

# Sahin Gullu

Assistant Professor

sahin.gullu@nevsehir.edu.tr

+90 384 228 1000 (15028)

Nevsehir Haci Bektas Veli University, College of Engineering and Architecture, Room 211  
2000 Evler Mahallesi, Zubeyde Hanim Caddesi, Merkez/Nevsehir, 50300

## Education

<b>University of Central Florida, Orlando, FL, USA</b> Ph.D. in Electrical Engineering Academic Advisor: Issa Batarseh Dissertation: Analysis, Design and Optimization of Grid-Tied Photovoltaic Energy System	Aug 2018 – May 2024
<b>Florida Institute of Technology, Melbourne, FL, USA</b> Master of Science in Electrical Engineering Academic Advisor: Josko Zec Thesis: Comparison of Reference Signal Received Power Measurements between Cell Phone and Scanning Receiver in LTE	Aug 2015 – Dec 2017
<b>Bulent Ecevit University, Zonguldak, Turkey</b> Bachelor's in Electrical and Electronics Engineering Academic Advisor: Rifat Hacıoğlu Dissertation: Motors and Motor Drivers in Solar Powered Cars	Sept 2008 – June 2013

## Academic Experience

<b>Nevsehir Haci Bektas Veli University</b> Assistant Professor	Sept 2024 – present
<b>University of Central Florida</b> Graduate Teaching Assistant (GTA)	Aug 2021 – May 2024

## Honors & Awards

Best GTA Award, Department of Electrical and Computer Engineering, University of Central Florida	May 2024
Best GTA Award, Department of Electrical and Computer Engineering, University of Central Florida	May 2023
Best Paper Awards, IEEE 12 <sup>th</sup> International Renewable Energy Congress	Oct 2021
Scholarship for Graduate Studies in USA, The Ministry of National Education	Dec 2013
Third in Rankings, College of Engineering, Bulent Ecevit University	June 2013
Second in Rankings, Department of Electrical and Electronics Engineering, Bulent Ecevit University	June 2013

## Research Interests

Renewable Energy Integration  
Photovoltaic Energy Systems  
Grid-Forming (GFM) Inverters Control Methods  
Battery Management Systems  
Power Electronics  
Power Systems

## Courses Taught

EEM-101 Bilgisayar Destekli Teknik Çizim (Computer-Aided Engineering Drawing)	Fall 2024
EEM-208 Mesleki İngilizce (Technical English)	Spring 2025
EEM-308 Endüstriyel Elektronik (Industrial Electronics)	Spring 2025

# Publications

## Journals

- [1] **S. Gullu**, M. Nilian, I. Batarseh, "Enhanced droop control for off-grid and grid-tied scenarios in renewable energy systems," *Int J Energy Studies*, vol. 9, no. 4, pp. 745-773, December 2024, doi: 10.58559/ijes.1412839.
- [2] **S. Gullu**, A. Djaho, A. Mensah, and I. Batarseh, "Demonstration Project: 1.86 MWH Battery Energy Storage System and 540 KVA Inverter Integration," *Electronics*, vol. 13, no. 13, pp. 2596, July 2024, <https://doi.org/10.3390/electronics13132596>.
- [3] **S. Gullu**, I. Batarseh, and F. Alaql, "Design and optimization of battery and thermal management system for AC photovoltaic energy module", *Int J Energy Studies*, vol. 9, no. 1, pp. 69-92, March 2024, doi: 10.58559/ijes.1426354.

## Books and Books' Chapters

- [4] **S. Gullu**, "Yenilenebilir Enerji Sistemlerinin Üç Fazlı Şebekeye Bağlantısı İçin Geliştirilmiş Bir Kontrol Yöntemi," in *Elektrik-Elektronik Ve Haberleşme Mühendisliğinde Güncel Çalışmalar*, Efe Akademi, 2024, pp. 117-136.
- [5] **S. Gullu**, and E. Eyceyurt, "An Energy Storage Monitoring System in PV Energy System," in *Green Revolutionary Technologies*, Iksad Publishing House, 2024, pp. 79-90.
- [6] E. Eyceyurt and **S. Gullu**, "Energy Efficiency Strategies Using Artificial Intelligence," in *Green Revolutionary Technologies*, Iksad Publishing House, 2024, pp. 91-104.

## Conferences

- [7] M. Nilian, R. Rezaii, M. Safayatullah, **S. Gullu**, F. Alaql and I. Batarseh, "A Three-port Dual Active Bridge Resonant Based with DC/AC Output," 2023 IEEE Energy Conversion Congress and Exposition (ECCE), Nashville, TN, USA, 2023, pp. 2537-2541, doi: 10.1109/ECCE53617.2023.10362035.
- [8] **S. Gullu**, I. Batarseh, M. Salameh and S. Al-Hallaj, "Optimized Photovoltaic Energy System for Tier 2 Electricity Access," 2023 IEEE Conference on Power Electronics and Renewable Energy (CPERE), Luxor, Egypt, 2023, pp. 1-6, doi: 10.1109/CPERE56564.2023.10119597.
- [9] S. Ghosh, A. Alhatlani, **S. Gullu** and I. Batarseh, "MPPT of Dual-PV LLC Converter Using Fuzzy ANFIS Hybrid Interface," 2022 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES), Jaipur, India, 2022, pp. 1-6, doi: 10.1109/PEDES56012.2022.10080322.
- [10] **S. Gullu** et al., "Advanced Systems Integration of 540 KVA Inverter and 1.86 MWh Battery Energy Storage System for Microgrid Application: A Case Study," 2022 13th International Renewable Energy Congress (IREC), Hammamet, Tunisia, 2022, pp. 1-5, doi: 10.1109/IREC56325.2022.10002117.
- [11] **S. Gullu**, M. T. Elrais, I. Batarseh, M. Salameh and S. Al-Hallaj, "High Voltage Battery Management System Hardware and Software Design for Photovoltaic Energy Systems," 2022 IEEE 7th Southern Power Electronics Conference (SPEC), Nadi, Fiji, 2022, pp. 1-5, doi: 10.1109/SPEC55080.2022.10058391.
- [12] F. Alaql, R. Rezaii, A. Alhatlani, **S. Gullu**, M. Safayatullah and I. Batarseh, "Multi-Mode Rectifier-Based Dual-Input LLC Converter for Wide Voltage PV Applications," 2022 IEEE Energy Conversion Congress and Exposition (ECCE), Detroit, MI, USA, 2022, pp. 1-5, doi: 10.1109/ECCE50734.2022.9948025.
- [13] **S. Gullu**, J. Phelps, I. Batarseh, K. Alluhaybi, M. Salameh and S. Al-Hallaj, "Smart Battery Management System for Integrated PV, Microinverter and Energy Storage," 2021 12th International Renewable Energy Congress (IREC), Hammamet, Tunisia, 2021, pp. 1-6, doi: 10.1109/IREC52758.2021.9624748.
- [14] M. Safayatullah, S. Ghosh, **S. Gullu** and I. Batarseh, "Model Predictive Control for Single-Stage Grid-Tied Three-Port DC-DC-AC Converter Based on Dual Active Bridge and Interleaved Boost Topology," IECON 2021 – 47th Annual Conference of the IEEE Industrial Electronics Society, Toronto, ON, Canada, 2021, pp. 1-6, doi: 10.1109/IECON48115.2021.9589546.
- [15] F. Alaql, R. Rezaii, **S. Gullu**, M. T. Elrais and I. Batarseh, "A Switchable Rectifier-based LLC Resonant Converter for Photovoltaic Applications," 2021 IEEE Energy Conversion Congress and Exposition (ECCE), Vancouver, BC, Canada, 2021, pp. 2093-2098, doi: 10.1109/ECCE47101.2021.9595746.