

# Prof. ERCÜMENT KARAKAŞ

## Personal Information

Office Phone: [+90 262 303 2245](tel:+902623032245)

Email: [karakas@kocaeli.edu.tr](mailto:karakas@kocaeli.edu.tr)

Other Email: [erckarakas@gmail.com](mailto:erckarakas@gmail.com)

Web: <https://avesis.kocaeli.edu.tr/karakas>

## International Researcher IDs

ScholarID: DdHq-XmTmdYC

ORCID: 0000-0003-4219-5160

Publons / Web Of Science ResearcherID: F-4580-2010

ScopusID: 6602822985

Yoksis Researcher ID: 29652

## Education Information

Doctorate, Kocaeli University, Fen Bilimleri Enstitüsü, Elektrik Eğitimi Anabilim Dalı, Turkey 1994 - 1999

Postgraduate, Marmara University, Institute For Graduate Studies İn Pure And Applied Sciences, Department Of Electrical Education, Turkey 1991 - 1994

Undergraduate, Marmara University, Faculty Of Technical Education, Electric Education, Turkey 1987 - 1991

## Foreign Languages

English, B2 Upper Intermediate

## Dissertations

Doctorate, Lojik Kontrollü Sistemlerin Analizi ve Asenkron Motorla Tahrik Edilen Jet Fanına Uygulanması, Kocaeli Üniversitesi, Fen Bilimleri Enstitüsü, Elektrik Eğitimi Anabilim Dalı, 1999

Postgraduate, Şalt İnstelasyon Cihazları Ömür Deneyi Odasının Otomasyonu ve Yük Deneyi Devrelerinin Projelendirilmesi (Siemens Ar-Ge Laboratuvarında tamamlandı), Marmara University, Institute For Graduate Studies İn Pure And Applied Sciences, Department Of Electrical Education, 1994

## Research Areas

Electrical and Electronics Engineering, Energy, Renewable energy, Electrical Machine Theory and Design, Electric Motor Drivers, Engineering and Technology

## Academic Titles / Tasks

Professor, Kocaeli University, Teknoloji Fakültesi, Enerji Sistemleri Mühendisliği, 2016 - Continues

Associate Professor, Kocaeli University, Teknik Eğitim Fakültesi, Elektrik Eğitimi, 2010 - 2016

Assistant Professor, Kocaeli University, Teknik Eğitim Fakültesi, Elektrik Eğitimi, 1999 - 2009

Lecturer, Kocaeli University, Teknik Eğitim Fakültesi, Elektrik Eğitimi, 1995 - 1999

Research Assistant, Kocaeli University, Teknik Eğitim Fakültesi, Elektrik Eğitimi, 1993 - 1995

## Academic and Administrative Experience

Head of Department, Kocaeli University, Fen Bilimleri Enstitüsü, Enerji Sistemleri Mühendisliği Bölümü, 2023 - Continues

Head of Department, Kocaeli University, Teknoloji Fakültesi, Enerji Sistemleri Mühendisliği, 2023 - Continues

Fakülte Kurulu Üyesi, Kocaeli University, Teknoloji Fakültesi, Enerji Sistemleri Mühendisliği, 2018 - Continues

Fakülte Yönetim Kurulu Üyesi, Kocaeli University, Teknoloji Fakültesi, Enerji Sistemleri Mühendisliği, 2018 - Continues

Head of Department, Kocaeli University, Teknoloji Fakültesi, Enerji Sistemleri Mühendisliği, 2019 - 2021

Head of Department, Kocaeli University, Teknoloji Fakültesi, Enerji Sistemleri Mühendisliği, 2019 - 2021

Vice Dean, Kocaeli University, Teknoloji Fakültesi, 2018 - 2019

Deputy Head of Department, Kocaeli University, Teknoloji Fakültesi, Enerji Sistemleri Mühendisliği, 2016 - 2019

Kocaeli Üniversitesi, Teknoloji Fakültesi, 2016 - 2017

Kocaeli Üniversitesi, Teknik Eğitim Fakültesi, Elektrik Eğitimi Bölümü, 2014 - 2016

Kocaeli Üniversitesi, Teknik Eğitim Fakültesi, Elektrik Eğitimi Bölümü, 2014 - 2016

Kocaeli Üniversitesi, Teknik Eğitim Fakültesi, Elektrik Eğitimi Bölümü, 2012 - 2015

Kocaeli Üniversitesi, Teknik Eğitim Fakültesi, Elektrik Eğitimi Bölümü, 2008 - 2011

Kocaeli Üniversitesi, Teknik Eğitim Fakültesi, 2009 - 2010

Kocaeli Üniversitesi, Teknik Eğitim Fakültesi, 2006 - 2007

Kocaeli Üniversitesi, Teknik Eğitim Fakültesi, Elektrik Eğitimi Bölümü, 2006 - 2006

## Courses

Process Control, Undergraduate, 2022 - 2023

Programmable Logic Controllers, Undergraduate, 2019 - 2020

Wind Energy Systems, Undergraduate, 2019 - 2020

Dynamics and Modeling of Electrical Machines, Postgraduate, 2019 - 2020

Kontrol Sistemleri, Undergraduate, 2017 - 2018, 2016 - 2017

Industrial Control Systems, Undergraduate, 2017 - 2018, 2016 - 2017

Wind Energy Systems and Control, Postgraduate, 2016 - 2017

## Advising Theses

Karakaş E., Elektrikli araçlarda kullanılan batarya yönetim sistemlerinin incelenmesi ve örnek bir batarya yönetim sistemi tasarımı, Postgraduate, M.GÜRGEN(Student), 2023

Karakaş E., Fuzzy logic based realization of maximum power point tracking in wind energy power system, Postgraduate, B.AKSOY(Student), 2021

Karakaş E., Realization of Maximum Power Monitoring of PM Synchronous Generator Used in Wind Turbines with ANN, Doctorate, A.KARAKAYA(Student), 2012

Karakaş E., ATUTOR Based Management Module for Remote Access Laboratories, Postgraduate, U.YILDIZ(Student), 2009

Karakaş E., Speed Control of a High Power Switched Reluctance Motor Analyzed by Finite Element Method (FEM) Using a New Fuzzy Logic Algorithm, Postgraduate, S.SEZEN(Student), 2006

Karakaş E., Modeling of Permanent Magnet Synchronous Motor and Speed Analysis with Modern Control Methods, Postgraduate, A.KARAKAYA(Student), 2005

Karakaş E., Modeling of Buck Type Pulse Width Modulated (DGA) Rectifier with Generalized State Space Averaging Method, Doctorate, M.ALTINAY(Student), 2005

## Jury Memberships

Associate Professor Exam, Associate Professor Exam, Kocaeli Üniversitesi, November, 2023

Associate Professor Exam, Associate Professor Exam, Kocaeli Üniversitesi, October, 2023

Associate Professor Exam, Associate Professor Exam, Kocaeli Üniversitesi, October, 2023

Associate Professor Exam, Associate Professor Exam, Kocaeli Üniversitesi, October, 2023

Associate Professor Exam, Associate Professor Exam, Kocaeli Üniversitesi, October, 2023

Doctoral Examination, Doctoral Examination, Kocaeli Üniversitesi, June, 2023

Appointment to Academic Staff-Professorship, Appointment to Academic Staff-Professorship, Sakarya Uygulamalı Bilimler Üniversitesi, February, 2023

Appointment to Academic Staff - Associate Professorship, Appointment to Academic Staff - Associate Professorship, Kocaeli University, April, 2022

Associate Professor Exam, Associate Professor Exam, Kocaeli Üniversitesi, April, 2022

Associate Professor Exam, Doçentlik Sınav Jürisi, Üniversitelerarası Kurul, Nisan 2018., Kocaeli Üniversitesi, April, 2018

## Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Finite element modeling and control of a high-power SRM for hybrid electric vehicle**  
Sezen S., Karakaş E., Yılmaz K., Ayaz M.  
SIMULATION MODELLING PRACTICE AND THEORY, vol.62, pp.49-67, 2016 (SCI-Expanded)
- II. **Process time and MPPT performance analysis of CF, LUT, and ANN control methods for a PMSG-based wind energy generation system**  
KARAKAYA A., KARAKAŞ E.  
TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.24, no.5, pp.3609-3620, 2016 (SCI-Expanded)
- III. **Fuzzy logic-based user interface design for risk assessment considering human factor: A case study for high-voltage cell**  
ARAS F., KARAKAS E., Bicen Y.  
SAFETY SCIENCE, vol.70, pp.387-396, 2014 (SCI-Expanded)
- IV. **Implementation of neural network-based maximum power tracking control for wind turbine generators**  
KARAKAYA A., KARAKAŞ E.  
TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.22, no.6, pp.1410-1422, 2014 (SCI-Expanded)
- V. **A comparison of the effects of problem-based learning and computer-assisted learning methods on student success in mechatronics education**  
KANDİLLİ İ., KARAKAŞ E.  
ENERGY EDUCATION SCIENCE AND TECHNOLOGY PART B-SOCIAL AND EDUCATIONAL STUDIES, vol.4, no.2, pp.963-970, 2012 (SCI-Expanded)
- VI. **3D virtual classroom environment for teaching renewable energy production and substation equipment**  
Aydogan H., KARAKAŞ E., ARAS F., Ozudogru F.  
INTERNATIONAL JOURNAL OF ELECTRICAL ENGINEERING EDUCATION, vol.48, no.3, pp.294-306, 2011 (SCI-Expanded)
- VII. **The Effects of Computer-Assisted Learning in Teaching Permanent Magnet Synchronous Motors**  
KARAKAŞ E., TEKİNDAL S.  
IEEE TRANSACTIONS ON EDUCATION, vol.51, no.4, pp.448-455, 2008 (SCI-Expanded)
- VIII. **Performance analysis of pm synchronous motors using fuzzy logic and self tuning fuzzy pi speed controls**  
KARAKAYA A., KARAKAŞ E.

- ARABIAN JOURNAL FOR SCIENCE AND ENGINEERING, vol.33, pp.153-177, 2008 (SCI-Expanded)
- IX. **Speed control of SR motor by self-tuning fuzzy PI controller with artificial neural network**  
KARAKAŞ E., Vardarbasi S.  
SADHANA-ACADEMY PROCEEDINGS IN ENGINEERING SCIENCES, vol.32, no.5, pp.587-596, 2007 (SCI-Expanded)
- X. **The control of highway tunnel ventilation using fuzzy logic**  
Karakas E.  
ENGINEERING APPLICATIONS OF ARTIFICIAL INTELLIGENCE, vol.16, pp.717-721, 2003 (SCI-Expanded)
- XI. **Design of adaptive fuzzy controller for Bolu Highway tunnel ventilation system**  
Karakas E., Kulunk H., Ozdemir E., Olcer E., Karagoz B.  
COMPUTATIONAL INTELLIGENCE, vol.1226, pp.403-410, 1997 (SCI-Expanded)
- XII. **Fuzzy logic control of high voltage DC transmission system**  
OLCER E., KARAGOZ B., DINCER H., Ozdemir E., Karakas E.  
COMPUTATIONAL INTELLIGENCE, vol.1226, pp.492-500, 1997 (SCI-Expanded)

### Articles Published in Other Journals

- I. **Rüzgâr Enerjisi Güç Sistemi Maksimum Güç Noktası Takibinde Saptır ve Gözle (S & G) ve Bulanık Mantık Denetleyici (BMD) Yöntemlerinin Sistem Üzerindeki Çalışmalarının Karşılaştırılması**  
Aksoy B., Karakaş E.  
Kocaeli Üniversitesi Fen Bilimleri Dergisi, vol.3, no.2, pp.196-208, 2020 (Peer-Reviewed Journal)
- II. **Anahtarlama Relüktans Motorunun Atalet Momentinin ve Faz Direncinin Maxwell Tabanlı Tahmin Edilmesi ve Sonlu Elemanlar Analizi**  
SEZEN S., KARAKAŞ E., YILMAZ K.  
Karaelmas Fen ve Mühendislik Dergisi, vol.7, pp.455-461, 2017 (Peer-Reviewed Journal)
- III. **Küçük Güçlü Rüzgâr Enerji Dönüşüm Sisteminin Benzetimi Modellemesi ve Uygulaması**  
KARAKAYA A., KARAKAŞ E.  
Karaelmas Fen ve Mühendislik Dergisi, vol.6, pp.377-386, 2016 (Peer-Reviewed Journal)

### Books & Book Chapters

- I. **Kumanda Tekniği I-II Ders Notu**  
KARAKAŞ E., KARAKAYA A., KALE M., KELEŞ K.  
Kocaeli Üniversite Yayınları, Kocaeli, 2003

### Refereed Congress / Symposium Publications in Proceedings

- I. **Elektrikli Araçlar için Batarya Yönetim Sisteminin İncelenmesi ve Tasarımı**  
Gürgen M., Karakaş E.  
9. International Congress on Engineering and Technology Management, İstanbul, Turkey, 29 April - 01 May 2023, pp.699-706
- II. **Küçük Ölçekli Bir Rüzgar Türbininde Maksimum Güç Noktası Takibinin Mikrodenetleyici Tabanlı Gerçekleştirilmesi**  
Aksoy B., Karakaş E.  
International Marmara Sciences Congress IMASCON 2020 - Autumn, Kocaeli, Turkey, 4 - 05 December 2020, vol.1, pp.182-189
- III. **Solar Powered Boat Design**  
KANDİLLİ İ., KARAKAŞ E., KUNCAN M.  
International Advanced Technologies Symposium (IATS17), 19 - 22 October 2017

- IV. **Forecasting the Dielectric Properties of the Insulation Material using an Embedded ANN Microcontroller**  
AYDOĞAN H., ARAS F., KARAKAŞ E.  
1st International Symposium on Multidisciplinary Studies and Innovative Technologies, 2 - 04 November 2017, pp.226-229
- V. **Güneş Enerjisi Kullanılarak Sulama Sistemleri için Yeni Bilgi Tabanlı Model**  
KANDİLLİ İ., GÜVEN A., KARAKAŞ E., KUNCAN M.  
1st International Mediterranean Science and Engineering Congress, 26 - 28 October 2016, pp.2152-2157
- VI. **Measuring the PMSG Parameters and Maximum Power Tracking with Neural Network Control**  
KARAKAYA A., KARAKAŞ E.  
International Ege Energy Symposium and Exhibition (IEESE), Turkey, 11 - 13 May 2016, pp.39-45
- VII. **Maximum power tracking with neural network control in wind energy conversion system**  
KARAKAYA A., KARAKAŞ E.  
III. International Conference on Nuclear & Renewable Energy Resources, İstanbul, Turkey, 20 - 23 May 2012, pp.1-6
- VIII. **Çok noktalı sıcaklık sensör sisteminin tasarımı ve gerçekleştirilmesi**  
Aydoğan H., Aras F., Karakaş E.  
6th International Advanced Technologies Symposium, Elazığ, Turkey, 16 - 18 May 2011, pp.36-39
- IX. **An assessment on distance education in a 3D virtual environment: How to produce electricity in a hydroelectric power plant**  
Aydoğan H., ARAS F., KARAKAŞ E.  
2010 2nd International Conference on Education Technology and Computer, ICETC 2010, Shanghai, China, 22 - 24 June 2010, vol.1
- X. **Design and Implementation of a Data Acquisition System Integrated with Matlab Simulink for Solar Energy Panels**  
Aydoğan H., Aras F., Karakaş E.  
5th International Ege Energy Symposium and Exhibition (IEESE-5), Denizli, Turkey, 27 - 30 June 2010, pp.1-5
- XI. **An Assesment on Distance Education in a 3D Virtual Environment How to Produce Electricity in a Hydroelectric Power Plant**  
AYDOĞAN H., ARAS F., KARAKAŞ E.  
IEEE The 2010 International Conference on Education Technology and Computer (ICETC 2010), 1 - 03 February 2010, vol.1, pp.346-349
- XII. **Remote Access Laboratory Management**  
Yıldız U., Karakaş E., Erkan K.  
Future Learning 2010, 3rd International Future-Learning Conference on Innovations in Learning for the Future 2010:e-Learning, İstanbul, Turkey, 10 - 14 May 2010, pp.362-372
- XIII. **A New Appliaction of Fuzzy Logic Based Control of HVDC Transmission System**  
Karakaş E., Ölçer E., Karagöz B., Özdemir E., Dinçer H.  
IFAC/IFIP Conference on Management and Control of Production and Logistics (MCPL'97), Campinas, Brazil, 31 August - 03 September 2007, pp.587-591
- XIV. **Daimi Mıknatıslı Senkron Motor Parametrelerinin Ölçümü ve Hız Analizi**  
KARAKAYA A., KARAKAŞ E.  
Ulusal Teknik Eğitim Mühendislik ve Eğitim Bilimleri Genç Araştırmacılar Sempozyumu, Kocaeli, Turkey, 20 - 22 June 2007
- XV. **Daimi Mıknatıslı Senkron Motor Parametrelerinin Ölçümü ve Hız Analizi**  
Karakaş E.  
Ulusal Teknik Eğitim, Mühendislik ve Eğitim Bilimleri Genç Araştırmacılar Sempozyumu, Kocaeli, Turkey, 7 - 10 June 2007, pp.171-175
- XVI. **Sonlu Elemanlar Yöntemi İle Yüksek Güçlü Bir Anahtarlama Relüktans Motorun Performans Analizi**  
Sezen S., Karakaş E., Yılmaz K.  
Elektrik-Elektronik-Bilgisayar Mühendisliği Sempozyumu (ELECO), Bursa, Turkey, 6 - 10 June 2006, pp.98-102

- XVII. The Speed Control of Permanent Magnet Synchronous Motor Using Fuzzy Logic and Self Tuning Fuzzy PI Controller**  
KARAKAYA A., KARAKAŞ E.  
ELECO 2005 4th International Conference on Electrical and Electronics Engineering, Bursa, Turkey, 7 - 11 December 2005, pp.162-166
- XVIII. İdeal Bir DC/DC Buck Dönüştürücünün Genelleştirilmiş Durum Uzay Ortalama metodu İle Modellenmesi**  
Altınay M., Ergün Amaç A., Karakaş E.  
1. Enerji Verimliliği ve Kalitesi Sempozyumu, Kocaeli, Turkey, 17 - 18 May 2005, pp.306-310
- XIX. Tünel Havalandırma Sisteminin Bulanık Mantık ve PID Denetleyicisi İle Kontrolü**  
Karakas E.  
Elektrik-Elektronik-Bilgisayar Mühendisliği 9.Ulusal Kongresi, Kocaeli, Turkey, 19 - 21 September 2001, pp.253-255
- XX. Adaptive Control of Bolu Highway Tunnel Ventilation System Using Fuzzy Logic**  
Karakas E., Külünk H.  
Proceedings of the 1998 ACM Symposium on Applied Computing, Ohio, United States Of America, 27 February - 01 March 1998, pp.282-286
- XXI. State space modelling and fuzzy control of DC-DC converter fed a DC traction motor**  
Ozdemir E., URAL A., Abut N., Karakas E., OLCER E., KARAGOZ B.  
9th Mediterranean Electrotechnical Conference (Melecon 98), Tel-Aviv-Yafo, Israel, 18 - 20 May 1998, pp.599-603
- XXII. Computer-based fuzzy control of a traction motor in a metro vehicle**  
Ozdemir E., Ural A., Abut N., Karakas E., Olcer E., Karagoz B.  
4th IFAC Symposium on Advances in Control Education, İstanbul, Turkey, 14 - 16 July 1997, pp.105-110
- XXIII. Yenilenebilir Enerji Güç Sistemlerinin Fuzzy (Bulanık) Mantık Yaklaşımı İle Optimizasyonu**  
Karakas E., Külünk H.  
Türkiye 7. Enerji Kongresi, Ankara, Turkey, 20 - 24 December 1997, pp.47-54
- XXIV. Modelling and Controlling of Chopper Driven DC Traction Motor with Fuzzy Logic**  
Özdemir E., Ural A., Abut N., Karakas E., Ölçer E., Karagöz B.  
16th IASTED International Conference Modelling, Identification and Control, Innsbruck, Austria, 17 - 19 February 1997, pp.156-159
- XXV. Design of adaptive fuzzy controller for bolu highway tunnel ventilation system**  
KARAKAŞ E., Külünk H., ÖZDEMİR E., Ölçer E., Karagöz B.  
5th Fuzzy Days International Conference on Computational Intelligence, CI 1997, Dortmund, Germany, 28 - 30 April 1997, vol.1226, pp.403-410
- XXVI. Fuzzy logic control of converter in high voltage DC transmission system**  
OLCER E., KARAGOZ B., Ozdemir E., Karakas E., DINCER H.  
IEEE International Conference on Intelligent Processing Systems, Beijing, China, 28 - 31 October 1997, pp.262-265
- XXVII. Design and application of fuzzy controller for traction motor in metro vehicle**  
Ozdemir E., URAL A., Karakas E., OLCER E., KARAGOZ B.  
8th IFAC/IFIP/IFORS Symposium on Transportation Systems, KHANIA, Greece, 16 - 18 June 1997, pp.687-692
- XXVIII. Fuzzy logic control of high voltage DC transmission system**  
Ölçer E., Karagöz B., Dinçer H., ÖZDEMİR E., KARAKAŞ E.  
5th Fuzzy Days International Conference on Computational Intelligence, CI 1997, Dortmund, Germany, 28 - 30 April 1997, vol.1226, pp.492-500
- XXIX. Design of fuzzy logic controller for DC-DC converter fed traction motor drives**  
Ozdemir E., URAL A., Abut N., Karakas E., OLCER E., KARAGOZ B.  
1997 IEEE International Symposium on Intelligent Control, İstanbul, Turkey, 16 - 18 July 1997, pp.343-348
- XXX. Fuzzy control of traction motor in light metro vehicle**  
Ozdemir E., Karakas E., OLCER E., ERMIS N.  
5th International Conference on Computer Aided Design, Manufacture and Operation in the Railway and Other Advanced Mass Transit Systems (COMPRAIL 96), Berlin, Germany, 21 - 23 August 1996, pp.119-124

## Supported Projects

KARAKAŞ E., KARAKAYA A., Project Supported by Higher Education Institutions, Radyal ve Aksiyel Akıllı Daimi Mıknatıslı Senkron Generatörlerin Denetimi ve Performans Analizlerinin Gerçekleştirilmesi, 2010 - 2012

## Activities in Scientific Journals

Frontiers in Energy Research, Evaluation Committee Member, 2023 - Continues

International Journal of Energy and Power Engineering, Scientific Committee Membership, 2022 - Continues

International Journal of Electrical Components and Energy Conversion, Committee Member, 2019 - 2022

## Metrics

Publication: 46

Citation (WoS): 122

Citation (Scopus): 184

H-Index (WoS): 8

H-Index (Scopus): 10

## Non Academic Experience

Plymouth University (İngiltere)

Other Public Institution, MİLLÎ EĞİTİM BAKANLIĞI, Elektrik Bölümü