Mahdi Sharifi

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Profile

I am a highly motivated electrical engineer with a strong background in power electronics, control systems, and grid integration of renewable energy, I am doing PhD under supervision of Professor Pericle Zanchetta in the Power Electronics Lab in University of Pavia. My current research focuses on **Grid Forming Control for STATCOM with Energy Storage based on a CHB Multilevel Converter**, has equipped me with advanced modeling and simulation skills directly related to modern power converters particularly different types of multilevel converters such as CHB, MMC etc. and advanced control methods. I have a strong academic record in Power Electronics (30/30), Advanced Power Electronics (30/30), Process Control (30 with laude), Industrial Drives for Electrical Applications (30/30).

Education

PhD in Micro-and nano-electronics

University of Pavia, Power Electronics Lab, Pavia, Italy

Research topic: Multilevel converters for high power applications and grid forming control.

M.Sc. in Electrical Engineering

University of Pavia, Pavia, Italy

GPA: 107/110

B.Sc. in Electrical and Electronics Engineering

Ferdowsi University of Mashhad, Mashhad, Iran

Research Interests

- Design and control of advanced multilevel converters for high-power applications
- Modeling, simulation, and hardware prototyping of AC/DC and DC/DC converters
- Advanced Control Strategies for Resilient Power Grids
- Application of power electronics in electrified transportation and renewable energy systems

Academic Projects

- **M.Sc. Project: Design and Simulation of a Grid-Connected Three-Phase 9-Level CHB Inverter with Grid-Forming Control (Simulink),** this project involved complex system modeling and control, the project is under supervision of Professor Pericle Zanchetta and the main target is grid forming control, however using CHB configuration because of high power application.
- **Design and Simulation of a Grid-Connected Single-Phase Full-Bridge Inverter (PLECS),** this project was as one of the parts of examination of Power Electronics course under taught of Professor Pericle Zanchetta which was involved a single phase normal inverter based on a H-bridge topology with PI current and voltage controller.
- **B.Sc. project: Designed and implemented a pulse oximeter system**, achieving a score of 19.75/20 under supervision of professor Seyed Ebrahim Hosseini. The system utilized an ESP32 microcontroller using the Arduino IDE, Utilized an ESP32 microcontroller for real-time data acquisition and signal processing, demonstrating practical embedded systems design
- **Temperature Controller with STM32**. It was a controller that can fix the temperature level at a specific temperature that we set. I implemented it with STM32.

Language Skills

- Persian (Native)
- English (Fluent; C1)
- Italian (Intermediate: B1)

COMPUTER AND SOFTWARE SKILLS

- **Frameworks and Engineering Software:**

- MATLAB/Simulink (Advanced control design, system modeling, simulation)
- PLECS (Power electronic circuit simulation, control implementation)
- Proteus e Pspice (Proteus to simulate various circuits Pspice for simulating electronics course projects, such as a DC voltage source, a class AB analog amplifier)
- **Programming Languages:**
- Experienced in C and Python

EXTRACURRICULAR ACTIVITIES

- **University Ambassador for 2 years:**
  This is a volunteering activity coordinated by the university, where I acted as the University of Pavia's digital and on-campus representative to support prospective students through the Unibuddy platform and promotional activities. Responsibilities included: Answering questions about academic life, admissions and student experience via Unibuddy chat. Creating engaging content (blogs, videos, Instagram posts) to promote student life. Leading campus tours and supporting international webinars and welcome events.

- **Part-time job as a professor's assistant:**
  Working as an assistant to Professor Norma Anglani, I provide teaching materials and produce content for the lab's social media.

HONOURS AND RECOGNITIONS

- **Merit College Institute that issues the qualification:**

  Collegio Volta

  Thanks to the achievement of excellent academic results, I was admitted to the merit college of the "A.Volta" university