

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

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- Research Interests**
- Electric Load Forecasting
 - Renewable Energy
 - Electrical Energy & Power Systems
 - Energy Analytics & Informatics
 - Distributed Generation
 - Machine Learning

- Positions**
- Adjunct Assistant Professor** 2023–Present
Department of Electrical and Electronic Engineering,
Cukurova University
- Assistant Professor** 2021–Present
Division of Energy and Power Systems,
Department of Electrical and Electronic Engineering,
Adana Alparslan Turkes Science and Technology University
- Research Assistant Dr (Lecturer)** 2019–2021
Department of Electrical and Electronic Engineering,
Adana Alparslan Turkes Science and Technology University
- FDP¹ Research Assistant**
Department of Electrical and Electronic Engineering,
Adana Alparslan Turkes Science and Technology University 2017–2019
Cukurova University 2013–2017
Adana Science and Technology University 2013
- Service and Commissioning Engineer** 2012–2013
MTU² Onsite Energy South Anatolia Region,
Rolls-Royce Solutions Energy, Marine, and Defence Inc.
- Electrical Maintenance Engineer** 2012
Sanko Textile Trading Co.
- Electrical Engineer (Officer Cadet)** 2010–2011
Air Defence Artillery Command and Military Engineering Branch,
4th Mechanised Infantry Brigade

¹FDP: Faculty Development Programme

²MTU: Motoren und Turbinen Union GmbH

	Part-Time Employee	2009-2010
	Atabar Engineering Consultancy Limited Co.	
Education	Cukurova University , Adana, Türkiye	
	PhD , Electrical and Electronic Engineering	2015-2019
	<ul style="list-style-type: none"> • Thesis Title: <i>Research and Application of Real-Time Short-Term Electrical Energy Consumption Forecasting Using Artificial Intelligence Based Techniques</i> 	
	MSc , Electrical and Electronic Engineering	2012-2015
	<ul style="list-style-type: none"> • Thesis Title: <i>Developing a Software Program to Determine the Optimal Capacity Rating of Cogeneration and Trigeration Plants Driven by Gas Engines for Unlicensed Generation of Electricity</i> 	
	BA , German Language Education	2024-Present
	BSc , Electrical and Electronic Engineering	2004-2010
	CEAS Anatolian High School , Adana, Türkiye	
	High School Education , Sciences,	2004
Honours & Grants	TUBITAK³ 2224-A Grant (\$1,500)	2024
	The 44th International Symposium on Forecasting (Dijon, France)	
	Erasmus+ Staff Mobility Grant (€1,125)	2023
	Training Subject: Microgrids	
	Host: Prof. Juan C. Vasquez	
	The Centre for Research on Microgrids (CROM), Department of Energy	
	Aalborg University, Aalborg, Denmark	
	Erasmus+ Staff Mobility Grant (€1,538)	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)	2014–2015
	Project Number: EEEAG-113E769	
	Erasmus Student Exchange Grant (€3,000)	2007–2008
	Department of Electrical Engineering,	
	Linkoping Institute of Technology,	
	Linkoping University, Linkoping, Sweden	
Active Memberships	The International Institute of Forecasters (IIF) , Member	2023-Present
	³ TUBITAK: The Scientific and Technological Research Council of Turkey	

**Publications
in SCIE and
SSCI**

1. Ozdemir, A. C., Bulus, K., and **Zor, K.** Medium- to long-term nickel price forecasting using LSTM and GRU networks. *Resources Policy*, 78:102906, 2022.
DOI: 10.1016/j.resourpol.2022.102906
2. 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*, 239:268–282, 2022.
DOI: 10.1016/j.solener.2022.05.012
3. **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
4. 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

**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. G. G. Tolun, O. C. Tolun, **Zor, K.** Very Short-Term Prosumer Electric Load Forecasting using Machine Learning-Based Algorithms. *2024 International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies (3ICT2024)*, Nov 17–19, 2024. (Sakheer, Bahrain) ***Under Review**
2. Atalay, B. A. and **Zor, K.** Hydroelectric Power Forecasting via Tree-Based Machine Learning Algorithms. *Digital Proceedings of the 19th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES2024)*, (0835):1-15, Sep 8–12, 2024. (Rome, Italy)

3. Bozkurt, H., **Zor, K.**, Bulus, K., and Celik, O. Machine Learning-Based Classification for Electricity Theft Detection in Distribution Systems. *Digital Proceedings of the 19th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES2024)*, (0858):1-9, Sep 8–12, 2024. (Rome, Italy)
4. Tolun, G. G. and **Zor, K.** Short-Term Reactive Power Forecasting Using Deep Learning-Based Algorithms in Electric Distribution Systems. *Digital Proceedings of the 19th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES2024)*, (0546):1-11, Sep 8–12, 2024. (Rome, Italy)
5. Aydin, B., **Zor, K.**, and Disken, G. Very Short-Term Prosumer Electric Load Forecasting Using Deep Learning-Based Techniques. *Proceedings of the 9th International Youth Conference on Energy (IYCE2024)*, Jul 2–6, 2024. (Colmar, France)
DOI: 10.1109/IYCE60333.2024.10634913
6. Tolun, G. G. and **Zor, K.** Very Short-Term Reactive Power Forecasting Using Machine Learning-Based Algorithms. *Proceedings of the 9th International Youth Conference on Energy (IYCE2024)*, Jul 2–6, 2024. (Colmar, France)
DOI: 10.1109/IYCE60333.2024.10634921
7. Aydin, B. and **Zor, K.** A Benchmark of Deep Learning- and Tree-Based Methods for Prosumer Electric Load Forecasting. *Book of Abstracts of the 44th International Symposium on Forecasting (ISF2024)*, (2024):44, Jun 30–Jul 3, 2024. (Dijon, France)
8. **Zor, K.** Prosumer Electric Load Forecasting Using Machine Learning-Based Algorithms. *Book of Abstracts of the 44th International Symposium on Forecasting (ISF2024)*, (2024):5-6, Jun 30–Jul 3, 2024. (Dijon, France)
9. Yorat, E., **Zor, K.**, Ozbek, N. S. and Saribulut, L. Day-Ahead Electricity Price Forecasting Using Artificial Intelligence-Based Algorithms. *2023 International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies (3ICT2023)*, Nov 20–21, 2023. (Sakheer, Bahrain)
DOI: 10.1109/3ICT60104.2023.10391547
10. Tolun, G. G., **Zor, K.**, and Kaplan, Y. A. Daily Global Solar Irradiation Prediction of a University Campus via a Hybrid AI-Based Method. *Digital Proceedings of the 18th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES2023)*, (0104):1-14, Sep 24–29, 2023. (Dubrovnik, Croatia)

11. Tolun, O. C., **Zor, K.**, and Tutsoy, O. Electric Vehicle Charging Demand Prediction Using a Novel Machine Learning-Based Technique. *Digital Proceedings of the 18th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES2023)*, (0175):1-14, Sep 24–29, 2023. (Dubrovnik, Croatia)
12. **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. (Zallaq, Bahrain)
DOI: 10.1109/3ICT53449.2021.9581373
13. **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)
14. 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)
15. 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)
16. **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)
17. 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)
18. 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, Türkiye)
19. 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, Türkiye) ***Best Paper Award**
 20. **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)
 21. **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)
 22. 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)
 23. 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)
 24. **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. (Budapest, Hungary) DOI: 10.1109/IYCE.2017.8003734
 25. **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)

26. **Zor, K.**, Teke, A., and Timur, O. Developing a Software Program to Determine the Optimal Capacity Rating of Gas Engine Based Cogeneration and Trigeneration 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)
27. **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. (Istanbul, Türkiye)
DOI: 10.1109/SIU53274.2021.9477869
2. **Zor, K.**, Teke, A., Celik, O., and Latran, M. B. Türkiye’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, Türkiye)
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, Türkiye)

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, Türkiye)
5. **Zor, K.** and Teke, A. Current Status and Operation Modes of Cogeneration and Trigeneration 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, Türkiye)

Managed Theses

Supervisions

1. Atalay, B. A. *Hydroelectric Power Forecasting via Tree-Based Machine Learning Algorithms*. MSc Thesis, Department of Electrical and Electronic Engineering, Institute of Graduate School, Adana Alparslan Turkes Science and Technology University, 2024. (Adana, Türkiye)

Co-Supervisions

1. Tolun, O. C. *Electricity Theft Detection in Distribution Systems Using Machine Learning-Based Algorithms*. PhD Thesis, Department of Electrical and Electronic Engineering, Institute of Graduate School, Adana Alparslan Turkes Science and Technology University, 2027. (Adana, Türkiye)
2. Abdalla, E. *Deep Learning-Based Daily Solar Irradiation Prediction for Adana Region*. MSc Thesis, Department of Electrical and Electronic Engineering, Institute of Natural and Applied Sciences, Cukurova University, 2023. (Adana, Türkiye)

Projects

International Projects

- PyPSA⁴ Project, PyPSA meets Africa and PyPSA Earth, **Western Asia Coordinator**, 2021–2022.

TUBITAK Projects

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

Scientific Research Projects

⁴PyPSA: Python for Power System Analysis

- Research and Development of Very Short-Term Electric Load Forecasting Models Using Machine Learning-Based Algorithms for Prosumers. Individual Research Project, Adana Alparslan Turkes Science and Technology University, **Supervisor**, 12 Month, Grant Number: 24103005, Project Budget: ₺65,000.00, 2024–2025.
- 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**, 24 Month, Grant Number: 21103013, Project Budget: ₺20,000.00, 2021–2023.
- 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 Trigeneration 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.

Courses Taught

2024-2025 Fall Term

- | | |
|---|----------|
| • EEE113 Introduction to Electrical Engineering | Bachelor |
| • EEE407 Renewable Energy | Bachelor |
| • EEE497 Graduation Project | Bachelor |
| • EEE-U7000 Special Area Course | Masters |
| • EEE7195 Python for Data Science | Masters |
| • EEE7199 Energy Analytics | Masters |
| • EEE-U8000 Special Area Course | Doctoral |
| • EEE8188 Renewables in Electricity Markets | Doctoral |
| • EEE8189 Digitalisation of Energy Systems | Doctoral |

2023-2024 Spring Term

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|-----------------------------|----------|
| • EEE356 Data Analytics | Bachelor |
| • EEE407 Renewable Energy | Bachelor |
| • EEE423 Embedded Systems | Bachelor |
| • EEE481 Graduation Project | Bachelor |

- EEE482 Graduation Project Bachelor
- EEE483 Introduction to Energy Analytics Bachelor
- EEE-U7000 Special Area Course Masters
- EEE7196 Sustainable Energy Masters
- EEE7200 CCHP Systems Masters
- EEE8183 Energy Informatics Doctoral

2023-2024 Fall Term

- EEE113 Introduction to Electrical Engineering Bachelor
- EEE407 Renewable Energy Bachelor
- EEE423 Embedded Systems Bachelor
- EEE481 Graduation Project Bachelor
- EEE-U7000 Special Area Course Masters
- EEE7195 Python for Data Science Masters
- EEE7199 Energy Analytics Masters
- EEE8189 Digitalisation of Energy Systems Doctoral

2022-2023 Spring Term

- EEE110 Computer Programming Bachelor
- EEE208&ESE208 Circuit Theory II Bachelor
- EEE222&ESE222 Electrical Circuits Lab II Bachelor
- EEE356 Data Analytics Bachelor
- EEE-U7000 Special Area Course Masters
- EEE7196 Sustainable Energy Masters
- EEE7200 CCHP Systems Masters
- EEE8182 Electric Load Forecasting Doctoral
- EEE8183 Energy Informatics Doctoral

2022-2023 Fall Term

- EEE225 Engineering Mathematics I (Differential Equations) Bachelor
- ESE305 Energy Transmission and Distribution Bachelor
- ESE313 Energy Efficiency Bachelor
- EEE407 Renewable Energy Bachelor
- EEE-U7000 Special Area Course Masters
- EEE7195 Python for Data Science Masters
- EEE7199 Energy Analytics Masters
- EEE8183 Energy Informatics Doctoral

2021-2022 Spring Term

- EEE110 Computer Programming Bachelor
- EEE453 Electrical Transmission and Distribution Bachelor
- EEE482 Graduation Project Bachelor
- EEE483 Introduction to Energy Analytics Bachelor
- EEE-U7000 Special Area Course Masters
- EEE7195 Python for Data Science Masters
- EEE7196 Sustainable Energy Masters

2021-2022 Fall Term

- EEE225 Engineering Mathematics I (Differential Equations) Bachelor
- EEE407 Renewable Energy Bachelor
- EEE481 Graduation Project I Bachelor
- EEE-U7000 Special Area Course Masters
- EEE7195 Python for Data Science Masters
- EEE7196 Sustainable Energy Masters

2020-2021 Spring Term

- EEE110 Computer Programming Bachelor
- EEE356 Data Analytics Bachelor

2020-2021 Fall Term

- EEE105 Introduction to Computer Programming I Bachelor

2019-2020 Spring Term

- EEE110 Computer Programming Bachelor
- EEE407 Renewable Energy Bachelor
- EEE453 Electrical Transmission and Distribution Bachelor
- EEE482 Graduation Project Bachelor