cruise Control and Lane Keeping Assist Systems Using Machine Learning.....441

Mert Eren, Hakan Yilmaz

AVL Turkiye Research and Engineering Istanbul, Turkiye

ID 114: Effect of Supply Voltage Variation on Basic Parameters of Induction Motors.....446

Hayatullah Nory, Kivanc Dogan, Ahmet Orhan

Department of Electrical and Electronics Engineering, Firat University

ID 115: Design and Simulation of an LLC Resonant Converter with a Nominal 24V 1000W Output for Battery Chargers.....451

Ender Oguz, Mehmet Zeki Bilgin

Department of Electrical Engineering, Kocaeli University

ID 116: A Machine Learning-Based Reference Baseline Consumption Model for Energy Efficiency Measurement and Verification.....457

Hakan Demirer¹, Dogukan Ayci¹, Salih Alperen Ozturk¹, Cem Karabal², Jose Antonio Valles³

¹Reengen Energy Technologies Inc.

²BESENVE Energy Inc.

³IONSE Energia

ID 117: Analysis and Effects of Dynamic Behavior of Asynchronous Motors on Low Voltage Networks.....462

Mustafa Celik, Mehmet Kaya, Nurettin Abut

Department of Electrical Engineering, Kocaeli University

ID 118: Dual Band Dual Polarized Antenna Design for GSM and 5G Applications.....468

Mehmet Sami Ersoz¹, Feza Turgay Celik², Kâmil Karacuha³

¹Communication Systems Program, Istanbul Technical University

²Department of Microelectronics, Delft Teknoloji University

³Department of Electrical Engineering, Istanbul Technical University

ID 119: 600W/28V Phase Shifted Full Bridge DC-DC Converter Design.....473

Erkam Aydar^{1,2}, Ahmet Faruk Bakan¹

¹Department of Electrical Engineering, Yildiz Technical University

²Roketsan, Rocket Industry and Trade Inc., Ankara

ID 121: A Review of Bidirectional LLC Converter Circuits.....478

Mehmet Kilerci, Haci Bodur, Isilay Balci Kilerci

Department of Electrical Engineering, Yildiz Technical University

ID 122: Analysis of the Effect of Geometrical Losses on the Quality Factor in FSO Communication Systems.....483



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



Gokhan Sahin¹, Mustafa Namdar¹, Ahmet Altuncu²

¹Department of Electrical and Electronics Engineering, Kutahya Dumlupinar University, Kutahya

²Department of Electrical and Electronics Engineering, Afyon Kocatepe University, Afyonkarahisar

ID 123: Reducing the Number of Scenarios in Automated Driving Systems: Methods and Strategies.....488

Namik Zengin, Oguzhan Derebasi, Alican Erdogan AVL Turkiye Research and Engineering, Istanbul, Turkiye

ID 124: Detection of Lower Extremity Anisomelia with the Developed Force Platform.....493

Irem Guducu¹, Ugur Fidan², Mehmet Yildiz³

¹Graduate School, Afyon Kocatepe University

²Faculty of Engineering, Afyon Kocatepe University

³Faculty of Sports Sciences, Afyon Kocatepe University

ID 125: Accurate Transient Voltage Protection and Circuit Simulation for Analog Circuits With Memristors.....498

Hakan Karadeniz, Itir Koymen Meral

Electrical and Electronics Engineering Program, Graduate School, TOBB Economy and Technology University

ID 127: Effects of Brush Shift on Performance and Experimental Verification of Direct Current Motors.....503

Berk Demirsoy¹, Gurkan Almaci¹, Ahmet Fenercioglu²

¹Kormas Electric Motor Inc. TOSB OSB, Kocaeli

² Department of Mechatronic Engineering, Bursa Technical University

ID 128: Day-Ahead Energy Management in Networked Microgrids.....509

Irmak Onal Korkut¹, Sezai Polat², Emrah Biyik³

- ¹ Electrical and Electronics Engineering Program, Yasar University Graduate School
- ² Department of Construction and Technical Affairs, Izmir Kâtip Celebi University
- ³ Energy Systems Engineering Program, Yasar University

ID 129: Comparison of the Analysis Methods for Various Frequency Selective Surface Geometries Designed at X-Band Applications.....515

Anil Cetin¹, Recep Bas^{1,2}, Sergiy B. Panin², Ilhami Unal²

¹Department of Electronics and Communication Engineering, Yildiz Technical University

² Millimeter Wave and Terahertz Technologies Research Laboratory (MILTAL), TUBITAK Marmara Research Center

ID 130: Anomaly Detection in Time Series Data Using Unsupervised Machine Learning and Statistical Methods.....520

Rahman Sahinler, Cansu Ozturk, Busra Karazeybek, Baris Kahraman AVL Turkiye Research and Engineering, Istanbul, Turkiye



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



ID 132: Effects of Wind Turbine Height Variation on Hybrid Power System Feasibility.....525

Zafer Ozturk¹, Musa Terkes², Cenk Andic³, Ali Ozturk¹, Belgin Turkay³

¹Department of Electrical and Electronics Engineering, Duzce University

²Department of Electrical Engineering, Yildiz Technical University

³Department of Electrical Engineering, Istanbul Technical University

ID 133: Super-Resolution Data Augmentation Method on 2D Segmentation of 3D Point Cloud Data.....530

Mehmet Ozan Serifoglu, Dogacan Toka, Muazzez Buket Darici, Elif Gumuslu Turkiye R&D Wireless DC, Huawei Turkey R&D Center, Istanbul, Turkiye

ID 134: The Quantum Revolution in Telecommunications: 6G and Solutions for Mobile Operators.....535

Fatih Cogen, Zehra Yigit, Buse Bilgin

Turkcell 6GEN. Lab, Turkcell Communication Services Inc., Istanbul, Turkiye

ID 136: Computation of Robust Stability Delay Margin for Time-Delay DC Motor Speed Control System.....540

Ibrahim Kuzu^{1,2}, Saffet Ayasun¹

¹Department of Electrical and Electronics Engineering, Gazi University ²Aselsan Inc., Ankara, Turkiye

ID 137: Point Cloud Segmentation in Urban Areas.....545

Muazzez Buket Darici¹, Elif Gumuslu¹, Alperen Enes Bayar¹, Ufuk Uyan¹, Cao Yuheng², Tang Juncheng², Ahmet Alp Kindiroglu¹

¹Turkiye R&D Wireless DC, Huawei Turkey R&D Center, Istanbul, Turkey

²WINS Development Department, Huawei Technologies

ID 138: Deep Learning-Based Frequency Hopping System: Applications and Improvements Over Turkey.....550

Gokhan Kaya, Ozgur Ertug

Graduate School, Department of Electrical and Electronics Engineering, Gazi University

ID 140: Pl^AD^µ Approach for High-Efficiency BLDC Motor Control.....555

Hakan Ersoy, Berke Akgul, Emin Akpinar, Aslihan Kartci, Umut Engin Ayten Yildiz Technical University, Department of Electronics and Communication Engineering

ID 141: Comparative Electrical Load Prediction With Machine Learning and Fractional Calculus Applications.....559

Emre Aksoy¹, Nisa Ozge Onal Tugrul², Kamil Karacuha¹, Ibrahim Yazici³, Omer Faruk Beyca⁴

- ¹Department of Electrical Engineering, Istanbul Technical University
- ²Informatics Institute, Istanbul Technical University
- ³ R&D Operations, Turk Telekom
- ⁴ Department of Industrial Engineering, Istanbul Technical University



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



ID 142: Stock Price Prediction Using Mamba.....564

Halil Ibrahim Akgun, Ahmet Murat Ozbayoglu

Department of Computer Engineering, TOBB Ekonomi ve Teknoloji University

ID 143: Classification of Plant Leaf Diseases Using Convolutional Neural Networks: A Study of Various Diseases.....569

Yerkebulan Nurlanuly

Graduate School, Hoca Ahmet Yesevi International Turkish-Kazakh University

ID 144: IEC61850 Based Substation Automation and Centralized Protection & Control Concept.....574

Omer Usta¹, Aysen Demiroren¹, Cenk Gocer², Bayazit Ant Ilhan²

¹Department of Electrical Engineering, Istanbul Technical University ²ENTES Electronics Inc.

ID 145: Investigations of Capacitance Change In Antenna Design for Smart Stent Development.....579

Elif Miray Arpacik^{1,2}, Recep Bas^{1,2}, Ilhami Unal², Cihat Tasaltin³

¹Department of Electronics and Communication Engineering, Yildiz Technical University

 $^{\rm 2}$ Millimeter Wave and Terahertz Technologies Research Laboratories, TUBITAK Marmara Research Center

³ Center of Excellence for Biomaterials, Biomechanics and Bioelectronics, TUBITAK Marmara Research Center

ID 146: Analysis and Simulation of a New Buck-Boost Power Converter for Advanced Target Tracking Radar Satellites.....583

Muhammed Incel, Derya Ahmet Kocabas

Department of Electrical Engineering, Istanbul Technical University

ID 147: IEC61850 Based Integrated Protection Systems for Microgrids.....588

Omer Usta¹, Abdulvehhab Agin¹, Cenk Gocer², Fazli Sinan Uslu²

¹Department of Electrical Engineering, Istanbul Technical University ²ENTES Electronics Inc.

ID 148: Comparative Analysis of Quaternion Based Orientation Estimators with Experimental Data from Inertial Measurement Units.....594

Burak Tantay, Hakan Temeltas

Faculty of Electrical and Electronics Engineering, Istanbul Technical University

ID 149: Analysis of Stability Regions Load Frequency Control with Time Delay Systems Considering Rotor Speed Control.....599

Kubra Nur Gul¹, Sahin Sonmez², Saffet Ayasun³

¹Department of Electrical and Electronics Engineering, Nigde Omer Halisdemir University

² Department of Electrical and Automation, Turgut Ozal University, Yesilyurt



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



Vocational School

³Elektrik ve Department of Electronics Engineering, Gazi University

ID 150: Otonom Araclar icin Perspektif Donusumu ve Egri Uydurma Kullanarak Cok Seritli Tespit Sistemi.....604

Sinan Ozen, Fatih Yalcin, Uygar Kaya, Berkay Volkaner, Batikan Kavak, Omer Sirin AVL Turkiye Research and Engineering, Istanbul

ID 151: Effect of the Mechanical Alignment of the Winding on Leakage Reactance.....609

Kamran Dawood¹, Guven Komurgoz Kiris²

¹ Special and Dry Type Transformers Design Department, Astor Energy

²Department of Electrical Engineering, Istanbul Technical University

ID 152: Optimization of Shielding Effectiveness for Ventilation Panels in Military Applications Using Root Solution Methods and Various Algorithms.....614

Yasin Tuna¹, Ahmet Cansiz²

¹Graduate School, Istanbul Technical University

²Department of Electrical Engineering, Istanbul Technical University

ID 153: A New Location Estimation Error Minimization Model Based on Wi-Fi and Mobile Phone for Indoor Mobile Nodes Considering Human Population.....619

Tugba Tekkol, Necla Bandirmali Erturk

Department of Computer Engineering, Bandirma Onyedi Eylul University

ID 155: Machine Learning Approaches to Categorize Land-Use Types Using Building Electricity Consumption Data: Implementation and Performance Evaluation.....624

Burak Ozsoy¹, Umit Catalca¹, Burak Kucukaslan¹, Selen Akgun², Fatma Coskun³

¹MRC Turkiye

²Osmangazi Electricity Distribution

³GDZ Electricity Distribution

ID 157: Integration of Electric Vehicle Batteries into Stationary Energy Storage Systems in the Secondary Life Use.....629

Burak Guvelioglu, Ugur Kazancioglu

Research and Development Center, Pomega Energy Storage Technologies Inc.

ID 158: Extending the ZVS Range of Quasi Resonant Inverter Topology used Induction Hobs.....634

Azat Sahin, Erdem Akboy

Department of Electrical Engineering, Yildiz Technical University

ID 159: Digital Clock for Visually Impaired Individuals.....639

Salih Fadil, Berk Karadeniz, Bayram Yildirim, Olkan Kaymaz, Alperen Celki Eskisehir Osmangazi University, Department of Electrical and Electronics Engineering, Eskisehir



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



ID 161: Overview of Hexagonal QAM Based Constellation Schemes and Applications for Index Modulation.....644

Fatih Cogen¹, Burak Ahmet Ozden², Erdogan Aydin³

¹Turkcell 6GEN. Lab, Turkcell Iletisim Hizmetleri A.S., Istanbul

²Department of Electrical and Electronics Engineering, Istanbul Medeniyet University

³Department of Computer Engineering, Yildiz Technical University

ID 162: Compact Slow-Wave Transmission Line Design with High Effective Dielectric Constant.....649

Selim Aras Yagmurlu, Korkut Kaan Tokgoz

Faculty of Engineering and Natural Sciences, Electronics Engineering Program, Sabanci University

ID 163: Energy-Efficient and Low-Complexity Spatial Modulation System with Deep Neural Network-Based Capacity-Optimized Antenna Selection.....654

Fatih Cogen¹, Burak Ahmet Ozden², Erdogan Aydin³

¹Turkcell 6GEN. Lab, Turkcell Communication Services Inc., Istanbul

²Department of Electrical and Electronics Engineering, Istanbul Medeniyet University

³Department of Computer Engineering, Yildiz Technical University

ID 164: Investigation of New-Generation Aircraft Electrical Power Systems.....659

Berk Turken^{1,2}, Oguz Kagan Keles^{1,2}, Mustafa Bagriyanik¹

¹Department of Electrical Engineering, Istanbul Technical University

²Avionics and Software Engineering Directorate, Turkish Aerospace Industries

ID 165: Design of a Wireless Battery Management System for Lithium-Ion Batteries Based on a Wi-Fi and BLE Module.....664

Bahadir Kucukcipraci¹, Murat Ceylan², Abdulkadir Balikci²

¹Siro Silk Road Clean Energy Storage Technologies

²Department of Electronics Engineering, Gebze Technical University

ID 166: Passive Radiometric Imaging System with Artificial Intelligence Based Object Detection.....669

Furkan Eken¹, Mehmetcan Yesil^{2,3}, Ilhami Unal³

¹Department of Electrical and Electronics Engineering, Suleyman Demirel University

²Department of Electrical and Electronics Engineering, Marmara University

³ Millimeter Wave and Terahertz Technologies Research Laboratories, TUBITAK MAM

ID 167: Automated Separation of Caries Requiring Filling and Caries Requiring Root Canal From Full Dose and Low Dose Bitewing Images Using Machine Learning.....674

Mehmet Sinan Oruc¹, Imam Samil Yetik¹, Ozgur Karaman Incekurek², Ahmet Kursad Culhaoglu³, Mehmet Ali Kilicarslan², Cengiz Evli², Mehmet Hakan Kurt²

¹Department of Electrical and Electronics Engineering, TOBB ETU

²Faculty of Dentistry, Ankara University

³Faculty of Dentistry, Health Sciences University



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



ID 169: Some Methods to Increase the Gain of the Antipodal Vivaldi Antenna Developedfor the Breast Cancer Hyperthermia Applicator.....679

Nur Banu Aka^{1,2}, Gulsah Yildiz¹, Tuba Yilmaz¹

¹Department of Electronics and Communication Engineering, Istanbul Technical University

²Department of Electrical and Electronics Engineering, Dogus University

ID 170: CKKS Fully Homomorphic Encryption Based Comparison and Bitonic Sorting.....684

Eymen Unay¹, Nil Tarim², Ayse Yilmazer-Metin³

¹Graduate School, Electronics Engineering Program, Istanbul Technical University

²Department of Electronics and Communication Engineering, Istanbul Technical University

³Department of Computer Engineering, Istanbul Technical University

ID 171: Implementation of the YOLOv8 Convolutional Neural Network Block on FPGA.....689

Celilsamil Ilhan, Tankut Akgul

Department of Electronics and Communication Engineering, Istanbul Technical University

ID 172: A Method Based on Hierarchical Classification for Diagnosis of Lung Diseases.....694

Rumeysa Yuksel, Sibel Cimen, Bulent Bolat

Department of Electronics and Communication Engineering, Yildiz Technical University

ID 174: Detection of Poisonous Substances in Their Water Solutions by Using Dielectric Wavequide.....699

Aysun Sayinti, Ilhami Unal, Sergiy B. Panin

Millimeter and Terahertz Technologies Laboratory, Materials and Process

Technologies Research Group, TUBITAK MAM, Kocaeli, Turkiye

ID 175: A Modified Sampling Rate for a Continuous Sampling using Dirac Comb.....704

Huseyin Canbolat

Department of Electrical and Electronics Engineering, Ankara Yildirim Beyazit University

ID 177: An Effective Parallel-Plate MEMS Capacitor Design for Energy Harvesting Applications.....707

Arif Kivanc Ustun, Meltem Apaydin Ustun

Corlu Faculty of Engineering, Department of Electrical and Electronics Engineering, Tekirdag Namik Kemal University

ID 178: Optimizing Carbon Emissions in EV Charging Stations: A Combined Approach of Two-Stage Optimization and Multi-Energy Integration.....712

Tuna Aykut, Sitki Guner

Department of Electrical and Electronics Engineering, Eskisehir Technical University



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



ID 179: Design of Artificial Electromagnetic Absorber.....717

Olcay Yigit¹, Mustafa Secmen²

- ¹Department of Electrical and Electronics Engineering, Ege University
- ²Department of Electrical and Electronics Engineering, Yasar University

ID 180: Performance of Alamouti STBC NOMA Signals in Rayleigh Fading Channels.....721

Murat Akturk¹, Ahmet Oturak²

- ¹Graduate School, Zonguldak Bulent Ecevit University
- ²Alapli Vocational School, Zonguldak Bulent Ecevit University

ID 184: The Effects of Rotor Delta and Embrace Parameters on the Performance of Flux-Switching Generator.....726

Tayfun Isikelekoglu¹, Tugberk Ozmen², Bati Eren Ergun¹, Nevzat Onat³, Mehmet Onur Gulbahce¹

- ¹Department of Electrical Engineering, Istanbul Technical University
- ²Manisa Vocational School of Technical Sciences, Manisa Celal Bayar University
- ³Department of Electrical and Electronics Engineering, Manisa Celal Bayar University

ID 185: The Effects of the Multi-Slice Skewing Applied to the Rotor on the Performance of a Flux Switching Generator.....731

Said Tunahan Durmaz¹, Tayfun Isikelekoglu¹, Tugberk Ozmen², Bati Eren Ergun¹, Nevzat Onat³, Mehmet Onur Gulbahce¹

- ¹Department of Electrical Engineering, Istanbul Technical University
- ²Department of Electricity and Energy, Manisa Celal Bayar University
- ³Department of Electrical and Electronics Engineering, Manisa Celal Bayar University

ID 186: A Miniaturized Gysel Power Divider for 915 MHz ISM Applications.....737

Mehmet Aytug Ormanci^{1,3}, Sedat Kilinc¹, Oguzhan Kizilbey^{2,3}, B. Siddik Yarman⁴

- ¹Department of Electrical and Electronics Engineering, Istanbul University-Cerrahpasa
- ² National Metrology Institute, TUBITAK
- ³Department of Electronics and Communication Engineering, Istanbul Technical University
- ⁴RFT Research Inc., Technopark -Istanbul

ID 188: Implementation of a Voltage-Based Algorithm for Parallel Connection of Uninterruptible Power Supplies.....741

Fevzi Zengin¹, Ahmet Faruk Bakan²

- ¹Inform Electronics
- ²Yildiz Technical University, Department of Electrical Engineering

ID 189: Cost-Effective Power Grid Scheme for Fishing Vessel with Clean Grid Converter.....747

Taha Bugra Sari¹, Murat Mustafa Savrun²

- ¹ R&D Center, BMA Technology, Kocaeli
- ²Department of Electrical and Electronics Engineering, Adana Alparslan Turkes Science and Technology University, Adana



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



ID 190: Performance of Microstrip Antennas in Textile Applications.....752

Fikriye Oz1,2, Nurhan Turker Tokan1

¹Department of Electronics and Communication Engineering, Yildiz Technical

²Department of Radar Technologies, TUBITAK BILGEM BTE, Kocaeli, Turkiye

ID 191: Design and Thermal Analysis of a High Power Density Interior PermanentMagnet Synchronous Motor for Passenger Cars.....757

Zevnep Akyuz, Bati Eren Ergun, Mehmet Onur Gulbahce Department of Electrical Engineering, Istanbul Technical University

ID 193: Investigation of the Electromagnetic and Thermal Performance of an Axially Slotted Eddy Current Brake.....762

Sebnem Uludag¹, Arif Andic¹, Omer Faruk Goksu², Bati Eren Ergun¹, Mehmet Onur Gulbahce1

¹Department of Electrical Engineering, Istanbul Technical University ²Department of Electrical and Electronics Engineering, Fatih Sultan Mehmet Foundation University, Istanbul

ID 195: Very Short-Term Prosumer Electric Load Forecasting using Machine Learning-Based Algorithms.....767

Gulizar Gizem Tolun¹, Omer Can Tolun², Kasim Zor²

¹Department of Energy Systems Engineering, Osmaniye Korkut Ata University ²Department of Electrical and Electronics Engineering, Adana Alparslan Turkes Science and Technology University

ID 196: A CNN-Based Deep Learning Method for Total Harmonic Distortion Estimation in Power Quality Signals.....773

Abdullah Caliskan¹, Mustafa Inci², Mehmet Hakan Demir², Berkay Eren², Adnan Tan³, Mehmet Buyuk⁴, Kamil Cagatay Bayindir⁵

¹Kahramanmaras Sutcuimam University, Department of Computer Engineering. Kahramanmaras

²Iskenderun Technical University, Department of Mechatronic Engineering, Hatay

³TUBITAK Marmara Research Center, Ankara

⁴Adiyaman University, Department of Electrical and Electronics Engineering, Adiyaman

⁵Ankara Yildirim Beyazit University, Department of Electrical and Electronics Engineering, Ankara

ID 197: Stabilization of a Fixed-Wing Aircraft with a Nonlinear Dynamic Inversion-Based PI Controller.....778

Muhammet Ali Gunes¹, Fatih Adiguzel²

¹ Department of Avionics Engineering, Yildiz Technical University

²Department of Control and Automation Engineering, Yildiz Technical University

ID 198: Modeling and Analysis of Photovoltaic Panel, Battery and Supercapacitor System.....784



Bursa, 28-30 November 2024

E-mail: eleco@eleco.org.tr Website: http://www.eleco.org.tr



Emre Tunc¹, Murat Fidan¹, Erdal Bekiroglu²

¹Department of Electrical and Electronics Engineering, Bolu Abant Izzet Baysal University

ID 199: Effect of Element Number and Bending Angle on Conformal Array Antenna Pattern.....789

Melih Turk, Fikret Tokan

Department of Electronics and Communication Engineering, Yildiz Technical University

ID 200: Analysis of 270VDC Electrical Power Distribution System Architectures in More Electric Aircraft Applications.....792

Ibrahim Hakyemez^{1,2}, Ozcan Kalenderli²

¹Deputy General Manager of Aircraft, Turkish Aerospace Industries Inc.

²Department of Electrical Engineering, Istanbul Technical University

ID 203: Analysis and Design of Optical Communication Channels Between Earth and Satellites.....797

Kutay Koksal, N. Ozlem Unverdi

Department of Electronics and Communication Engineering, Yildiz Technical University

ID 204: Life Cycle Assessment and Calculation of Carbon Footprint of PDU Systems Used In Data Centers.....802

Mahmut Acik¹, Dogan Erdogan¹, Ozgur Ustun^{2,3}

¹Exagate A.S., Kagithane, Istanbul

²Department of Electrical and Electronics Engineering, Faculty of Engineering, Piri Reis University, Tuzla, Istanbul

³Mekatro Mechatronic Systems R&D Ltd. Co., Sariyer, Istanbul

ID 205: Review of Parallel Connected MOSFETs and Current Sharing in Power Electronics Circuits.....807

Berkay Keziban, Murat Yilmaz

Faculty of Electrical and Electronics Engineering, Department of Electrical Engineering, Istanbul Technical University

² Department of Software Engineering, Gazi University