

# FAWAD AHMAD

## Electrical & Electronics Engineer

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Fawad8ahmad

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## DOCTORAL STUDENT

### Second Year PhD Student in Electrical Engineering

#### University of Genova

2023 – Present

Genova, Italy

#### Research Focus

##### Study and Optimization of High Current Static Converters

This project focused on enhancing the efficiency and reliability of high current static converters by minimizing power losses, optimizing thermal management through advanced simulations and optimization algorithms, and rigorously testing prototypes. The outcomes included significant improvements in converter performance, with applications in industrial, renewable energy, and electric vehicle sectors.

## RESEARCHER

### Thermal Modelling and Reliability of Semiconductor Devices

#### Poseico Power Electronics S.p.A

February, 2023 – Present

Genova, Italy

#### Research Activities

A collaborative research project with industry focused on thermal modeling to predict and manage heat dissipation in semiconductor devices, enhancing their reliability and performance. Utilizing simulation tools and experimental validation, the project optimizes thermal management strategies. The research outcomes aim to improve device life cycles and operational stability across various applications.

## RESEARCH INTERESTS

- Power Electronics & Control.
- Semiconductor Devices.
- Thermal Modelling.
- Wireless Communication
- Machine Learning

## RESEARCH PUBLICATIONS

- Nkemi A. A., D. Sontoro, Ahmad F., I. Kortabarria, P. Cova, "Novel Droop-Based Techniques for Dynamic Performance Improvement in a Linear Active Disturbance Rejection Controlled-Dual Active Bridge for Fast Battery Charging of Electric Vehicles" *Energies* (2024)  
DOI: <https://doi.org/10.3390/en17205171>
- Nkemi A. A., D. Sontoro, Ahmad F., I. Kortabarria, P. Cova, "A Novel Feedforward Scheme for Enhancing Dynamic Performance of Vector-Controlled Dual Active Bridge Converter with Dual Phase Shift Modulation for Fast Battery Charging Systems" *Electronics* (2024)  
DOI: <https://doi.org/10.3390/electronics13193791>
- Ahmad F., Portesine F. M. Aschero, L. Vaccaro, "Transient Thermal Impedance Characterization of New High Power Press Pack Diodes". *SPEEDAM* (2024)  
DOI: <https://ieeexplore.ieee.org/document/10608828>
- Nkemi A. A., Ahmad F., Kortabarria I. "Performance Comparison of Different Modular Dual Active Bridge Converter Topologies for Fast Battery Charging Applications" *SPEEDAM* (2024)  
DOI: <https://ieeexplore.ieee.org/document/10609166>

## EDUCATION

### Master in Electrical Engineering

#### Capital University of Science & Technology

2018 – 2022

Islamabad, Pakistan

#### Research Thesis

Multi Ray Channel Modelling for the Communication Network of Flying Things.

### Bachelor in Electronics

#### University of Peshawar

2011 – 2017

Peshawar, Pakistan

#### Final Year Project

Home Appliances Control & Temp/Humidity Updates through Android Application.

## TECHNICAL SKILLS

#### Software's

- MATLAB
- Python
- LaTeX
- PLC Simulators
- PSIM
- ANSYS
- C++ (Computer Programming Language)
- Simulink
- Orcad (PCB designing)

#### Hardware's

- Circuit Designing
- Thermal Design
- Thermal Modeling of Semiconductor Devices
- Micro controller-based projects

## CERTIFICATIONS

- PAV PES PEI for Electrical Work - Scuola Sicurezza
- Participation in European PhD School on Power Electronics - 2024
- Participation in international conference SPEEDAM - 2024
- Participation in MaLGa Summer School- 2024
- Machine Learning. IBM Coursera - Online

## LANGUAGES

English  
Urdu  
Pashto

