



# SERKAN ÖZTÜRK

Hacettepe University Department of Electrical and Electronics Eng.

06800 Beytepe, Ankara, Türkiye

Office: +90-312-297-7000 (112), e-mail: ozturk@ee.hacettepe.edu.tr

## DEGREES

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- B.S.,** Fırat University Electrical and Electronics Eng. Dept., 2010  
**M.S.,** Hacettepe University Electrical and Electronics Eng. Dept., 2013  
**Ph.D.,** Hacettepe University Electrical and Electronics Eng. Dept., 2014 -

## AREAS OF INTEREST

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Renewable Energy, Power Converters for Electric Vehicles, Energy Storage, Power Electronics

## PROFESSIONAL JOBS

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- 2010-2011** Research Assistant, Karabük University Electrical and Electronics Eng. Dept.  
**2011-** Research Assistant, Hacettepe University Electrical and Electronics Eng. Dept.

## COURSES TAUGHT

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- ELE118 ‘C Laboratory’
- ELE237 ‘Digital Systems (VHDL) Laboratory’
- ELE214 ‘Electronics Laboratory I’
- ELE313 ‘Electronics Laboratory II’
- ELE356 ‘Control Systems Laboratory’
- ELE338 ‘Microprocessor Architecture and Programming Laboratory’
- ELE365 ‘Electrical Machines Laboratory I’
- ELE479 ‘Electrical Machines Laboratory II’
- ELE456 ‘Power Electronics Laboratory’
- ELE405 ‘Control Systems Design Laboratory’

## PROJECTS

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**2012 - Hacettepe University Scientific Research Unit Project - Completed**

(Project No: 012D11602002-43)

Design and Implementation of a Flyback Converter Based Photovoltaic Energy Conversion System

*Researcher*

**2013 - Hacettepe University Scientific Research Unit Project - Completed**

(Project No: 013D04602005-283)

Upgrading of Flyback Converter Based Photovoltaic Energy Conversion System

*Researcher*

**2013 - Hacettepe University Scientific Research Unit Project - Completed**

(Project No: 013D24273325-541)

Hydrogen Fuel Cell Electric Car

*Researcher*

**2013 - TÜBİTAK (TEYDEB 1511) (Project No: 1120007) - Completed**

HACETTEPE UNIVERSITY, METU, ARTI ENDÜSTRİYEL ELEKTRONİK

Design and Prototype System Implementation of a Novel 100 kW, Grid Connected Photovoltaic Power Supply With Battery Energy Storage - Design and Implementation of the DC-DC Power Converter

*Researcher*

**2014 - Hacettepe University Research Fund - Completed**

Implementation of a 50 kWp Photovoltaic Carport

*Researcher*

**2015 - TÜBİTAK (TEYDEB 1505) (Project No: 5150037) - Completed**

HACETTEPE UNIVERSITY, METU, ASELSAN A.Ş.

Development of a Supercapacitor Energy Storage System for Braking Energy Recovery in Metro and Light Rail Transportation Vehicles

*Researcher*

**2016 - TÜBİTAK (TEYDEB 1501) (Project No:5271)**

HACETTEPE UNIVERSITY, ASELSAN A.Ş.

Development Project of Electric Vehicle Components - Design and Implementation of New Generation High Power Density Isolated 3.7 kW and 10 kW DC-DC Converters.

*Researcher*

**2018 – TÜBİTAK**

HACETTEPE UNIVERSITY, ASELSAN A.Ş.

Development Project of Hybrid Heavy Duty Vehicle Components - Design and Implementation of Isolated DC-DC Converter for a 22 kW On-Board Charger Unit.

*Researcher*

## PUBLICATIONS

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### *INTERNATIONAL JOURNALS (SCI):*

- A1. Ozturk, S.,** Pospos P., Utalay V., Koc A., Ermis M., Cadirci I., “Operating Principles and Practical Design Aspects of All SiC DC/AC/DC Converter for MPPT in Grid-Connected PV Supplies,” in *Solar Energy*, vol. 176, pp. 380-394, 2018
- A2. Ozturk, S.,** Canver, M., Cadirci, I., Ermis, M., “All SiC Grid-Connected PV Supply with HF Link MPPT Converter: System Design Methodology and Development of a 20 kHz, 25 kVA Prototype,” in *Electronics* 2018, 7, 85.
- A3. Ozturk, S.,** Cadirci, I., “A Generalized and Flexible Control Scheme for Photovoltaic Grid-Tie Microinverters,” in *IEEE Transactions on Industry Applications*, vol. 54, no. 1, pp. 505-516, Jan.-Feb. 2018.

### *INTERNATIONAL CONFERENCE PAPERS:*

- B1. Ozturk, S.,** “Design of Three Phase Interleaved DC/DC Boost Converter with All SiC Semiconductors for Electric Vehicle Applications,” *IEEE International Conference on Electrical and Electronics Engineering (ELECO)*, Bursa, Turkey, 2017.
- B2. Ozturk, S.,** “A SiC Semiconductor based Half-Bridge LLC Resonant Converter as an Auxiliary Power Supply for Electric Vehicle Applications,” 2nd *International Mediterranean Science and Engineering Congress (IMSEC)*, 2017. (Proceedings)
- B3. M. H. Aksit, S. Ozturk** and I. Cadirci, "A study on ultracapacitor-based systems for compensation of power deficiency and saving energy: Design, control and simulation," 2017 *IEEE 3rd International Future Energy Electronics Conference and ECCE Asia (IFEEC 2017 - ECCE Asia)*, Kaohsiung, Taiwan, 2017, pp. 1008-1013.
- B4. Ozturk, S.,** H. Aksit, M. “A Control Approach to Smooth Short Term Solar Power Fluctuations with Supercapacitor Energy Storage System,” 1st *International Mediterranean Science and Engineering Congress (IMSEC)*, 2016. (Proceedings)
- B5. Ozturk, S.,** Cadirci, I. “Forecasting and Scheduling of a Photovoltaic/Battery Energy Storage System for Load Demand,” *IEEE 24th Signal Processing and Communications Applications Conference (SIU)*, 2016. doi: 10.1109/SIU.2016.7496184
- B6. Ozturk, S.,** Cadirci, I. “A generalized control approach for photovoltaic grid-tie microinverters,” *IEEE 2015 Intl Aegean Conference on Electrical Machines & Power Electronics (ACEMP)*, *2015 Intl Conference on Optimization of Electrical & Electronic Equipment (OPTIM)* & *2015 Intl Symposium on Advanced Electromechanical Motion Systems (ELECTROMOTION)*, 2015. doi:10.1109/optim.2015.7427006
- B7. Ozturk, S.,** Cadirci, I. “A generalized and flexible control scheme for photovoltaic grid-tie microinverters,” *IEEE International Conference on Renewable Energy Research and Applications (ICRERA)*, 2015. doi:10.1109/icrera.2015.7418501

- B8. Ozturk, S.,** Cadirci, I., “DSPIC microcontroller based implementation of a flyback PV microinverter using Direct Digital Synthesis,” *IEEE Energy Conversion Congress and Exposition (ECCE)*, 2013. doi:10.1109/ecce.2013.6647151
- B9. Catalbas Cem M., Ozturk S.,** "Super resolution using radial basis neural networks," *IEEE 21st Signal Processing and Communications Applications Conference (SIU)*, 2013. doi: 10.1109/SIU.2013.6531458

## THESES

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- **M. Sc.** dsPIC Microcontroller Based Implementation of a Flyback Photovoltaic Microinverter Using Direct Digital Synthesis, Hacettepe University Graduate School of Science and Engineering, 2013
- **Ph.D.** All SiC Power Semiconductor Based High Efficiency DC-DC Converter Applications – Part I: Electric Bus DAB Converter, Part II: Hybrid Heavy Duty Vehicle On-board Charger, 2019 (Estimated)

## PROFESSIONAL MEMBERSHIP

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- IEEE Student Member
- IEEE Power Electronics Society Member

## JOURNAL REVIEWER ASSIGMENTS

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- IEEE Transactions on Power Electronics
- IEEE Transactions on Industry Applications
- Measurement and Control

## COMPUTER-aided ENGINEERING TOOLS

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### POWER ELECTRONICS SIMULATION

- MATLAB / SimPowerSystems
- PSIM
- SIMPLORER
- LTSpice
- PSCAD

### PCB LAYOUT DESIGN

- ALTIUM

### MICROPROCESSOR SOFTWARE

- CODE COMPOSER STUDIO
- MICROC

### 2D-3D TECHNICAL DRAWING

- AUTOCAD
- TRIMBLE SKETCHUP