



Afshin Nazer

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📍 Dordrecht, The Netherlands

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Educatuion

- **PhD in Power Electronic Engineering.** 2021 - Now
TU Delft Univesity, Delft, The Netherlands.
- **MSc in Power Electronic Engineering.** 2016- 2018
University of Tehran, Tehran, Iran.
- **Printed Circuit Board Design With Altium.** 2018
- **ARM Cortex (STM32) Fundamentals: Building Embedded Systems.** 2018
- **Simulink\MATLAB Training.** 2015

PhD Research Project

- **Project**
Power converters for shade-tolerant Photovoltaic\Battery system.
 - **System Simulation:** Conducting comprehensive simulations using PLECS and MATLAB to optimize performance and identify potential challenges early in the design phase.
 - **Component Design and Selection:** Designing components such as switches, capacitors, inductors, transformers and gate drivers to meet performance and cost requirements.
 - **Purchasing Components:** Creating and organizing component orders from the RS, Mouser, and Farnell.
 - **Sensor and SiC MOSFET Gate Driver Design:** Selecting and designing reliable sensor and gate driver systems to ensure optimal performance.
 - **PCB Design:** Designing PCBs with a focus on precision and functionality, considering factors such as EMI, grounding, trace width, and spacing, using Altium.
 - **Microcontroller Programming:** Using various features of STM32 microcontrollers, including Timers, ADCs, and GPIOs, for switching, voltage and current sensing, fault detection, and shutdown to implement a closed-loop system.
 - **Testing and Troubleshootin:** Ensuring systems meet their required performance and high efficiency.
- **Teaching Assistance**
 - Supervising Master Studnets.
 - Photovoltaic Lab Course.
 - Solar Energy: Photovoltaic (PV) Systems.
- **Highlighted Graduated Courses**
 - Teamwork, Leadership and Group Dynamics.
 - Effective Negotiation: Win-Win Communication.
 - Conversation Skills.
 - Time Management I - Foundation.
 - DC Systems and EV Charging Summer School.
 - Photovoltaic Systems Summer School.



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Experience

- Photovoltaic Systems Laboratory (Start-up Company), Tehran, Iran: Sep 2018- Aug 2021

R&D Researcher

Designing and implementing a PV emulator to test commercial solar inverters.

- **System Simulation:** Conducting comprehensive simulations using PLECS and MATLAB to optimize performance and identify potential challenges early in the design phase.
- **Component Design and Selection:** Designing components such as switches, capacitors, inductors, transformers and gate drivers to meet performance and cost requirements.
- **Purchasing Components:** Creating and organizing component orders from the suppliers.
- **Sensor and IGBT Gate Driver Design:** Selecting and designing reliable sensor and gate driver systems to ensure optimal performance.
- **PCB Design:** Designing PCBs with a focus on precision and functionality, considering factors such as EMI, grounding, trace width, and spacing, using Altium.
- **Microcontroller Programming:** Using various features of STM32 microcontrollers, including Timers, ADCs, and GPIOs, for switching, voltage and current sensing, fault detection, and shutdown to implement a closed-loop system.
- **Testing and Troubleshooting:** Ensuring systems meet their required performance and high efficiency.

- Niroom Research Institute (NRI), Tehran, Iran:

Sep 2017- Aug 2018

R&D Researcher

Technical & Commercial Proposal Coordinator.

- Review and Comparison of 5 kVa Solid-State Transformers (SST) in the Distribution Voltage Range.
- Development of Technical Knowledge for the Design and Construction of a 5 kVA Solid-State Transformer (SST) Laboratory Prototype in the Distribution Voltage Class.

- Mashhad Urban Railway, Mashhad, Iran

Sep 2015- Aug 2016

Internship

Troubleshooting, Technical Documentation Translation, and Training on Traction Inverters for Light Rail Vehicles in Mashhad.

- Troubleshooting Traction Inverter Issues for Light Rail Vehicles (LRVs) in Mashhad.
- Translating Technical Documentation Related to Traction Inverters from English to Farsi.
- Training Personnel on the Operation and Maintenance of Traction Inverters for LRVs.



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Highlighted Skills

- ✓ STM32 Microcontroller: STM32h723 and STM 32f407.
- ✓ C++ Programming: Keil MDK, STM32CubeIDE.
- ✓ Hardware-in-the-loop Simulation: RT Box PLECS, OPAL RT.
- ✓ Simulation: PLECS, MATLAB/Simulink.
- ✓ Printed Circuit Board (PCB) Design : Altium Desiner.

Honors

- Ranked among the top 20 students in the National Student Scientific Olympiad of Electrical Engineering.
- GPA: 18.75/20 (4.00/4.00), Ranked 1st in Master's Degree Program.
- GPA: 18.23/20 (3.87/4.00), Ranked 2nd in Bachelor's Degree Program.

Publications

● Journals

- A. Nazer, O. Isabella, and P.Manganiello, " Dynamic Analysis of Photovoltaic to Virtual Bus Parallel Differential Power Processing Architecture," IEEE Transactions on Industrial Electronics, 2025.
- A. Nazer, O. Isabella, and P.Manganiello, "PV to Virtual Bus Parallel Differential Power Processing Architecture for Photovoltaic Systems," IEEE Transactions on Industrial Electronics, 2024.
- A. Nazer, P. Manganiello, and O. Isabella, "A virtual bus parallel differential power processing configuration for photovoltaic applications," Mathematics and Computers in Simulation, 2024.
- A. Nazer, S. Driss, A. M. Haddadi, and S. Farhangi, "Optimal Photovoltaic Multi-String Inverter Topology Selection Based on Reliability and Cost Analysis," IEEE Transactions on Sustainable Energy, vol. 12, no. 2, pp. 1186-1195, 2021.

● Conference

- A. Nazer, P. Manganiello and O. Isabella, "Analysis of Hierarchical PV2PV Series Differential Power Processing Configuration for Photovoltaic Applications," 2023 IEEE 50th Photovoltaic Specialists Conference (PVSC), San Juan, PR, USA, 2023, pp. 1-1.
- S. Farhangi, A. Nazer, G. R. Moradi and E. Asadi, "Improved Performance of Solar Array Simulator Based on Constant Voltage/Constant Current Full-Bridge Converter," 2020 11th PEDSTC, Tehran, Iran, 2020, pp. 1-5.

Languages

- ✓ English – Professional proficiency
- ✓ Dutch – A2 level (in progress)