

Adana Alparslan Turkes Science and Technology University
Department of Electrical and Electronic Engineering

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Research Interests Electrical Energy and Power Systems, Electric Load Forecasting, Energy Analytics, Artificial Intelligence, and Renewable Energy

Personal Information
Date&Place of Birth: Adana, 1987
Marital Status: Married, 2 Children
National Service: Completed in Konya and Edirne
Rank&Date of Discharge: Air Defence Second Lieutenant 30 Nov 2011

Education **Cukurova University**, Adana, Turkey

PhD, Electrical and Electronics Engineering, Sep 2019

- Thesis Title: *Research and Application of Real-Time Short-Term Electrical Energy Consumption Forecasting Using Artificial Intelligence Based Techniques*
- Advisors: Prof. Ahmet Teke and Dr Hatice Başak Yildirim
- Erasmus+ Staff Mobility Programme for Training
University of Strathclyde, Glasgow, UK Apr 2018

MSc, Electrical and Electronics Engineering, Jan 2015

- Thesis Title: *Developing a Software Program to Determine the Optimal Capacity Rating of Cogeneration and Trigeneration Plants Driven by Gas Engines for Unlicensed Generation of Electricity*
- Advisor: Prof. Ahmet Teke

BSc, Electrical and Electronics Engineering, Sep 2010

- Erasmus Student Exchange Programme
Linköping University, Linköping, Sweden Aug 2007–Jan 2008

CEAS Anatolian High School, Adana, Turkey

High School Education, Sciences, Jun 2004

Positions	Assistant Professor Division of Energy and Power Systems, Department of Electrical and Electronic Engineering, Adana Alparslan Turkes Science and Technology University	Jul 2021–Present
	Research Assistant Dr Department of Electrical and Electronic Engineering, Adana Alparslan Turkes Science and Technology University	Sep 2019–Jul 2021
	FDP¹ Research Assistant Department of Electrical and Electronic Engineering, Adana Alparslan Turkes Science and Technology University	Mar 2017–Sep 2019
	FDP Research Assistant (Secondment) Department of Electrical and Electronics Engineering, Cukurova University	Jul 2013–Mar 2017
	FDP Research Assistant Department of Electrical and Electronic Engineering, Adana Science and Technology University	Feb 2013–Jul 2013
	Service and Commissioning Engineer MTU ² Onsite Energy South Anatolia Region, MTU Motor Turbine Industry and Trade Inc., Rolls-Royce Power Systems AG	Apr 2012–Feb 2013
	Electrical Maintenance Engineer Sanko Textile Trading Co., Sanko Group	Jan 2012–Apr 2012
	Electrical Engineer (Officer Cadet) Air Defence Artillery Command and Military Engineering Branch, 4th Mechanised Infantry Brigade, 2nd Corps of the 1st Army, Land Forces Command of Turkish Armed Forces	Mar 2011–Dec 2011

**Publications in
SCI-Expanded**

1. Celik, O., **Zor, K.**, Tan, A., and Teke, A. A Novel Gene Expression Programming-Based MPPT Technique for PV Micro-Inverter Applications under Fast-Changing Atmospheric Conditions. *Solar Energy*. *Under Review
2. **Zor, K.**, Celik, O., Timur, O., and Teke, A. Short-Term Building Electrical Energy Consumption Forecasting by Employing Gene Expression Programming and GMDH Networks. *Energies*, 13(5):1102, 2020. DOI: 10.3390/en13051102
3. Teke, A., **Zor, K.**, and Timur, O. A simple methodology for capacity sizing of cogeneration and trigeneration plants in hospitals: A case study for a university hospital. *Journal of Renewable and Sustainable Energy*, 7(053102):1–15, 2015. DOI: 10.1063/1.4930064

¹FDP: Faculty Development Programme²MTU: Motoren und Turbinen Union GmbH

- Publications in ESCI and Scopus**
1. Timur, O., **Zor, K.**, Celik, O., Teke, A., and Ibrikci, T. Application of Statistical and Artificial Intelligence Techniques for Medium-Term Electrical Energy Forecasting: A Case Study for a Regional Hospital. *Journal of Sustainable Development of Energy, Water and Environment Systems*, 8:520–536, 2020. DOI: 10.13044/j.sdewes.d7.0306
- Book Chapters**
1. **Zor, K.** and Celik, O. An Application of Different Approaches to Missing Data for Electric Load Forecasting by Using an Advanced Gene Expression Programming Algorithm. *Advances in Engineering Research, Nova Science Publishers, New York*, 44:223–240, 2021. ISBN: 978-1-53619-950-5
- International Conference Publications**
1. **Zor, K.** and Bulus, K. A Benchmark of GRU and LSTM Networks for Short-Term Electric Load Forecasting. *2021 International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies (3ICT2021)*, Sep 29–30, 2021. DOI: 10.1109/3ICT53449.2021.9581373 (Zallaq, Bahrain)
 2. **Zor, K.** and Celik, O. Short-Term Nonindustrial Reactive Power Forecasting. *17th International Conference of Young Scientists on Energy and Natural Sciences Issues (CYSENI2021)*, (ISSN: 1822-7554):478–487, Mar 24–28, 2021. (Kaunas, Lithuania)
 3. Celik, O. and **Zor, K.** Effects of MPPT Parameters on the Performance of Photovoltaic Inverters. *17th International Conference of Young Scientists on Energy and Natural Sciences Issues (CYSENI2021)*, (ISSN: 1822-7554):72–81, Mar 24–28, 2021. (Kaunas, Lithuania)
 4. Cetin Tas, I. and **Zor, K.** A Prediction of Building Electrical Energy Demand by Using ANN and SVM. *17th International Conference of Young Scientists on Energy and Natural Sciences Issues (CYSENI2021)*, (ISSN: 1822-7554):381–389, Mar 24–28, 2021. (Kaunas, Lithuania)
 5. **Zor, K.**, Timur, O., Celik, O., Yildirim, H. B., and Teke, A. Very Short-Term Electrical Energy Consumption Forecasting of a Household for the Integration of Smart Grids. *Official Conference Proceedings of the European Conference on Sustainability, Energy & the Environment 2018 (ECSEE2018)*, (ISSN: 2188-1146):1–14, Jul 6–7, 2018. (Brighton, UK)
 6. Celik, O., Tan, A., **Zor, K.**, and Teke, A. Optimal Design and Analysis of Single-Stage Flyback PV Micro-Inverter. *Official Conference Proceedings of the European Conference on Sustainability, Energy & the Environment 2018 (ECSEE2018)*, (ISSN: 2188-1146):103–115, Jul 6–7, 2018. (Brighton, UK)
 7. Timur, O., **Zor, K.**, Celik, O., and Teke, A. Very Short-Term Internet of Things Based Forecasting of Air Conditioning Loads: A Case Study for a Server Room in a Hospital. *Proceedings of the 2nd International Conference on Theoretical and Applied Computer Science and Engineering (ICTACSE2018)*, (ISBN:978-605-9546-12-6):22–25, Jun 29–30, 2018. (Istanbul, Turkey)

8. Timur, O., **Zor, K.**, Celik, O., and Teke, A. Development of an Intelligent Energy Measurement Device for Buildings. *Proceedings of the 2nd International Conference on Theoretical and Applied Computer Science and Engineering (ICTACSE2018)*, (ISBN:978-605-9546-12-6):16–21, Jun 29–30, 2018. (Istanbul, Turkey) ***Best Paper Award**
9. **Zor, K.**, Celik, O., Timur, O., Yildirim, H. B., and Teke, A. Simple Approaches to Missing Data for Energy Forecasting Applications. *Proceedings of the 16th International Conference on Clean Energy (ICCE2018)*, (FORC-03):1–4, May 9–11, 2018. (Gazimağusa, Turkish Republic of Northern Cyprus)
10. **Zor, K.**, Timur, O., Celik, O., Yildirim, H. B., and Teke, A. Interpretation of Error Calculation Methods in the Context of Energy Forecasting. *Digital Proceedings of the 12th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES2017)*, (0722):1–9, Oct 4–8, 2017. (Dubrovnik, Croatia)
11. Timur, O., **Zor, K.**, Celik, O., Yildirim, H. B., and Teke, A. Design and Implementation of Smart Energy Measurement Plug in Smart Buildings. *Digital Proceedings of the 12th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES2017)*, (0732):1–12, Oct 4–8, 2017. (Dubrovnik, Croatia)
12. Celik, O., Tan, A., **Zor, K.**, Timur, O., Yildirim, H. B., and Teke, A. Comparative Investigation of Single-Stage and Multi-Stage Grid-Tie Micro-Inverters. *Digital Proceedings of the 12th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES2017)*, (0735):1–6, Oct 4–8, 2017. (Dubrovnik, Croatia)
13. **Zor, K.**, Timur, O., and Teke, A. A State-of-the-Art Review of Artificial Intelligence Techniques for Short-Term Electric Load Forecasting. *Proceedings of the 6th International Youth Conference on Energy (IYCE2017)*, 1–6, Jun 21–24, 2017. DOI: 10.1109/IYCE.2017.8003734 (Budapest, Hungary)
14. **Zor, K.**, Celik, O., and Teke, A. Techno-Economic Analysis of a Grid-Connected Hybrid Biogas/Photovoltaic Power Generation System in the Mediterranean Region. *Official Conference Proceedings of the European Conference on Sustainability, Energy & the Environment 2016 (ECSEE2016)*, (ISSN: 2188-1146):1–10, Jul 7–10, 2016. (Brighton, UK)
15. **Zor, K.**, Teke, A., and Timur, O. Developing a Software Program to Determine the Optimal Capacity Rating of Gas Engine Based Cogeneration and Trigenation Plants for Unlicensed Generation of Electricity. *Digital Proceedings of the 10th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES2015)*, (0695):1–12, Sep 27–Oct 2, 2015. (Dubrovnik, Croatia)
16. **Zor, K.** and Teke, A. Onsite Energy Production with Cogeneration Plants Driven by Reciprocating Gas Engines. *Digital Proceedings of the 1st South*

East European Conference on Sustainable Development of Energy, Water and Environment Systems (SEE SDEWES Ohrid 2014), (0237):1–9, Jun 29–Jul 3, 2014. (Ohrid, North Macedonia)

Other Journal Publications

1. Timur, O., **Zor, K.**, Celik, O., and Teke, A. Enhancement of a Low-Cost Intelligent Device for Improving Energy Efficiency in Buildings. *Communications Faculty of Sciences University of Ankara Series A2–A3: Physical Sciences and Engineering*, 60(2):103–128, Nov 2018.
2. Teke, A., Timur, O., and **Zor, K.**. Calculating Payback Periods for Energy Efficiency Improvement Applications at a University Hospital. *Cukurova University Journal of the Faculty of Engineering and Architecture*, 30(1):41–56, Jun 2015.

Other Conference Publications

1. Buluş, K. and **Zor, K.** A Hybrid Deep Learning Algorithm for Short-Term Electric Load Forecasting. *The 29th IEEE Conference on Signal Processing and Communications Applications (SIU2021)*, 9–11 Jun 2021. DOI: 10.1109/SIU53274.2021.9477869 (Istanbul, Turkey)
2. **Zor, K.**, Teke, A., Celik, O., and Latran, M. B. Turkiye’de Gaz Motorlu Kojenerasyon ve Trijenerasyon Santralleri ile Elektrik Enerjisi Üretimi. *IV. Elektrik Tesisat Ulusal Kongre ve Sergisi*, (612):189–195, Oct 21–24, 2015. (Izmir, Turkey)
3. Latran, M. B., Teke, A., and **Zor, K.** Akıllı Eviriciler ile Yenilenebilir Enerji Tabanlı Dağıtık Üretim Sistemlerinin Akıllı Şebekelere Entegrasyonu. *IV. Elektrik Tesisat Ulusal Kongre ve Sergisi*, (612):246–255, Oct 21–24, 2015. (Izmir, Turkey)
4. **Zor, K.**, Teke, A., and Tümay, M. Biyokütle ve Katı Atıkların Yakıt Olarak Kullanıldığı Gaz Motorlu Kojenerasyon Santralleri ile Yenilenebilir Enerji Üretimi. *VIII. Yenilenebilir Enerji Kaynakları Sempozyumu (YEKSEM 2015)*, (610):91–95, Oct 15–16, 2015. (Adana, Turkey)
5. **Zor, K.** and Teke, A. Current Status and Operation Modes of Cogeneration and Trigeration Plants Driven by Gas Engines. *Proceedings of the 21st International Energy and Environment Fair and Conference (ICCI 2015)*, 91–94, May 6–8, 2015. (Istanbul, Turkey)

Projects

International Projects

- PyPSA (Python for Power System Analysis) Project, PyPSA meets Africa and PyPSA Earth, **Western Asia Coordinator**, 2021–Present.

TUBITAK³ Projects

- Developing a Software to Determine the Optimum Capacity Rating for Unlicensed Electricity Generation in Cogeneration and Trigeration Power Plants Driven by Gas Engines. TUBITAK 3001 Project, Grant Number: 113E769, **Scholar**, 14 Month, Project Budget: ₺36,854.38, 2014–2015.

³TUBITAK: The Scientific and Technological Research Council of Turkey

Scientific Research Projects

- Detection of Non-Technical Losses in Electric Distribution System by Using Data Analytics and Machine Learning Methods. Individual Research Project, Adana Alparslan Turkes Science and Technology University, **Supervisor**, 12 Month, Grant Number: 21103013, Project Budget: ₺20,000.00, 2021–Present.
- Implementation of Short-Term Reactive Power Forecasting Using Artificial Intelligence-Based Techniques for a Nonindustrial Large Building Complex. Individual Research Project, Adana Alparslan Turkes Science and Technology University, **Supervisor**, 13 Month, Grant Number: 19103012, Project Budget: ₺25,000.00, 2019–2021.
- Electric Demand Prediction: Data Acquisition, Implementation of ANN and User Interface Design. Individual Research Project, Cukurova University, **Researcher**, 24 Month, Grant Number: FBA-2017-8252, Project Budget: ₺25,990.07, 2017–2019.
- Very Short-Term Forecasting of a Household Electrical Energy Consumption. Individual Research Project, Cukurova University, **Researcher**, 12 Month, Grant Number: FBA-2017-9344, Project Budget: ₺11,999.99, 2017–2018.
- Developing a Software to Determine the Optimum Capacity Rating of Cogeneration and Trigenation Plants Driven by Gas Engines. Scientific Research Project, Cukurova University, **Researcher**, 12 Month, Grant Number: FYL-2014-2351, Project Budget: ₺5,948.01, 2014–2015.

Reviews for**Journals in SCI-Expanded**

- IET Generation, Transmission & Distribution
- IET Renewable Power Generation
- International Transactions on Electrical Energy Systems
- Turkish Journal of Electrical Engineering & Computer Sciences

Journals in ESCI and Scopus

- Advances in Science, Technology and Engineering Systems Journal
- Bulletin of Electrical Engineering and Informatics
- IET Smart Grid
- International Journal of Renewable Energy Research
- Majlesi Journal of Electrical Engineering
- Pakistan Journal of Statistics
- Telkommika

Journals in Other Indices

- Cukurova University Journal of the Faculty of Engineering
- International Journal of Applied Math. Electronics and Computers
- Renewables: Wind, Water and Solar
- Uludağ University Journal of the Faculty of Engineering

**Honours
&Grants****Erasmus+ Staff Mobility Grant (€1,538)**

Apr 2018

Training Subject: Electric Load Forecasting

Host: Dr Jethro Browell

Department of Electronic and Electrical Engineering,
University of Strathclyde, Glasgow, UK

	TUBITAK Scholarship (₺5,630)	Apr 2014–Jun 2015
	Project Number: EEEAG-113E769	
	Erasmus Student Exchange Grant (€3,000)	Aug 2007–Jan 2008
	Department of Electrical Engineering, Linköping Institute of Technology, Linköping University, Linköping, Sweden	
Memberships	• UCTEA ⁴ Chamber of Electrical Engineers, Member, Adana,	2010–2021
Vocational Trainings	• Design and Planning of Biogas Systems, BESTMER ⁵ , Solar Energy Institute of Ege University, 9–11 Apr 2015. • Solar Expert Photovoltaics, DGS ⁶ , 12 Jan 2014. • Managing Responsibility in High Voltage Facilities, Adana Chamber of Electrical Engineers, 2 Jan 2012.	
Language Skills	• Turkish • English (YDS ⁷ , 85.00/100, Jun 2021) • German and Swedish	Native Proficient Elementary
Software Skills	• C, C++, L ^A T _E X, MATLAB, Python, R • General IT Skills	Proficient Excellent
Courses Taught	<u>2019-2020 Spring Term</u>	
	• Computer Programming (C++)	Bachelor
	• Renewable Energy	Bachelor
	• Electrical Transmission and Distribution	Bachelor
	• Graduation Project	Bachelor
	<u>2020-2021 Fall Term</u>	
	• Introduction to Computer Programming I (C++)	Bachelor
	<u>2020-2021 Spring Term</u>	
	• Computer Programming (Python)	Bachelor
	• Data Analytics (R)	Bachelor
	<u>2021-2022 Fall Term</u>	
	• Engineering Mathematics I (Differential Equations)	Bachelor
	• Renewable Energy	Bachelor
	• Graduation Project I	Bachelor
	• Special Area Course	Masters
	• Python for Data Science	Masters
	• Sustainable Energy	Masters
	<u>2021-2022 Spring Term</u>	

⁴UCTEA: Union of Chambers of Turkish Engineers and Architects

⁵BESTMER: Centre for Biomass Energy Systems and Technologies

⁶DGS: Deutsche Gesellschaft für Sonnenenergie

⁷YDS: Foreign Language Exam

- Computer Programming (Python) Bachelor
- Electrical Transmission and Distribution Bachelor
- Introduction to Energy Analytics (R) Bachelor
- Graduation Project Bachelor
- Special Area Course Masters
- Python for Data Science Masters
- Sustainable Energy Masters