13th INTERNATIONAL CONFERENCE on
ELECTRICAL and ELECTRONICS ENGINEERING
Bursa, Turkey, 25-27 November 2021
Virtual Conference

ELECO 2021 Conference Program (1st Day) – Thursday 25.11.2021

Day	Hours (GMT+3)	ELECO 2021		
Thursday, 25.11.2021	10:00-11:00	**Opening Ceremony** ▶ YouTube link **Mehmet CAN,** EMO Bursa Branch Chairman **Ozcan KALENDERLI,** Conference Chairman **Bulent PALA,** Chamber of Turkish Electrical Engineers (EMO) Chairman		
	11:00-11:20	Mini Concert ▶ YouTube link The album "Aegean Whispers" **Irfan GUNEY** Acibadem University, Istanbul, Turkey		
	11:20-12:30	Session Chair: Professor Aydogan Ozdemir Invited Talk – 1 ▶ YouTube link Energy & Environmental Problems Facing India and Turkey and Their Probable Solutions for Sustainable Development and Poverty Alleviation **Dwarkadas Prahladadas KOTHARI** S.B. Jain Institute of Technology, Management & Research, Nagpur, India Visvesvaraya National Institute of Technology (VNIT), Nagpur, India (13:50- 15:00 for GMT+5.5)		
	12:30-13:30	Session Chair: Professor Hakan Kuntman Invited Talk – 2 ▶ YouTube link Inverse Analogue Filters: History, Progress and Unresolved Problems **Data Ram BHASKAR** Delhi Technological University, New Delhi, India (15:00-16:00 for GMT+5.5)		
	14:00-15:30	Session - 1 Electric Power Systems-1	Session - 2 Electronics-1	Session - 3 Control Systems-1
	16:00-17:00	Session Chair: Professor Aydogan Ozdemir Invited Talk – 3 ▶ YouTube link Computation of Large-Scale Power System Transients with Renewables **Jean MAHSEREDJIAN** Polytechnique Montréal, Québec, Canada (08:00-09:00 for GMT-5 Canada)		
	17:00-18:30	Session - 4 Electric Power Systems-2	Session - 5 Electronics-2	Session - 6 Control Systems-2

ELECO 2021 Conference Program (2nd Day) – Friday 26.11.2021

Day	Hours (GMT+3)	ELECO 2021		
Friday, 26.11.2021	10:00-11:30	Session - 7 High Voltage Engineering	Session - 8 Circuits	Session - 9 Electromagnetics-1
	11:30-13:00	Session - 10 Sensors-1	Session - 11 Signal Processing-1	Session - 12 Electromagnetics-2
	13:30-14:30	Session Chair: Professor Bilgin Metin Invited Talk – 4 ▶ YouTube link Camera Performance Evaluation **Gozde BOZDAGI AKAR** Middle East Technical University, Ankara, Turkey		
	14:30-16:00	Session - 13 Electric Power Systems-3	Session - 14 Signal Processing-2	Session - 15 Antennas
	16:00-17:00	Session Chair: Professor Aydogan Ozdemir Invited Talk – 5 ▶ YouTube link Energy Storage to Support Renewable Generation **Joydeep MITRA** Michigan State University, East Lansing, MI, USA (08:00-09:00 for **GMT-5 USA**)		
	17:00-18:30	Session - 16 Electric Power Systems-4	Session - 17 Sensors-2	Session - 18 Artificial Intelligence-1
	18:30-19:30	Session Chair: Assoc. Prof. Mustafa Berke Yelten Invited Talk – 6 ▶ YouTube link The Two-Faced Variability Challenge in Nanoelectronics: Mitigation and Exploitation … and How to Get There **Rafael CASTRO-LOPEZ** Sevilla University, Sevilla, Spain (15:30-16:30 for **GMT+0 Spain**)		

ELECO 2021 Conference Program (3rd Day) – Saturday 27.11.2021

Day	Hours (GMT+3)	ELECO 2021		
Saturday, 27.11.2021	10:30-12:00	Session – 19 Electrical Machines-1	Session - 20 Artificial Intelligence-2	Session - 21 Communication Systems-1
	12:00-13:30	Session - 22 Electrical Machines-2	Session - 23 Digital Systems-1	Session - 24 Communication Systems-2
	14:00-16:00	Session - 25 Power Electronics-1	Session - 26 Electronics-3	Session - 27 Communication Systems-3
	16:00-17:00	Session Chair: Professor Oguzhan Cicekoglu Invited Talk – 7 ▶ YouTube link Recent Advances in Wireless Charging **Mohammed ISMAIL** Wayne State University, Detroit, Michigan, USA (08:00-09:00 for GMT-5 USA)		
	17:00-18:30	Session - 28 Power Electronics-2	Session - 29 Artificial Intelligence-3	Session - 30 Digital Systems-2

Thursday, 25.11.2021, Hours: 14:00-15:30 (for Turkey GMT+3)

Hours: 13:00-14:30 (for Greece GMT+2)

Session – 1

Session Chair: Professor **Aydogan Ozdemir**, Istanbul Technical University, Istanbul, Turkey

Zoom link

Electric Power Systems-1

35. Impact Analysis of Smart EV Charging Systems in Renewable-Based Microgrid
Dogukan Ayci, Murat Yilmaz
Istanbul Technical University, Turkey

117. Multi-Period Reactive Power Optimization for Determination of Switch
Statuses of Shunt Elements and Voltage Setpoints of Power Plants
Ismail Elma[1], Ali Nezih Guven[2]
[1]TUBITAK, Turkey, [2]Middle East Technical University, Turkey

21. Technical and Economic Effects of Changes in the Location of Industrial
Facilities in Industrializing Regions on Power Systems
Zafer Ozturk[1], Alpaslan Demirci[2], Salih Tosun[1], Ali Ozturk[1]
[1]Duzce University, Turkey, [2]Yildiz Technical University, Turkey

3. Distributed Generation Control via Ripple Signaling for Establishment of
Ancillary Services in Distribution Networks
Evangelos Boutsiadis[1, 2], Dimitrios Tsiamitros[2], Dimitrios Stimoniaris[2]
[1]Hellenic Distribution Network Operator (HEDNO), Greece, [2]University of
West Macedonia, Greece

Thursday, 25.11.2021, Hours: 17:00-18:30 (for Turkey GMT+3)

Hours: 16:00-17:30 (for Greece GMT+2)

Session – 4

Session Chair: Assoc. Professor **Dimitrios Tsiamitros**, University of Western Macedonia, Greece

Zoom link

Electric Power Systems-2

145. Cascaded Clustering Analysis of Electricity Load Profile Based on Smart Metering Data
Mustafa Sen Yildiz[1], Kadir Dogansahin[2], Bedri Kekezoglu[3]
[1]Kirklareli University, Turkey, [2]Artvin Coruh University, Turkey, [3]Yildiz Technical University, Turkey

6. Energy Loss Minimization with Parallel Implementation of Marine Predators Algorithm
Soheil Younesi[1], Bahman Ahmadi[1], Oguzhan Ceylan[2], Aydogan Ozdemir[1]
[1]Istanbul Technical University, Turkey, [2]Kadir Has University, Turkey

78. Comparison of Real-Time Voltage Stability Assessment Methods
Melih Bilgen, Saban Ozdemir
Gazi University, Turkey

61. Technical Comparison of PWM and MPPT Charge Regulators
Ahmet Yilmaz, Alpaslan Demirci, Said Mirza Tercan
Yildiz Technical University, Turkey

30. Performance Comparison of Gray Wolf and Perturb & Observe MPPT Algorithms in Different Weather Conditions
Hasan Gundogdu, Alpaslan Demirci
Yildiz Technical University, Turkey

Friday, 26.11.2021, Hours: 14:30-16:00

Session – 13

Session Chair: Professor **Ozgur Cemal Ozerdem**, European University of Lefke

Zoom link

Electric Power Systems-3

69. Earth Fault Protection Selectivity Issues on Reactance Earthed Distribution System
Mert Bekir Atsever[1], Ozgur Karacasu[2], Mehmet Hakan Hocaoglu[3]
[1]Gebze Technical University, Turkey, [2]TUBITAK, Turkey, [3]Istanbul Commerce University, Turkey

83. Optimal Design of Hybrid Grid-connected Microgrid with Renewable Energy and Storage in a Rural Area in Turkey by Using HOMER
Mikail Purlu, Sezen Beyarslan, Belgin Turkay
Istanbul Technical University, Turkey

85. Economic Dispatch of Multi-Microgrid Systems by Using Particle Swarm Optimization
Esra Aydin, Mikail Purlu, Belgin Turkay
Istanbul Technical University, Turkey

130. IEC61850 Based Integrated Directional Power Relaying for the Protection of Microgrids against Unbalanced Fault Conditions
Omer Usta[1], Fatih Ozveren[1], Mert Uzun[2], Cenk Gocer[2]
[1]Istanbul Technical University, Turkey, [2]ENTES Electronic, Turkey

Friday, 26.11.2021, Hours: 17:00-18:30 (for Turkey GMT+3)

Hours: 17:30-19:00 (for Iran GMT+3.5)

Session – 16

Session Chair: Professor **Mustafa Bagriyanik**, Istanbul Technical University, Istanbul, Turkey

Zoom link

Electric Power Systems-4

2. Optimal Estimation of the Hybrid Vehicles Battery Charge State by Setting the Parameters of the Callman Filter Based on the Smart Cuckoo Algorithm
Monireh Ahmadi[1], Seyed Hossein Hosseini[2], Murtaza Farsadi[3]
[1]Islamic Azad University, Iran, [2]Near East University, North Cyprus, [3]Istanbul Aydin University, Turkey

128. Optimal Scheduling of ESS in Distribution System with Multiple DG
Suleyman Tuncel[1], Ayse Aybike Seker[1], Morteza Zare Oskouei[2], Tuba Gozel[1], Behnam Mohammadi-Ivatloo[2], Mehdi Abapour[2]
[1]Gebze Technical University, Turkey, [2]University of Tabriz, Iran

28. Optimal Electricity Tariff Management in the Scope of Energy Management on University Campuses: Bogazici University Case Study
Sercan Iscan, Oktay Arikan
Yildiz Technical University, Turkey

12. A New Method for Load Flow Analysis of Distribution Systems under Different Network Topologies
Monireh Ahmadi[1], Murtaza Farsadi[2], Seyed Hossein Hosseini[3]
[1]Islamic Azad University, Iran, [2]Istanbul Aydin University, Turkey, [3]Near East University, North Cyprus

Saturday, 27.11.2021, Hours: 10:30-12:00

Session – 19

Session Chair: Professor **Okan Ozgonenel**, Ondokuz Mayis University, Samsun, Turkey

Zoom link

Electrical Machines-1

67. Design and Analysis of a High Power Density BLDC Motor for a Multi-Rotor Unmanned Aircraft
Kevser Ozer, Murat Yilmaz
Istanbul Technical University, Turkey

150. PI Based ANFIS Controller Design for PMSM Drives
Ipek Kuvvetli, Alper Tap, Lale T. Ergene
Istanbul Technical University, Turkey

114. Effects of Voltage Harmonics on the No-Load Losses of a Three-Phase Distribution Transformer
Kamran Dawood, Guven Komurgoz
Istanbul Technical University, Turkey

5. Analysis of Short Circuit Electromagnetic Force in a Three Winding Transformer Used in Solar System
Amir Jahi, Ires Iskender
Gazi University, Turkey

Saturday, 27.11.2021, Hours: 12:00-13:30 (for Turkey GMT+3)

Hours: 11:00-12:30 (for Romania GMT+2)

Session – 22

Session Chair: Professor **Lale Tukenmez Ergene**, Istanbul Technical University, Istanbul, Turkey

Zoom link

Electrical Machines-2

103. Detection of Eccentricity Faults of Induction Motors Based on Decision Trees
Eyup Irgat, Abdurrahman Unsal, Huseyin Tayyer Canseven
Kutahya Dumlupinar University, Turkey

56. Determination of Optimum Stator and Rotor Resistance Values for Obtaining Parameters of Three Phase Induction Motor with Taguchi Method
Murat Toren, Hakki Mollahasanoglu
Recep Tayyip Erdogan University, Turkey

64. Analysis of Driving Cycle with Wireless Communication in Electric Vehicles
Berk Bilgin
AVL, Turkey

90. Estimating the Ratio of Kinetic Energy Turned into Regenerated Electric Active Energy through Regenerative Braking by an Electric Locomotive
Ileana Diana Nicolae[1], Petre-Marian Nicolae[1], Radu Zlatian[2], Alexandru Netoiu[2]
[1]University of Craiova, Romania, [2]SC SOFTRONIC SA, Romania

Saturday, 27.11.2021, Hours: 14:00-16:00

Session – 25

Session Chair: Assoc. Professor **Murat Yilmaz**, Istanbul Technical University, Istanbul, Turkey

Zoom link

Power Electronics-1

38. An Efficient Full-wave and Switched-capacitor-based AC-DC-DC Converter Configuration
Davut Ertekin[1], Mesut Berke Bilgic[2], Turkey, Bulent Mutlu[2]
[1]Bursa Technical University, Turkey, [2]Valeo Automotive Industry and Trade Inc.

29. Prototype Development and Verification for Grid Connected Three-Phase Three-Level NPC PV Inverter
Yunus Emre Yagan, Kadir Vardar
Kutahya Dumlupinar University, Turkey

143. Flexible Reactive Power Capacity of Full Converter Wind Turbines
Ibrahim Alisar[1], Erhan Demirok[2]
[1]Izmir University of Economics, Turkey, [2]Dokuz Eylul University, Turkey

7. A Study on the State of Health of Lithium-ion Batteries
S. Sinan Baydan[1], Murat Ceylan[2], R. Nejat Tuncay[1]
[1]Okan University, Turkey, [2]Gebze Technical University, Turkey

Saturday, 27.11.2021, Hours: 17:00-18:30 (for Turkey GMT+3)

Hours: 17:30-19:00 (for Iran GMT+3.5)

Session – 28

Session Chair: Assoc. Professor **Davut Ertekin**, Bursa Technical University, Bursa, Turkey

📷 Zoom link

Power Electronics-2

33. Multi-variable Modeling and System Identification of an Interleaved Boost Converter
Ridvan Keskin[1], Ibrahim Aliskan[1], Ersin Das[2]
[1]Zonguldak Bulent Ecevit University, Turkey, [2]California Institute of Technology, United States

84. Design and Application of a Novel Dimmable Lighting Control Unit with Active Power Measurement via KNX Protocol
Ahmet Furkan Ergan, Kemal Sarioglu
Yonnet Research and Development Center, Turkey

55. Level-Shifted Pulse Width Modulation Based Battery State-of-Charge Balancing Method for Single-Phase Cascaded H-Bridge Multilevel Converters
Fatih Eroglu[1], Mehmet Kurtoglu[2], Ahmet Eren[1], Ahmet Mete Vural[1]
[1]Gaziantep University, Turkey, [2]Iskenderun Technical University, Turkey

124. Half-Bridge LLC Resonant Converter Design for High Voltage Battery to Low Voltage Battery Conversion in Electric Vehicles
Meltem Lordoglu[1], Umutcan Polat[1], Kerim Oruklu[2], Deniz Yildirim[1]
[1]Istanbul Technical University, Turkey, [2]Eskisehir Technical University, Turkey

156. A Novel Multilevel Inverter Based on Switched Capacitor Units Using Improved H-Bridge
Javad Nekoui, Neda Zahedi Saadabad, Seyed Hossein Hosseini
University of Tabriz, Iran

Friday, 26.11.2021, Hours: 10:00-11:30

Session – 7

Session Chair: Professor **M. Cengiz Taplamacioglu**, Gazi University, Ankara, Turkey

Zoom link

High Voltage Engineering

50. The Effects of the Surface Pollution on the Potential, Electric Field, and Temperature Distributions for Suspension Type Porcelain Insulators
Irem Gorgoz, Mehmet Cebeci
Firat University, Turkey

53. Hydrophobicity Loss of HTV Silicone Rubbers with different ATH Filler Types under AC Corona Discharges
Tugrul Akkoyun, Halil Ibrahim Uckol, Taylan Ozgur Bilgic, Suat Ilhan
Istanbul Technical University, Turkey

106. Influence of ATH Filler on Tracking and Erosion Resistance of HTV Silicone Rubbers under DC Voltages
Cengiz Gur, Mustafa Vehbi Elmas, Halil Ibrahim Uckol, Suat Ilhan
Istanbul Technical University, Turkey

36. Investigation of AC and DC Breakdown Behavior on Different Solid Insulating Materials
Firat Akin[1], Oktay Arikan[1], Cihat Cagdas Uydur[2]
[1]Yildiz Technical University, Turkey, [2]Trakya University, Turkey

164. The Design and Application of Composite AC & DC and DC & LI High Voltage Test Circuits
Mehmet Murat Ispirli[1], Ozcan Kalenderli[1], Michael Rock[2]
[1]Istanbul Technical University, Turkey, [2]Technische Universitat Ilmenau, Germany

Thursday, 25.11.2021, Hours: 14:00-15:30

Session – 2

Session Chair: Professor **H. Hakan Kuntman**, Istanbul Technical University, Istanbul, Turkey

Zoom link

Electronics-1

131. Design Consideration of Meminductor Emulator Circuit
Hacer Atar Yildiz, Serdar Ozoguz
Istanbul Technical University, Turkey

48. A Novel Fully Floating Memristor Emulator Using OTA and Few Passive Elements
Mehmet Mustafa Gozukucuk, Serdar Menekay, Deniz Ozenli
National Defense University, Hezarfen Aeronautics and Space Technologies Institute (ASTIN), Turkey

66. An Electronically Tunable CCII Based Low Pass Filter for Analog Baseband Applications
Ersin Alaybeyoglu[1], Deniz Ozenli[2], Hakan Kuntman[3]
[1]Bartin University, Turkey, [2]National Defense University, Turkish Air Force Academy, Turkey, [3]Istanbul Technical University, Turkey

65. A Grounded Capacitance Multiplier Circuit Employing VDTA
Deniz Ozenli[1], Ersin Alaybeyoglu[2], Hakan Kuntman[3]
[1]National Defense University, Turkish Air Force Academy, Turkey, [2]Bartin University, Turkey, [3]Istanbul Technical University, Turkey

Thursday, 25.11.2021, Hours: 17:00-18:30 (for Turkey GMT+3)

Hours: 15:00-16:30 (for Czechia GMT+1)

Session – 5

Session Chair: Assoc. Professor **Norbert Herencsar**, Brno University of Technology, Brno, Czechia

Zoom link

Electronics-2

152. GaN-Based High-Efficiency Class AB Power Amplifier Design for Sub-6 GHz 5G Transmitter Systems
Kudret Unal, Mustafa Berke Yelten
Istanbul Technical University, Turkey

153. The Design Overview of the Hybrid Doherty-Outphasing Technique
Alperen Tunc, Mustafa Berke Yelten
Istanbul Technical University, Turkey

155. Ultra Low Power Transimpedance Amplifier Design for Receivers with Large-Area Photodetectors
Ali Dogus Gungordu, Mustafa Berke Yelten
Istanbul Technical University, Turkey

51. Design of a High-Linearity Gilbert-Cell Mixer at 5 GHz
Emre Altuner, Serdar Ozoguz, Mustafa Berke Yelten
Istanbul Technical University, Turkey

163. MOSFET-C Transimpedance Mode Filter
Bilgin Metin, Osman Erkan Kaluc, Ahmet Oncu, Oguzhan Cicekoglu
Bogazici University, Turkey

13th INTERNATIONAL CONFERENCE on ELECTRICAL and ELECTRONICS ENGINEERING
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Saturday, 27.11.2021, Hours: 14:00-16:00

Session – 26

Session Chair: Professor **Oguzhan Cicekoglu**, Bogazici University, Istanbul, Turkey

Zoom link

Electronics-3

120. The Effect of MOS Transistor Body Connection on Sub-THz Fundamental Oscillator Performance Above 200 GHz in 65 nm CMOS
Utku Uluer[1], Korkut Kaan Tokgoz[2], Ertan Zencir[3], Mehmet Unlu[1]
[1]TOBB University of Economics and Technology, Turkey, [2]Tokyo Institute of Technology, Japan, [3]University of Turkish Aeronautical Association, Turkey

129. A 1-4 GHz Single Stage Wilkinson Power Divider Design with Wideband Isolation Resistor
Oguzhan Kizilbey[1], Rabia Hatipzade[2], Abdullah Aydin[1], Sadik Dogan Erdogan[3]
[1]TUBITAK UME, Turkey, [2]Gebze Technical University, Turkey, [3]Yeditepe University, Turkey

141. A TIQ Based 6-Bit Two-Channel Time Interleaved ADC Design
Lutfiye Busra Yurekli, Ali Tangel
Kocaeli University, Turkey

45. Design of a 432 MHz Direct Down-Conversion Gilbert Mixer for Biomedical Applications
Ercem Yesil, Onur Ferhanoglu, Mustafa Berke Yelten
Istanbul Technical University, Turkey

58. Gamma Ray Effects on Organic Light-Emitting Diodes (OLEDs)
Sadik Ilik[1], Can Omer Dulgar[1], Arda Guney[2], Onur Ferhanoglu[1], Mustafa Berke Yelten[1]
[1]Istanbul Technical University, Turkey, [2]Caeleste, Belgium

Saturday, 27.11.2021, Hours: 12:00-13:30

Session – 23

Session Chair: Professor **Mustak Erhan Yalcin**, Istanbul Technical University, Istanbul, Turkey

Zoom link

Digital Systems-1

49. Custom TTA Operations for Accelerating Kyber Algorithm
Latif Akcay[1], Siddika Berna Ors Yalcin[2]
[1]Bayburt University, Turkey, [2]Istanbul Technical University, Turkey

87. Design and Implementation of a 32-bit RISC-V Core
Yasin Yilmaz[1], Yavuz Selim Tozlu[2], Berna Ors[1]
[1]Istanbul Technical University, Turkey, [2]North Carolina State University, United States

109. Multi-Layer Perceptron Hardware Accelerator on RISC-V Processor
Nazim Altar Koca, Berkay Yildiz, Yusuf Caner Demirkol, Berna Ors
Istanbul Technical University, Turkey

22. An FPGA Implementation of Givens Rotation Based Digital Architecture for Computing Eigenvalues of Asymmetric Matrix
Ilayda Koseoglu, Elif Ozturk, Mustak Erhan Yalcin
Istanbul Technical University, Turkey

Saturday, 27.11.2021, Hours: 17:00-18:30 (for Turkey GMT+3)

Hours: 16:00-17:00 (for Greece GMT+2)

Session – 30

Session Chair: Professor **S. Berna Ors Yalcin**, Istanbul Technical University, Istanbul, Turkey

Zoom link

Digital Systems-2

71. Interoperability of Microservice-Based Systems
    Ali Bayramcavus, M. Cagri Kaya, Ali H. Dogru
    Middle East Technical University, Turkey

157. A Platform for Remote Building Automation Training and Developing Smart
     Devices on Energy Management and Air Quality Improvement
     Christodoulos Spagkakas, Dimitris Tsiamitros, Dimitris Stimoniaris, George Kokkonis
     University of Western Macedonia, Greece

122. Development of a Data Acquisition System using Powerline Communication
     for Performance monitoring of Photovoltaic Systems
     Hikmet Alkilinc[1], Suleyman Hanli[1], Mahmut Sami Buker[2]
     [1]Endustriyel Elektrik San. Tic. Ltd. Sti., Turkey, [2]Necmettin Erbakan University,
     Turkey

105. One Stage Deep Learning Based Method for Agricultural Parcel Boundary
     Delineation in Satellite Images
     Bahaa Awad, Isin Erer
     Istanbul Technical University, Turkey

41. Autoencoder Guided low Complexity Adaptive Beamforming
    Enes Turker[1], Isin Erer[2]
    [1]Aselsan, Turkey, [2]Istanbul Technical University, Turkey

Friday, 26.11.2021, Hours: 10:00-11:30

Session – 8

Session Chair: Professor **Serdar Ozoguz**, Istanbul Technical University, Istanbul, Turkey

Zoom link

Circuits

159. Modeling and Simulation the Effect of Different Structures in A LED Driver Board on Conducted Emission Level
Oguzhan Coskun[1, 2], Ozgur Cevik[1, 3], Recep Eken[1, 4], Sule Bekiryazici[1], Gunes Yilmaz[1]
[1]Bursa Uludag University, Turkey, [2]EMKO Elektronik A.S, Turkey, [3]FEKA Otomotiv Mamulleri Sanayi ve Ticaret A.S., Turkey, [4]Daiichi Elektronik Sanayi ve Ticaret A.S., Turkey

44. Model-Based Kalman Filter Design on an FPGA
Mehmet Ordubag[1], Berna Ors[2]
[1]ASELSAN A.S., Turkey, [2]Istanbul Technical University, Turkey

79. Universal Verification Methodology Application of ARINC-429 for Airborne Electronic Hardware Certification
Ibrahim Ayaz[1], Ufuk Sakarya[1], Ibrahim Hokelek[2]
[1]Yildiz Technical University, Turkey, [2]TUBITAK BILGEM, Turkey

96. FPAA Implementation of Wang-Liu System
Gulnur Yilmaz, Enis Gunay
Erciyes University, Turkey

42. PLODE: Precise Logic and Delay Simulator for Structural Verilog
Gokce Nur Erer, Alp Arslan Bayrakci
Gebze Technical University, Turkey

Friday, 26.11.2021, Hours: 11:30-13:00

Session – 11

Session Chair: Professor **Semra Icer**, Erciyes University, Kayseri, Turkey

Zoom link

Signal Processing-1

77. Weighted and Label-Consistent Joint Sparse Hyperspectral Image Classification
Tugcan Dundar, Taner Ince
Gaziantep University, Turkey

86. Driver Drowsiness Detection using MobileNets and Long Short-term Memory
Gurkan Aydemir, Oguzhan Kurnaz, Tahir Bekiryazici, Adem Avci, Mustafa Kocakulak
Bursa Technical University, Turkey

40. Classification of EEG Signals in Neuromarketing Implementation Task
Samet Oran, Amira Tandirovic Gursel
Adana Alparslan Turkes Science and Technology University, Turkey

57. Deep Computer Based Pre-Diagnosis from Chest CTs of COVID-19 Patients
Ali Berkan Ural, Anil Dedigidogru
Kafkas University, Turkey

Friday, 26.11.2021, Hours: 14:30-16:00

Session – 14

Session Chair: Assoc. Professor **Cemal Hanilci**, Bursa Technical University, Bursa, Turkey

Zoom link

Signal Processing-2

14. Detail Investigation on Success of the Filters and Classification Algorithms for Determining Pneumonia Disease
Sena Bilir[1], Sadullah Ozturk[2]
[1]Fatih Sultan Mehmet Vakif University, Turkey, [2]Istanbul University, Turkey

16. Double Compressed AMR Audio Detection Using Spectral Features with Temporal Segmentation
Aykut Buker, Cemal Hanilci
Bursa Technical University, Turkey

52. Comparison of Different Data Augmentation Methods with an Experimental EEG Dataset
Evin Sahin Sadik[1], Hamdi Melih Saraoglu[1], Sibel Canbaz Kabay[2], Mustafa Tosun[1], Gonul Akdag[2]
[1]Kutahya Dumlupinar University, Turkey, [2]Kutahya Health Sciences University, Turkey

94. A Time Difference of Arrival Estimation with Integration of Generalized Cross Correlation Samples for Continuous Wave Signals on Passive Positioning Systems
Huseyin Burak Onen[1, 2], Mesut Kartal[2]
[1]Aselsan, Turkey, [2]Istanbul Technical University, Turkey

Friday, 26.11.2021, Hours: 10:00-11:30

Session – 9

Session Chair: Professor **Erdem Yazgan**, TED University, Ankara, Turkey

Zoom link

Electromagnetics-1

162. Design of a Compact Dual-Band Microstrip Bandstop Filter with High Rejection Levels
Kursat Oguzhan Sahin[1], Ali Kursad Gorur[1], Adnan Gorur[2]
[1]Nevsehir Haci Bektas Veli University, Turkey, [2]Nigde Omer Halisdemir University, Turkey

4. Automatic RF Power Sensor Calibration with Direct Comparison Transfer Method at Millimeter Wave Frequencies
Erkan Danaci, Murat Salim Karabinaoglu
TUBITAK UME, Turkey

19. TE Scattering from Dielectric Cylindrical Objects Inside a Parallel Plate Waveguide
Tanju Yelkenci[1], Alper Yedekci[2]
[1]Marmara University, Turkey, [2]ASELSAN, Turkey

142. Fuzzy Logic Modeling and Application for Optimization of Wide Band Filters
Ramazan Sarac[1], Mehmet Urhan[2], Ahmet Ozek[3], Ceyhun Karpuz[3]
[1]Usak University, Civil Aviation Vocational School, Turkey, [2]Pamukkale University, Saraykoy Vocational School, Turkey, [3]Pamukkale University, Engineering Faculty, Turkey

Friday, 26.11.2021, Hours: 11:30-13:00

Session – 12

Session Chair: Professor **Erdem Yazgan**, TED University, Ankara, Turkey

Zoom link

Electromagnetics-2

104. Implementation of FMCW Radar by Using SDR
Serdar Kaya, Alparslan Cagri Yapici, Berk Tibikoglu, Serif Onurcan Yazici
Baskent University, Turkey

137. A Hybrid Simulation Model for Characterization of Nonlinear Circuits Using Harmonic Radar
Yucel Takak[1], Harun Taha Hayvaci[2], Imam Samil Yetik[1]
[1]TOBB University of Economy and Technology, Turkey, [2]American University of the Middle East, Kuwait

113. The Effect of Amplification in Microwave Based Quantum Radar Systems
Murat Can KARAKOC, Ozgun Ersoy, Asaf Behzat Sahin
Ankara Yildirim Beyazit University, Turkey

138. A Gysel Power Combiner with 20W Wideband Isolation Termination and 25% Fractional Bandwidth
Rabia Tuylek[1], Bersan Zeynep Soder[2], Oguzhan Kizilbey[3], Siddik Yarman[4]
[1]Istanbul Technical University, Turkey, [2]Bulent Ecevit University, Turkey, [3]Tubitak UME, Turkey, [4]RFT Technology Co., Turkey

108. Low-Cost Carbon-Based Electromagnetic Shielding Material Design at X and Ku Bands for Electronics, Fabric and Wearable Equipment
Zeynep Ertekin[1], Mustafa Secmen[1], Mustafa Erol[2]
[1]Yasar University, Turkey, [2]Dokuz Eylul University, Turkey

Friday, 26.11.2021, Hours: 14:30-16:00

Hours: 12:30-14:00 (for Italy GMT+1)

Session – 15

Session Chair: Professor **Erkan Afacan**, Gazi University, Ankara, Turkey

Zoom link

Antennas

76. A Microstrip Patch Antenna for a WLAN Receiver
Funda Cirik Acikaya[1], Bahadir Suleyman Yildirim[2]
[1]Marmara University, Turkey, [2]Mugla Sitki Kocman University, Turkey

26. Conjointly Electromagnetic Simulations for Bended Microstrip Antenna
Designs
Lida Kouhalvandi[1], Ladislau Matekovits[2], Serdar Ozoguz[1]
[1]Istanbul Technical University, Turkey, [2]Politecnico di Torino, Italy

63. All-Textile, Washable Metasurface Antenna for WBAN/WLAN and Mid-Band
5G Applications
Esra Celenk[1], Nurhan Turker Tokan[2]
[1]Maltepe University, Turkey, [2]Yildiz Technical University, Turkey

70. Wide Band Gain Enhancement of a mmWave Conical Horn Antenna with a
Metamaterial Lens
Nesem Keskin[1], Nurhan Turker Tokan[2]
[1]Profen Communication Tech., Turkey, [2]Yildiz Technical University, Turkey

140. A File Transfer Method for RF Transceiver Modules Used in Internet of Things
Applications
Gulden Gunay Bulut, Asena Melike Cayan, Suad Basbug
Nevsehir Haci Bektas Veli University, Turkey

Saturday, 27.11.2021, Hours: 10:30-12:00

Session – 21

Session Chair: Assoc. Professor **Ozgur Ozdemir**, Istanbul Technical University, Istanbul, Turkey

Zoom link

Communication Systems-1

118. A Model Based Hardware Implementation of Traffic Regulator in ARINC-664 End System
Mustafa Uzuner, Ibrahim Hokelek, Siddika Berna Ors Yalcin
Istanbul Technical University, Turkey

136. Reconfigurable Intelligent Surface Empowered Differential Chaos Shift Keying Assisted Media-Based Modulation over Nakagami-m Fading Channels
Beyza Onal[1], Fatih Cogen[2], Erdogan Aydin[1], Nihat Kabaoglu[1]
[1]Istanbul Medeniyet University, Turkey, [2]Turkish-German University

17. RFC 2544 Ethernet Performance Measurements Using FPGA Based Dual-Core ARM
Ahmet Ozcan, Mustak Erhan Yalcin
Istanbul Technical University, Turkey

99. Transmission Performance Analysis of Cognitive Radio Based Backscatter Communication Systems
Muhammed Yusuf Onay[1], Mehmet Hakan Durak[2], Ozgur Ertug[1]
[1]Gazi University, Turkey, [2]Erzurum Technical University, Turkey

Saturday, 27.11.2021, Hours: 12:00-13:30

Session – 24

Session Chair: Assoc. Professor **Ozgur Ozdemir**, Konya Technical University, Konya, Turkey

Zoom link

Communication Systems-2

62. Comparison of Single FWM Impact with Combined Impact of FWM and SRS on the Performance of Long-Haul DWDM/UDWDM Communication Systems Using SSMFs
Kubra Kilincarslan, Sait Eser Karlik
Bursa Uludag University, Turkey

46. Design of 4 bit and 8 bit Pseudo Noise Sequence Generators with All Zero Condition Protection Circuit
Alper Kurt
Ozyegin University, Turkey

68. Channel Modeling and Characterization for VLC-Based MBSNs Impaired by 3D User Mobility
Baris Donmez, Farshad Miramirkhani
Isik University, Turkey

88. Covert Digital Communication Using Random Frequency Hopped Spread-Spectrum
Merve Nur Cankara, Mehmet Emre Cek
Dokuz Eylul University, Turkey

Saturday, 27.11.2021, Hours: 14:00-16:00 (for Turkey GMT+3)

Hours: 11:00-13:00 (for Portugal GMT+0)

Session – 27

Session Chair: Professor **Olcay Akay**, Dokuz Eylul University, Izmir, Turkey

Zoom link

Communication Systems-3

80. A Physical Layer-Based Lane Authentication Method
**Halit Erdogan[1], Ozge Belgul[1], Asim Zoran Kabakci[1], Semiha Tedik Basaran[1],
Gunes Karabulut Kurt[2]**
[1]Istanbul Technical University, Turkey, [2]Polytechnique Montreal, Canada

93. A Fair CSMA/CA Scheme: A Distance-Based Approach
Saylan Gunduz, Semiha Tedik Basaran
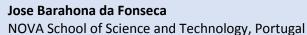Istanbul Technical University, Turkey

91. Performance of the Convolutional Neural Network Model in Identification of
the Wireless Frequency Bands
Adem Gul, Bulent Bolat
Yildiz Technical University, Turkey

47. Technical Note: From the Generation of New Optimal and Quasi-Optimal
Constant Weight Ternary Codes Obtained with a MILP Model to a New
Definition of the Johnson Bound
Jose Barahona da Fonseca
NOVA School of Science and Technology, Portugal

Friday, 26.11.2021, Hours: 11:30-13:00
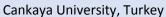
Session – 10

Session Chair: Professor **Ece Olcay Gunes**, Istanbul Technical University, Istanbul, Turkey

Zoom link

Sensors and Instrumentation-1

24. Design and Modelling Interdigitated Capacitor - Spiral Inductor Resonator for Optical Pressure Sensor
Mert Demirel, Gizem Duyguluer, Metehan Ozturk, A. Salmanogli, H. S. Geçim
Cankaya University, Turkey

27. Design and Modeling of Very Narrow Band-pass RF Filter for Optical Pressure Sensor
Turkan Simge Ispak, Gonca Basaraner, Sevil Ceylan, A. Salmanogli, H. S. Gecim
Cankaya University, Turkey

39. Performance Analysis of Relative Humidity Factor and CH4 Concentration Measurements for NDIR Gas Sensor
Usame Ayaz, Seymanur Topuk
UESTCO Enerji Sistemleri Ltd. Sti., Turkey

127. Improved Hall Effect Based Current Sensors
Alper Girgin, Osman Meric, Erkan Ozdemir, Fatma Rumeysa Onal, Asel Menekse, Tufan Coskun Karalar
Istanbul Technical University, Turkey

Friday, 26.11.2021, Hours: 17:00-18:30 (for Turkey GMT+3)

Hours: 15:00-16:30 (for Czechia GMT+1)

Hours: 17:30-19:00 (for Iran GMT+3.5)

Session – 17

Session Chair: Assoc. Professor **Roman Sotner**, Brno University of Technology, Brno, Czechia

Zoom link

Sensors and Instrumentation-2

34. Design and Validation of an Effective Temperature Compensated-Based FBG Sensor Package for Air Vehicle Applications
Mehmet Mucahit Arslan[1], Gokay Bayrak[2]
[1]Turkish Aerospace, Turkey, [2]Bursa Technical University, Turkey

161. Phase BOTDR based Distributed Acoustic Sensing
Mert Bilgen[1], Abdurrahman Gunday[2]
[1]National Defense University, Turkey, [2]Bursa Uludag University, Turkey

100. Earthquake Detection using Fiber Optic Distributed Acoustic Sensing
Hasan Yetik[1], Mucahit Kavakli[1], Umut Uludag[1], Ali Eksim[1], Selcuk Paker[2]
[1]TUBITAK, Turkey, [2]Istanbul Technical University, Turkey

25. Considering Uncertainties in Charging Control of Plug-in Electric Vehicles
Mahsa Ghavami, Mohammad Haeri
Sharif University of Technology, Iran

Thursday, 25.11.2021, Hours: 14:00-15:30

Session – 3

Session Chair: Professor **Nusret Tan**, İnönü Üniversitesi, Malatya, Turkey

Zoom link

Control Systems-1

32. Robust n-DOF H-infinity Feed-Forward Control of Multi-phase Converters for Electric Vehicles
Ridvan Keskin[1], Ibrahim Aliskan[1], Ersin Das[2]
[1]Zonguldak Bulent Ecevit University, Turkey, [2]California Institute of Technology, United States

102. Inverse Optimal Control Based on Improved Grey Wolf Optimization Algorithm
Mohamad Akoum, Gulay Oke Gunel
Istanbul Technical University, Turkey

134. Effect of Guaranteed Emergency Braking Rate and Gradient on Turnback Headway Time in Metro Lines
Serhat Boynukalin[1], Suleyman Acikbas[2], Mehmet Turan Soylemez[1]
[1]Istanbul Technical University, Turkey, [2]Hill International, Qatar

133. Fuzzy Logic Controller for Leader-Follower Based Navigation of Mobile Robots in a ROS-enabled Environment
Halil Aydin, Ilhan Tunc, Mehmet Turan Soylemez
Istanbul Technical University, Turkey

Thursday, 25.11.2021, Hours: 17:00-18:30

Session – 6

Session Chair: Professor **M. Turan Soylemez**, Istanbul Technical University, Istanbul, Turkey

Zoom link

Control Systems-2

146. Trajectory Tracking of a Quadcopter Using Fuzzy-PD Controller
Kansu Oguz Canbek, Yesim Oniz
Istanbul Bilgi University, Turkey

116. BLDC Motor Driven, PSO Optimized 2-DOF PID Control of the Seesaw Balance System
Ibrahim Cukdar, Tevfik Yigit, Hakan Celik
Firat University, Turkey

18. Implementation of Linear Active Disturbance Rejection Control for a DC Motor System
Gokhan Yuksek, Alkan Alkaya, Ahmet Naci Mete
Mersin University, Turkey

126. A Low-Cost 3D-Printed Soft Pneumatic Actuator
Baver Tuysuz, Emre Guney, Daghan Serpiciler, Mehmet Ayyildiz
Istanbul Bilgi University, Turkey

Friday, 26.11.2021, Hours: 17:00-18:30

Session – 18

Session Chair: Assoc. Professor **Nihan Kahraman**, Yildiz Technical University, Istanbul, Turkey

Zoom link

Artificial Intelligence-1

9. Comparison of the Efficiency of Psychological Assessment Tests Used in the Diagnosis of Fibromyalgia Syndrome with ANN
Faruk Sanberk Kiziltas, Ozhan Ozkan
Sakarya University, Turkey

125. Tuning Accuracy-Diversity Trade-off in Neural Network Ensemble via Novel Entropy Loss Function
Muhammad Ammar Ali[1], Yusuf Sahin[2], Sureyya Ozogur-Akyuz[1], Gozde Unal[2], Buse Cisil Otar[1]
[1]Bahcesehir University, Turkey, [2]Istanbul Technical University, Turkey

82. Wine Quality Assessment with Application Specific 2D Single Channel Convolutional Neural Networks
Pervin Bulucu[1], Nalan Ozkurt[1], Cuneyt Guzelis[1], Osman Yildiz[2]
[1]Yasar University, Turkey, [2]EDS Elektronik Destek Sanayi ve Ticaret AS, Turkey

72. Tomato Leaf Disease Detection Using Hyperparameter Optimization in CNN
Koksal Kapucuoglu, Murvet Kirci
Istanbul Technical University, Turkey

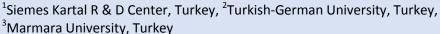## Saturday, 27.11.2021, Hours: 10:30-12:00

Session – 20

Session Chair: Assoc. Professor **Tufan Kumbasar**, Istanbul Technical University, Istanbul, Turkey

Zoom link

Artificial Intelligence-2

144. Leaf Life: Deep Learning Based Plant Disease Detection Application
Mehmet Samil Soyer[1], Can Yilmaz[2], Ismail Mervan Ozcan[3], Fatih Cogen[2], Tuba Conka Yildiz[2]
[1]Siemes Kartal R & D Center, Turkey, [2]Turkish-German University, Turkey, [3]Marmara University, Turkey

123. Agent Based Route Planning with Deep Q Learning
Ali Osman Koroglu, Ali Emre Edem, Serra Nur Akmese, Ozge Elmas, Ilhan Tunc, Mehmet Turan Soylemez
Istanbul Technical University, Turkey

119. Deep Neural Network Based Digital Predistorter of Power Amplifiers
Funda Daylak[1], Ece Olcay Gunes[2], Oguz Bayat[1], Serdar Ozoguz[2]
[1]Altinbas University, Turkey, [2]Istanbul Technical University, Turkey

37. Deep Learning-Based Decision Integration Strategy for the Price Prediction of Istanbul Stock Exchange (BIST100)
Hasan Kilimci[1], Zeynep Hilal Kilimci[2], Mehmet Yildirim[2]
[1]Orion Innovation Turkey, Turkey, [2]Kocaeli University, Turkey

Saturday, 27.11.2021, Hours: 17:00-18:30 (for Turkey GMT+3)

Hours: 16:00-17:30 (for Bulgaria GMT+2)

Session – 29

Session Chair: Professor **Bilgin Metin**, Bogazici University, Istanbul, Turkey

Zoom link

Artificial Intelligence-3

74. Efficient Detection of Counterfeit Banknotes Using Adaptive Network Based Fuzzy Inference Systems
Alper Basturk, Nurcan Sarikaya Basturk, Derek Kweku Degbedzui, Mehmet Emin Yuksel
Erciyes University, Turkey

20. A Smart Home Demand Response System Based on Artificial Neural Networks Augmented with Constraint Satisfaction Heuristic
Mert Nakip[1], Arda Asut[2], Cennet Kocabiyik[2], Cuneyt Guzelis[2]
[1]Polish Academy of Sciences, Poland, [2]Yasar University, Turkey

60. SWOT Analysis of a Hybrid Model for Structuring, Storing and Processing Distributed Data on the Internet
Velin Hadzhiev
Technical University of Gabrovo, Bulgaria

59. An Organization of the Storage and Data Flow in a Hybrid Model for Structuring, Storing and Processing Distributed Data on the Internet
Velin Hadzhiev, Aldeniz Rashidov
Technical University of Gabrovo, Bulgaria