

Asst. Prof. KORAY ERHAN



Personal Information

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International Researcher IDs

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Education Information

Postgraduate, Istanbul Technical University, Sosyal Bilimler Enstitüsü, İşletme, Turkey
2019 - Continues

Doctorate, Kocaeli University, Fen Bilimleri Enstitüsü, Enerji Sistemleri Mühendisliği
Bölümü, Turkey 2013 - 2018

Postgraduate, Istanbul Technical University, Elektrik-Elektronik, Elektrik Mühendisliği,
Turkey 2010 - 2013

Undergraduate, Yildiz Technical University, Faculty Of Electrical & Electronics, Electrical
Engineering Department, Turkey 2005 - 2010

Biography

Koray ERHAN was born in 1987 in Turkey. He received his B.Sc. in Electrical Engineering from Yildiz Technical University, Turkey in 2010. Then he completed his MSc in Electrical Engineering at Istanbul Technical University in 2013. Finally, he got his Ph.D. at the Department of Energy Systems Engineering, Kocaeli University in 2018. He is still continuing his MBA graduate education at Istanbul Technical University. He became a research assistant in 2010 at Istanbul Technical University and in 2013 at Kocaeli University. In 2018, he started to work as a battery development engineer at AVL Research and Engineering. He has worked on many current electric vehicle projects here. In 2020, he continued his academic career as an Assistant Professor at the Department of Electrical and Electronics Engineering at Istanbul Gedik University. He is currently holding the position of "Asst. Prof." at Marmara University Department of Mechatronics Engineering since 2013. He has published more than 30 papers on different subjects including electric & hybrid electric vehicles, automation systems, photovoltaic power generation systems, renewable energy sources, energy storage technologies, and smart grid integration. He has been a referee in SCI and other indexed journals.

Foreign Languages

English, C1 Advanced

Certificates, Courses and Trainings

Vocational Course, Autocad Kursu, Barbaros Hayrettin Paşa Anadolu Denizcilik Meslek Lisesi, 2008

Dissertations

Doctorate, Hibrit ve elektrikli araçlarda volan ve ultrakapasitör teknolojilerinin kullanımının incelenmesi ve volan enerji depolama ünitesinin prototip üretimi, Kocaeli University, Fen Bilimleri Enstitüsü, Enerji Sistemleri Mühendisliği Bölümü, 2018

Postgraduate, Gerilim çentiği tespiti için yeni bir algoritma tasarımı, Istanbul Technical University, Elektrik-Elektronik, Elektrik Mühendisliği, 2013

Research Areas

Electrical and Electronics Engineering, Electronic, Energy, Power Electronics, Engineering and Technology

Academic Titles / Tasks

Assistant Professor, Marmara University, Faculty of Technology, Mechatronic Engineering, 2023 - Continues

Assistant Professor, Istanbul Gedik University, Faculty Of Engineering, Department Of Electrical And Electronic Engineering, 2020 - 2023

Research Assistant, Kocaeli University, Teknoloji Fakültesi, Enerji Sistemleri Mühendisliği, 2012 - 2018

Research Assistant, Istanbul Technical University, Elektrik-Elektronik, Elektrik Mühendisliği, 2010 - 2012

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Energy management algorithm development for smart car parks including charging stations, storage, and renewable energy sources**
AYAZ M., Icer Y., Karabinaoglu M. S., ERHAN K.
Computers and Electrical Engineering, vol.119, 2024 (SCI-Expanded)
- II. **Prototype production and comparative analysis of high-speed flywheel energy storage systems during regenerative braking in hybrid and electric vehicles**
Erhan K., ÖZDEMİR E.
JOURNAL OF ENERGY STORAGE, vol.43, 2021 (SCI-Expanded)
- III. **A NOVEL COST-EFFICIENT DAYLIGHT-BASED LIGHTING SYSTEM FOR PUBLIC BUILDINGS: DESIGN AND IMPLEMENTATION**
AYAZ M., YÜCEL U., Erhan K., ÖZDEMİR E.
LIGHT & ENGINEERING, vol.28, no.6, pp.60-70, 2020 (SCI-Expanded)
- IV. **Dynamic energy management for photovoltaic power system including hybrid energy storage in smart grid applications**
AKTAŞ A., Erhan K., ÖZDEMİR Ş., ÖZDEMİR E.
ENERGY, vol.162, pp.72-82, 2018 (SCI-Expanded)
- V. **Experimental investigation of a new smart energy management algorithm for a hybrid energy storage system in smart grid applications**
AKTAŞ A., Erhan K., ÖZDEMİR Ş., ÖZDEMİR E.
ELECTRIC POWER SYSTEMS RESEARCH, vol.144, pp.185-196, 2017 (SCI-Expanded)
- VI. **Opportunities and challenges for energy storage applications in smart grid**
ÖZDEMİR E., ÖZDEMİR Ş., Erhan K., AKTAŞ A.
JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY, vol.32, no.2, pp.499-506,

Articles Published in Other Journals

- I. **Determination and Static Analysis of the Chassis Model for Electric Vehicles**
Erhan K., Kurt M. C., Kuyumcu F. E.
International Journal of New Findings in Engineering, Science and Technology, vol.1, no.1, pp.26-35, 2023 (Peer-Reviewed Journal)
- II. **Feasibility Check of Electrification in Metrobus Line**
Gücükoğlu T., Sarı H., ERHAN K.
Transactions on Environment and Electrical Engineering, vol.4, no.1, pp.1-5, 2020 (Peer-Reviewed Journal)
- III. **Comprehensive Analysis of Pre-Charge Sequence in Automotive Battery Systems**
Özgüç M. K., İpek E., Aras K., ERHAN K.
Transactions on Environment and Electrical Engineering, vol.4, no.1, pp.1-6, 2019 (Peer-Reviewed Journal)
- IV. **Araçlarda Su Sızdırmazlık Testi için Otomasyon Sistem Tasarımı ve Uygulaması**
AYAZ M., ERHAN K., ÖZDEMİR E.
Gazi Üniversitesi Fen Bilimleri Dergisi Part C: Tasarım ve Teknoloji, vol.6, no.4, pp.753-764, 2018 (Peer-Reviewed Journal)
- V. **Conceptual Design of a Smart Parking Lot System for Electric and Hybrid Electric Vehicles**
ERHAN K., AYAZ M., İÇER Y.
Balkan Journal of Electrical and Computer Engineering, vol.6, pp.27-32, 2018 (Peer-Reviewed Journal)
- VI. **Effects of cell and module configuration on battery system in electric vehicles**
Eren M. K., İpek E., Aras K., Gücükoğlu T., ERHAN K.
International Journal of Engineering Technologies, vol.4, no.4, pp.143-150, 2018 (Peer-Reviewed Journal)
- VII. **Araç Yakıt Tankı Montajı için Otomasyon Sistem Tasarımı ve Uygulaması**
AYAZ M., ERHAN K., aktaş a., ÖZDEMİR E., hüseyin s.
Düzce Üniversitesi Bilim ve Teknoloji Dergisi, vol.3, no.2, pp.357-366, 2015 (Peer-Reviewed Journal)
- VIII. **Animasyon Tabanlı PLC ve Operatör Panel Eğitim Seti**
AYAZ M., ERHAN K., ÖZDEMİR E., ÇİLLİYÜZ Y.
Erciyes Üniversitesi Fen Bilimleri Enstitüsü Dergisi, vol.30, no.3, pp.156-161, 2014 (Peer-Reviewed Journal)
- IX. **Bir Katı Atık Bertaraf Tesisi için Otomasyon Sistem Tasarımı ve Uygulaması**
AYAZ M., ERHAN K., TAŞDEMİRCİ E., KARAÇOR M.
Düzce Üniversitesi Bilim ve Teknoloji Dergisi, vol.2, no.1, pp.178-190, 2014 (Peer-Reviewed Journal)

Refereed Congress / Symposium Publications in Proceedings

- I. **Module and Cell Configuration Optimization for Multiple Voltage Level EV Battery Pack**
Öz N., ERHAN K., BABA A. F.
14th International Conference on Electrical and Electronics Engineering, ELECO 2023, Virtual, Bursa, Turkey, 30 November - 02 December 2023
- II. **Regenerative Braking Power Improvement For Electric Vehicle By Using Generator And Battery Capacity**
ERHAN K., Varol G., ÖZDEMİR E.
EJONS 2018 International Congress on Mathematic, Engineering and Natural Sciences- III, 21 - 22 April 2018
- III. **COMPARATIVE STUDY OF ENERGY EFFICIENCY IN LIGHTING CONTROL SYSTEMS FOR INDOORS**
YÜCEL U., AYAZ M., ERHAN K.
EJONS International Congress on Mathematic, Engineering and Natural Sciences - III, Mardin, Turkey, 21 - 22 April 2018, pp.80
- IV. **Development of Personal Driving Mode Algorithm For Hybrid Electric Vehicles To Increase**

Efficiency

ÖZDEMİR E., ERHAN K., Altunkaya S. M.

EJONS 2018 International Congress on Mathematic, Engineering and Natural Sciences- III, 21 - 22 April 2018

- V. **Application of Flywheel and Ultra-capacitor Energy Storage Systems in Hybrid and Electric Vehicles in Regenerative Braking Mode**
ERHAN K., AYAZ M., ÖZDEMİR E.
IATS 2017 8th International Advanced Teshnologies Symposium, Elazığ, Turkey, 19 - 22 November 2017, pp.2822-2827
- VI. **An Energy Storage System Including Ultra-capacitor Unit for Extended Driving Range of EVs**
ERHAN K., AYAZ M., AKTAŞ A., ÖZDEMİR E.
2nd International Conference on Computer Science, Engineering and Applied Science (ICCSEAS 2017), Paris, France, 28 - 29 November 2017, pp.1-6
- VII. **The Importance of Lighting Automation Systems in Intelligent Buildings: A Case Study**
erhan i. t., ERHAN K., UĞUR M.
2nd International Conference on Computer Science, Engineering and Applied Science (ICCSEAS 2017), Paris, France, 28 - 29 November 2017, pp.8-13
- VIII. **AUTOMATION SYSTEM DESIGN FOR FAULT DETECTION INSTREET LIGHTING**
AYAZ M., ERHAN K., KUNDAKCI İ. M., ERTUNÇ H. M.
ICONTE2017: International Conference on Technology, Engineering and Science, Antalya, Turkey, 26 - 29 November 2017, vol.1, pp.111-115
- IX. **DESIGN AND IMPLEMENTATION OF AUTOMATION SYSTEM FOR WATER LEAKAGE TEST IN VEHICLES**
ERHAN K., AYAZ M.
2nd INTERNATIONALENERGY AND ENGINEERINGCONFERENCE 2017, Gaziantep, Turkey, 12 - 13 October 2017, pp.535
- X. **A Case Study for Hybrid Energy Storage System Supplied from Grid Connected Photovoltaic Power**
AKTAŞ A., ERHAN K., ÖZDEMİR E., ÖZDEMİR Ş.
1st International Mediterranean Science and Engineering Congress (IMSEC 2016), Adana, Turkey, 26 - 28 October 2016, vol.1, pp.3731-3736
- XI. **Harmonic Effects of Driver Unit on Gearless Elevator Systems and Power Grid**
AYAZ M., ERHAN K., ÖZDEMİR E.
1st International Mediterranean Science and Engineering Congress (IMSEC 2016), Adana, Turkey, 26 - 28 October 2016, vol.1, pp.4525-4529
- XII. **Design Consideration on Flywheel Energy Storage System for New Generation Elevators**
ERHAN K., AYAZ M., ÖZDEMİR E.
1st International Mediterranean Science and Engineering Congress (IMSEC 2016), Adana, Turkey, 26 - 28 October 2016, vol.1, pp.2798-2802
- XIII. **Design and Analysis of Hybrid Energy Storage System Supplied from Photovoltaic Power Source**
Aktaş A., ÖZDEMİR E., ERHAN K., ÖZDEMİR Ş.
8th International Ege Energy Symposium and Exhibition, Afyon, Turkey, 11 - 13 May 2016, vol.1, pp.57-61
- XIV. **Design and Analysis of Flywheel Regenerative Braking Energy Storage System for Hybrid and Electrical Vehicles**
ERHAN K., ÖZDEMİR E., Aktaş A.
8th International Ege Energy Symposium and Exhibition, Afyon, Turkey, 11 - 13 May 2016, vol.1, pp.20-24
- XV. **Design and Analysis of Ultra Capacitor Regenerative Braking Energy Storage System for Hybrid and Electrical Vehicles**
ERHAN K., ÖZDEMİR E., aktaş a.
8th International Ege Energy Symposium and Exhibition, Afyon, Turkey, 11 - 13 May 2016, vol.1, pp.1082-1087
- XVI. **Energy Storage Technologies Opportunities and Challenges in Smart Grids**
ÖZDEMİR E., ÖZDEMİR Ş., Erhan K., AKTAŞ A.
3rd International Smart Grid Workshop and Certificate Program (ISGWCP), İstanbul, Turkey, 21 - 25 March 2016, pp.15-20

- XVII. **ŞEBEKE BAĞLANTILI FOTOVOLTAİK ELEKTRİK ÜRETİM SİSTEMLERİNİN GÜÇ KALİTESİNE ETKİLERİ VE PERFORMANS ANALİZİ**
erkurt s., ÖZDEMİR E., Koç i. m., aktaş a., ERHAN K.
6. Enerji Verimliliği, Kalitesi Sempozyumu ve Sergisi (EVK 2015), Turkey, 4 - 06 June 2015
- XVIII. **AKILLI ŞEBEKE STANDARTLARINDA ENERJİ DEPOLAMA UYGULAMALARININ İNCELENMESİ**
ismail murat k., ERHAN K., ÖZDEMİR E., Aktaş A., ÖZDEMİR Ş.
6. ENERJİ VERİMLİLİĞİ, KALİTESİSEMPOZYUMU ve SERGİSİ, Sakarya, Turkey, 4 - 06 June 2015
- XIX. **Development of a Hybrid Energy Storage System Composed Battery and Ultracapacitor Supplied from Photovoltaic Power Source for 3 phase 4 wire Smart Micro Grid Structure**
aktaş a., ERHAN K., ÖZDEMİR E., ÖZDEMİR Ş.
SolarTR 2014, İzmir, Turkey, 19 - 21 November 2014
- XX. **Analysis of a Hybrid Energy Storage System Composed from Battery and Ultra capacitor**
ERHAN K., Aktaş A., ÖZDEMİR E.
7th International Ege Energy Symposium Exhibition, Uşak, Turkey, 18 - 20 June 2014
- XXI. **Elektrikli Araç Şarj İstasyonlarının Güç Kalitesi Üzerine Etkileri**
ERHAN K., AYAZ M., ÖZDEMİR E.
Akıllı Şebekeler ve Türkiye Elektrik Şebekesinin Geleceği Sempozyumu, Ankara, Turkey, 26 - 27 November 2013
- XXII. **Gerilim Çentliği Tesbiti İçin Yeni Bir Algoritma Tasarımı**
ERHAN K., USTA Ö., kahraman y., akim b.
Eleco 2012, Bursa, Turkey, 29 November - 01 December 2012

Scientific Refereeing

Frontiers in Energy Research, Journal Indexed in SCI-E, October 2022

57th International Universities Power Engineering Conference (UPEC 2022), Conference Paper (Full Text), August 2022

International Journal of Automotive Engineering and Technologies, Other Indexed Journal, September 2021

ENERGY SOURCES, Journal Indexed in SCI-E, September 2021

Düzce Üniversitesi Bilim ve Teknoloji Dergisi, Other Indexed Journal, February 2021

Kocaeli Journal of Science and Engineering, Other Indexed Journal, January 2021

INTERNATIONAL JOURNAL OF COMPUTATIONAL ENGINEERING SCIENCE, Other Indexed Journal, July 2020

APPLIED ENERGY, Journal Indexed in SCI-E, June 2018

TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, Journal Indexed in SCI-E, January 2018

TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, Journal Indexed in SCI-E, June 2017

Düzce Üniversitesi Bilim ve Teknoloji Dergisi, Other Indexed Journal, May 2017

INTERNATIONAL JOURNAL OF ENGINEERING AND TECHNOLOGIES, National Scientific Refreed Journal, February 2017