

Assoc. Prof. ONUR ELMA

Personal Information

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International Researcher IDs

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Biography

Onur Elma received his M.S. and Ph.D. degrees in Electrical engineering from Yıldız Technical University (YTU), Istanbul, Türkiye, in 2011 and 2016 respectively. He worked as a project engineer in the industry between 2009 and 2011. He has been employed as a research assistant in the Electrical Engineering Department at YTU from 2011 to 2017. He has been at the Smart Energy Research Center (SMERC) at the University of California, Los Angeles (UCLA) as a visiting researcher from 2014 to 2015. Also, he worked as a post-doc researcher at the Ontario Tech University (ONTechU) from 2017 to 2020. He worked as an Assistant Professor in the Department of Electrical Engineering at YTU between January and September 2021. He is currently working as an Assoc. Professor in the Department of Electrical and Electronics Engineering at Canakkale 18 Mart University (COMU). He participates in many national and international projects also has more than 50 papers. He has national and international patents. His research interests include smart grids, electric vehicles, home energy management systems, energy storage, and renewable energy systems.

Education Information

Doctorate, Yıldız Technical University, Graduate School Of Natural And Applied Sciences, Electrical Engineering, Turkey
2011 - 2016

Undergraduate, Anadolu University, Faculty Of Business Administration, Department Of Business, Turkey 2007 - 2012

Postgraduate, Yıldız Technical University, Graduate School Of Natural And Applied Sciences, Elektrik Mühendisliği, Turkey
2009 - 2011

Undergraduate, Yıldız Technical University, Faculty Of Electrical & Electronics, Electrical Engineering Department, Turkey
2004 - 2009

Dissertations

Doctorate, Akıllı şebekeler için yeni bir ev enerji yönetim algoritmasının geliştirilmesi ve uygulanması, Yıldız Technical University, Graduate School Of Natural And Applied Sciences, 2016

Postgraduate, Yenilenebilir enerji kaynaklarından beslenen şebekeden bağımsız bir ev için talep ve kaynak dinamikleri dikkate alınarak sistem analizi, Yıldız Technical University, Graduate School Of Natural And Applied Sciences, 2011

Research Areas

Electrical and Electronics Engineering, Direct Energy Conversion and Energy Storage, Power System Analysis, Electric Power Transmission, Distribution and Protection, Renewable energy, Engineering and Technology

Academic Titles / Tasks

Associate Professor, Canakkale Onsekiz Mart University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği, 2023 - Continues

Assistant Professor, Canakkale Onsekiz Mart University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği, 2021 - 2023

Assistant Professor, Yildiz Technical University, Faculty Of Electrical & Electronics, Electrical Engineering Department, 2021 - 2021

Research Assistant, Yildiz Technical University, Faculty Of Electrical & Electronics, Electrical Engineering Department, 2011 - 2021

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Cybersecure and scalable, token-based renewable energy certificate framework using blockchain-enabled trading platform**
Cali U., Kuzlu M., Sebastian-Cardenas D. J., ELMA O., Pipattanasomporn M., Reddi R.
ELECTRICAL ENGINEERING, vol.106, no.2, pp.1841-1852, 2024 (SCI-Expanded)
- II. **Analysis of deceptive data attacks with adversarial machine learning for solar photovoltaic power generation forecasting**
Kuzlu M., Sarp S., Catak F. O., Cali U., Zhao Y., Elma O., Guler O.
ELECTRICAL ENGINEERING, vol.1, pp.1841-1852, 2024 (SCI-Expanded)
- III. **A comprehensive review of recent advances in optimal allocation methods for distributed renewable generation**
Tercan S. M., Demirci A., Unutmaz Y. E., Elma O., Yumurtaci R.
IET RENEWABLE POWER GENERATION, vol.1, no.1, pp.1-18, 2023 (SCI-Expanded)
- IV. **Internet of energy for renewable energy-based decarbonized electrical energy systems**
Elma O., Kuzlu M., Zohrabi N.
Frontiers in Energy Research, vol.11, pp.1-3, 2023 (SCI-Expanded)
- V. **An overview of bidirectional electric vehicles charging system as a Vehicle to Anything (V2X) under Cyber-Physical Power System (CPPS)**
Elma O., Cali U., Kuzlu M.
ENERGY REPORTS, vol.8, pp.25-32, 2022 (SCI-Expanded)
- VI. **A Smart Direct Load Control Approach Using Dynamic Voltage Control for Demand Response Programs**
Elma O., Kuzlu M., Pipattanasomporn M.
ELECTRIC POWER COMPONENTS AND SYSTEMS, vol.20, no.2, pp.1-13, 2022 (SCI-Expanded)
- VII. **An expansion planning method for extending distributed energy system lifespan with energy storage systems**
TERCAN S. M., ELMA O., GÖKALP E., Cali U.
ENERGY EXPLORATION & EXPLOITATION, vol.40, no.2, pp.599-618, 2022 (SCI-Expanded)
- VIII. **Modeling and simulation of the International Space Station (ISS) electrical power system**
Kuzlu M., Abalos K., Elma O., Popescu O., Pipattanasomporn M.
INTERNATIONAL TRANSACTIONS ON ELECTRICAL ENERGY SYSTEMS, vol.31, no.8, 2021 (SCI-Expanded)
- IX. **A dynamic charging strategy with hybrid fast charging station for electric vehicles**

Elma O.

ENERGY, vol.202, 2020 (SCI-Expanded)

- X. **Experimental determination of ZIP coefficients for residential appliances and ZIP model based appliance identification: The case of YTU Smart Home**
Bircan M., DURUSU A., KEKEZOĞLU B., ELMA O., SELAMOĞULLARI U. S.
ELECTRIC POWER SYSTEMS RESEARCH, vol.179, 2020 (SCI-Expanded)
- XI. **A smart transformer application for voltage controlled home energy management system**
SELAMOĞULLARI U. S., ELMA O.
JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY, vol.33, no.4, pp.1543-1556, 2018 (SCI-Expanded)
- XII. **Implementation of a dynamic energy management system using real time pricing and local renewable energy generation forecasts**
ELMA O., Tascikaraoglu A., Ince A. T., SELAMOĞULLARI U. S.
ENERGY, vol.134, pp.206-220, 2017 (SCI-Expanded)
- XIII. **A new home energy management algorithm with voltage control in a smart home environment**
ELMA O., SELAMOĞULLARI U. S.
ENERGY, vol.91, pp.720-731, 2015 (SCI-Expanded)
- XIV. **Real-time performance analysis of an optimally sized hybrid renewable energy conversion unit**
ERDİNÇ O., ELMA O., Uzunoglu M., SELAMOĞULLARI U. S.
ENERGY AND BUILDINGS, vol.75, pp.419-429, 2014 (SCI-Expanded)
- XV. **A comparative sizing analysis of a renewable energy supplied stand-alone house considering both demand side and source side dynamics**
ELMA O., SELAMOĞULLARI U. S.
APPLIED ENERGY, vol.96, pp.400-408, 2012 (SCI-Expanded)
- XVI. **Experimental performance assessment of an online energy management strategy for varying renewable power production suppression**
ERDİNÇ O., ELMA O., Uzunoglu M., SELAMOĞULLARI U. S., Vural B., Ugur E., BOYNUEĞRİ A. R., Dusmez S.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.37, no.6, pp.4737-4748, 2012 (SCI-Expanded)

Articles Published in Other Journals

- I. **Dynamic Performance Comparison of the Different PV Modules with Real Data**
Elma O.
European Journal of Technique, vol.12, no.1, pp.13-17, 2022 (Peer-Reviewed Journal)
- II. **A Robust Building Energy Management Algorithm Validated in a Smart House Environment**
avijit s., murat k., manisa p., saifur r., ELMA O., SELAMOĞULLARI U. S., UZUNOĞLU M., YAĞCITEKİN B.
Intelligent Industrial Systems, vol.1, no.2, pp.163-174, 2015 (Peer-Reviewed Journal)

Books

- I. **Energy Planning for a Sustainable Transition to a Decarbonized Generation Scenario**
Elma O., Dash S. K., Chakraborty S.
in: Sustainable Energy Planning in Smart Grids, David Borge-Diez, Enrique Rosales-Asensio, Editor, Elsevier Science, Oxford/Amsterdam, Amsterdam, pp.1-28, 2023
- II. **Smart Home and Building Energy Management Systems**
Elma O., Kuzlu M., Pipattanasomporn M.
in: Smart Energy Management Systems and Renewable Energy Resources, Mohammad Rizwan, Majid Jamil, Editor, AIP (American Institute of Physics) Press, New York, 2021
- III. **Perspectives of Demand-Side Management Under Smart Grid Concept**

Elma O., Gabar H.

in: Energy Conservation in Residential, Commercial, and Industrial Facilities, Hossam A. Gabbar, Editor, John Wiley & Sons, West Sussex, UK , New Jersey, pp.225-247, 2018

IV. Investigation of Cost Reduction in Residential Electricity Bill using Electric Vehicle at Peak Times

Elma O., Selamoğullari U. S.

in: Lecture Notes in Electrical Engineering, Ivan Zelinka, Pandian Vasant, Nader Barsoum, Editor, Springer, London/Berlin , Zürich, pp.123-133, 2013

Papers Published in Refereed Scientific Meetings

- I. Cybersecurity and Digital Privacy Aspects of V2X in the EV Charging Structure**
Cali U., Kuzlu M., ELMA O., Gucluturk O. G., Kilic A., Catak F. O.
2023 European Interdisciplinary Cybersecurity Conference, EICC 2023, Stavanger, Norway, 14 - 15 June 2023, pp.174-180
- II. Comprehensive Review of Vehicle to Anything (V2X) under Cyber-Physical Power System (CPPS)**
ELMA O., Cali U., Kuzlu M.
7th International Conference on Green Energy Technologies, ICGET 2022, Frankfurt, Germany, 28 - 30 July 2022
- III. Analysis of False Data Injection Impact on AI-based Solar Photovoltaic Power Generation Forecasting**
Sarp S., Kuzlu M., Cali U., ELMA O., Güler O.
International Conference & Exposition on Modern Energy and Power Systems (ICMEPS2021), Kayseri, Turkey, 16 - 18 June 2021
- IV. Development of A Load Control Algorithm to Enhance Energy Sustainability for the International Space Station**
Herwald E., Holliday G., Kuzlu M., ELMA O., Cali U.
International Conference & Exposition on Modern Energy and Power Systems (ICMEPS2021), Kayseri, Turkey, 16 - 18 June 2021
- V. Cybersecurity of Renewable Energy Data and Applications Using Distributed Ledger Technology**
Cali U., Kuzlu M., Pipattanasomporn M., ELMA O., Reddi R.
International Conference & Exposition on Modern Energy and Power Systems (ICMEPS2021), Kayseri, Turkey, 16 - 18 June 2021
- VI. An Interpretable Solar Photovoltaic Power Generation Forecasting Approach Using An Explainable Artificial Intelligence Tool**
Sarp S., Kuzlu M., Cali U., Elma O., Guler O.
IEEE-Power-and-Energy-Society Innovative Smart Grid Technologies Conference (ISGT), Washington, Kiribati, 16 - 18 February 2021
- VII. Effects of Ultra-Fast Charging System for Battery Size of Public Electric Bus**
ELMA O., Adham M. I., Gaber H.
8th International Conference on Smart Energy Grid Engineering, SEGE 2020, Oshawa, Canada, 12 August 2020
- VIII. Flywheel-Based Ultra-Fast On-Route Charging System for Public E-Buses**
ELMA O., Gaber H.
2020 International Conference on Electrical, Communication, and Computer Engineering (ICECCE), İstanbul, Turkey, 12 June 2020
- IX. Smoothing PV Power Fluctuations with Electric Vehicle and its Grid Interaction**
Verma A. K., ELMA O., Wang Y., Pota H. R., Gadh R., Srivastava M.
2020 IEEE International Conference on Power Electronics, Smart Grid and Renewable Energy, Kochi, India, 02 January 2020
- X. Design and Analysis of Mobile Hybrid Energy System for Off-Grid Applications**
ELMA O., Gaber H.
2019 International Conference on Power Generation Systems and Renewable Energy Technologies (PGSRET),

Istanbul, Turkey, 26 - 27 August 2019

- XI. **Economic Analysis of Demand Response with Voltage Control in Residential Environment**
ELMA O., SELAMOĞULLARI U. S.
ICSG 2019, 20 - 23 April 2019
- XII. **Sizing Analysis of Hybrid DC Fast Charging System for Electric Vehicles**
ELMA O., Gabbar H.
2018 International Conference on Smart Energy Systems and Technologies (SEST), Sevilla, Spain, 10 - 12 September 2018
- XIII. **A survey of a residential load profile for demand side management systems**
ELMA O., SELAMOĞULLARI U. S.
2017 IEEE International Conference on Smart Energy Grid Engineering (SEGE), Oshawa, ON, Canada, 14 - 17 August 2017
- XIV. **Determination of ZIP Coefficients for Residential Loads**
bircan m., DURUSU A., KEKEZOĞLU B., ELMA O., SELAMOĞULLARI U. S.
2nd WORLD CONFERENCE ON TECHNOLOGY, INNOVATION AND ENTREPRENEURSHIP, İstanbul, Turkey, 12 - 14 May 2017, vol.5, pp.176-180
- XV. **An overview of demand response applications under smart grid concept**
ELMA O., SELAMOĞULLARI U. S.
2017 4th International Conference on Electrical and Electronic Engineering (ICEEE), Ankara, Turkey, 8 - 10 April 2017
- XVI. **The Importance of Smart Meter for Transition of Smart Grid in Turkey**
KIRAL G. E., ELMA O.
2nd International Conference & Expo on Green Energy, ATLANTA, United States Of America, 28 - 30 November 2016
- XVII. **A home energy management algorithm with smart plug for maximized customer comfort**
ELMA O., SELAMOĞULLARI U. S.
2015 4th International Conference on Electric Power and Energy Conversion Systems (EPECS), Sharjah, United Arab Emirates, 24 - 26 November 2015
- XVIII. **New Home Energy Management for Maximize Customer Comfort**
ELMA O., SELAMOĞULLARI U. S.
Fourth International Conference on Electric Power and Energy Conversion Systems (EPECS 2015), Saraj, Macedonia, 24 - 26 November 2015
- XIX. **Photovoltaic System Design Feasibility and Financial Outcomes for Different Regions in Turkey**
Alper K., ÜLKER F., ELMA O.
Fourth International Conference on Electric Power and Energy Conversion Systems (EPECS 2015), Saraj, Macedonia, 24 - 26 November 2015
- XX. **A New Smart Plug for Home Energy Management**
KIRAL G. E., ELMA O., Ahmet Tahir İ., VURAL B., SELAMOĞULLARI U. S., UZUNOĞLU M.
ICPESE 2015: International Conference on Power and Energy Systems Engineering, Paris, France, 27 - 28 August 2015
- XXI. **Analyzing the effect of inverter efficiency improvement in wind turbine systems**
ÖZDEMİR S., SELAMOĞULLARI U. S., ELMA O.
2014 International Conference on Renewable Energy Research and Application (ICRERA), Milwaukee, WI, USA, 19 - 22 October 2014
- XXII. **OVERVIEW OF SMART GRID APPLICATIONS IN TURKEY**
ELMA O., KIRAL G. E., VURAL B., SELAMOĞULLARI U. S., UZUNOĞLU M.
ICPESE 2014 International Conference on Power and Energy Systems Engineering, Paris, France, 28 - 29 August 2014
- XXIII. **Data Reliability and Latency Test for ZigBee based Smart Home Energy Management Systems**
Ahmet Tahir İ., ELMA O., SELAMOĞULLARI U. S., PARTAL H. P., VURAL B.
7th International Ege Energy Symposium & Exhibition, Uşak, Turkey, 18 - 20 June 2014

- XXIV. **Smart Home Laboratory for Smart Grid Infrastructure in Turkey**
ELMA O., SELAMOĞULLARI U. S., UZUNOĞLU M.
International Istanbul Smart Grid Congress, İstanbul, Turkey, 08 May 2014
- XXV. **Financial payback analysis of small wind turbines for a smart home application in Istanbul/Turkey**
Uğur E., ELMA O., SELAMOĞULLARI U. S., TANRIÖVEN M., UZUNOĞLU M.
2013 International Conference on Renewable Energy Research and Applications (ICRERA), Madrid, Spain, 20 - 23 October 2013
- XXVI. **Carbon emission savings with a renewable energy supplied smart home operation**
ELMA O., SELAMOĞULLARI U. S., UZUNOĞLU M., Uğur E.
2013 International Conference on Renewable Energy Research and Applications, 20 October - 23 January 2013
- XXVII. **A home energy management algorithm in a smart house integrated with renewable energy**
Saha A., Murat K., Khamphanchai W., Manisa P., Rahman S., ELMA O., UZUNOĞLU M., YAĞCITEKİN B.
IEEE PES Innovative Smart Grid Technologies, Europe, Istanbul, Turkey, Turkey, 12 - 15 October 2014
- XXVIII. **Analyzing the Capacity Utilization Rate of Traction Motor Drives in Electric Vehicles with Real World Driving Cycles**
ÖZDEMİR S., ELMA O., Acar F., SELAMOĞULLARI U. S.
Vehicle Power and Propulsion Conference (VPPC), 2014 IEEE, Portugal, 27 - 30 October 2013
- XXIX. **Smart grid ready concept of a smart home prototype A demonstration project in YTU**
taşçıkaroğlu a., UZUNOĞLU M., TANRIÖVEN M., BOYNUEĞRİ A. R., ELMA O.
Power Engineering, Energy and Electrical Drives (POWERENG), 2013 Fourth International Conference on, 13 - 17 May 2013
- XXX. **INVESTIGATION OF COST REDUCTION IN RESIDENTIAL ELECTRICITY BILL USING ELECTRIC VEHICLE AT PEAK TIMES**
ELMA O., SELAMOĞULLARI U. S.
THE SIXTH GLOBAL CONFERENCE ON POWER CONTROL AND OPTIMIZATION, Las Vegas, United States Of America, 6 - 08 August 2012
- XXXI. **Investigation of CO2 Emission Reduction with Renewable Energy Use in Residential House**
ELMA O., SELAMOĞULLARI U. S.
6th International Ege Energy Symposium & Exhibition, Turkey, 28 - 30 June 2012
- XXXII. **The Effect of Inverter Efficiency on Stand-alone Residential PV System Sizing**
ELMA O., SELAMOĞULLARI U. S.
7th International Conference on Electrical and Electronics Engineering (ELECO), Bursa, Turkey, 1 - 04 December 2011
- XXXIII. **Yeşil Binalar İçin Net Sıfır Enerjili Aydınlatma Sistemi Tasarımı Ve Ekonomik Analizi**
ELMA O., SELAMOĞULLARI U. S., NAKİR İ., TANRIÖVEN M.
Çevre Tasarım Kongresi, İstanbul, Turkey, 8 - 09 December 2011
- XXXIV. **PERFORMANCE EVALUATION OF MONOCRYSTALLINE AND POLYCRYSTALLINE PV MODULES- A CASE STUDY FOR ISTANBUL**
ELMA O., SELAMOĞULLARI U. S.
10th International Conference on Sustainable Energy Technologies, İstanbul, Turkey, 4 - 07 September 2011

Supported Projects

KAYMAKÇI Ö. T., ELMA O., ORAK E., Project Supported by Higher Education Institutions, Makine Öğrenmesi ile Çanakkale'nin Rüzgar Enerjisi Potansiyelinin İklim Değişikliğine Bağlı İncelenmesi, 2024 - Continues

ELMA O., KAYMAKÇI Ö. T., Mercan H., Project Supported by Higher Education Institutions, Deniz Ulaşımında Kullanılan Feribotların Elektriksel Enerji Tüketimlerinin Çevresel ve Verimlilik Açısından Analizi, 2023 - Continues

Elma O., Horizon Europe Project, DE-RISK the adoption of Local Flexibility Markets to unlock the safe and reliable mass deployment of Renewable Energy Systems, 2022 - 2025

Elma O., Kurt M., Kaya N., EU Supported Other Project, Renewable Youth Energy Operation (Re-you), 2021 - 2023

Elma O., Gabar H., Project Supported by Public Organizations in Other Countries, Analysis and Design of Fast Charging System with Flywheel Energy Storage Platform, 2020 - 2020

Elma O., Gabar H., Project Supported by Public Organizations in Other Countries, Development of Resilient Microgrids in Trailers, 2018 - 2019

Elma O., Selamoğulları U. S., Project Supported by Higher Education Institutions, AKILLI ŞEBEKELER İÇİN YENİ BİR EV ENERJİ YÖNETİM ALGORİTMASININ GELİŞTİRİLMESİ VE UYGULANMASI, 2014 - 2016

Selamoğulları U. S., TUBITAK Project, Elektrikli Araçlar için Daha Verimli Bir Motor Sürücü Devresi Tasarımı ve Kontrolü, 2013 - 2015

Selamoğulları U. S., Uzunoğlu M., Vural B., Industrial Thesis Project, Akıllı Şebekelerde Enerji Yönetimi İçin Akıllı Priz Geliştirilmesi, 2013 - 2014

Elma O., Selamoğulları U. S., Erdiç O., Boynueğri A. R., Nakir İ., Project Supported by Higher Education Institutions, Bir Evin Elektrik İhtiyacının Karşılmasında Yenilenebilir Enerji Kaynaklarının Kullanılması Durumunda Hem Yük Hem de Kaynak Değişkenliği Dikkate Alınarak Sistem Tasarımı ve Uygulaması, 2010 - 2013

Patent

Elma O., ADAPTİF KORUMALI BİR AKILLI PRİZ VE BUNUN ÇALIŞMA YÖNTEMİ, Patent, CHAPTER H Electricity, The Invention Registration Number: 2016 19250 , Standard Registration, 2021

Elma O., Ev Enerji Yönetim Sisteminde Gerilim Kontrol Cihazı ile Uygulanan Yeni Bir Metot, Patent, CHAPTER H Electricity, The Invention Registration Number: 2016 19715 , Standard Registration, 2019

Elma O., Bina enerji yönetimi için güç tüketimi kontrolü yapan bir priz., Patent, CHAPTER H Electricity, The Invention Registration Number: 2014 00929 , Standard Registration, 2018

Elma O., Taşcıaroğlu A., Uzunoğlu M., Boynueğri A. R., A SMART BUILDING SYSTEM WITH ENERGY MANAGEMENT ABILITY, Patent, CHAPTER H Electricity, The Invention Registration Number: WO 2015/084285 A1 , 2015

Activities in Scientific Journals

Frontiers in Energy Research, Special Issue Editor, 2022 - Continues

Memberships / Tasks in Scientific Organizations

Institute of Electrical and Electronics Engineers (IEEE), Member, 2013 - Continues, United States Of America

Peer Reviews in Scientific Publications

ENERGY STORAGE, SCI Journal, September 2023

ELECTRIC POWER SYSTEMS RESEARCH, SCI Journal, June 2023

ENERGY JOURNAL, SCI Journal, May 2023

ENERGY JOURNAL, SCI Journal, May 2023

SUSTAINABLE CITIES AND SOCIETY, SCI Journal, May 2023

CLEANER ENGINEERING AND TECHNOLOGY, SCI Journal, April 2023

IEEE ACCESS, SCI Journal, February 2023

APPLIED ENERGY, Journal Indexed in SCI-E, October 2022

ELECTRIC POWER SYSTEMS RESEARCH, Journal Indexed in SCI-E, October 2021

ENERGY, Journal Indexed in SCI-E, October 2021

Tasks In Event Organizations

Elma O., 2020 IEEE 8th International Conference on Smart Energy Grid Engineering (SEGE), Scientific Congress, Oshawa, Canada, Ağustos 2020

Metrics

Publication: 56

Citation (WoS): 385

Citation (Scopus): 530

H-Index (WoS): 11

H-Index (Scopus): 13

Scholarships

2214-A, TUBITAK, 2014 - 2015

2211-C, TUBITAK, 2013 - 2014

Turkcell Akademi Bursu, Special Institutions and Organizations, 2012 - 2013

Awards

Elma O., Gabar H., Best paper award, International Conference On Power Generation Systems And Renewable Energy Technologies, August 2019