Simone Cossu

CONTACTS

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03/02/1999

SKILLS AND COMPETENCES

- MS Office Suite (Proficient)
- Python C/C++ (Advance)
- Matlab (Advance)
- R-T Lab (Intermediate)
- Inventor (Intermediate)
- PLECS (Intermediate)
- LabVIEW (Beginner)

LANGUAGE SKILLS

Italian: Mothertongue

English: B2

PROFESSIONAL PROFILE

A highly dynamic, motivated, and proactive individual, always seeking to avoid stagnation and open to new experiences and knowledge. Really strong devotion to problem-solving, even in high-pressure environments, and desire to continuous learning and self-improvement, due to a big level of curiosity about many subjects.

EDUCATION

Università degli studi di Pavia March 2024 – Ongoing
Phd in Electrical Engineering
Topic: Grid Impedance prediction using Deep Neural Network

Università degli studi di Pavia September 2021 – October 2024
MSc in Electrical Engineering
Final grade: 110/110 cum laude

Università degli studi di Pavia September 2019 – September 2021
Bachelor's degree Industrial Engineering (Energy)
Final grade: 110/110 cum laude

PUBBLICATIONS

Benfatto, O., Tresca, G., Formentini, A., Anglani, N., **Cossu, S.**, & Zanchetta, P.

Voltage and Current Feedforward Terms Impact in the Stability of Grid-Forming Inverter Systems. Collaboration between University of Pavia, Italy and University of Genoa, Italy.

Cossu, S., Shamsazad, F., Rokocakau, S., Benfatto, O., Tresca, G., Anglani, N., & Zanchetta, P.

A Novel Grid Impedance Estimation Method for Grid-Connected Inverter Systems using LSTM Neural Networks. University of Pavia (forthcoming).

PROJECTS AND ACHIEVEMENTS

- **Grid Active Node for DC Electrical Systems (GRAND)** April 2024-Ongoing

Grid Active Filtering, using a Three Phase Inverter, connected to a Triple Active Bridge for energy storage systems integration. In collaboration with University of Cagliari.

- **Innovative Grid Impedance Estimation Method with Deep Neural Network**

March 2024-Ongoing

Developed a deep-learning approach for online grid-impedance estimation from inverter transients, applicable to both grid-forming and grid-following systems.

- **MSc thesis: "The Next Generation of Line Frequency Transformers: The Power-Electronics Based Advancement"** October 2024

The project comprises an in-depth exploration of Solid-State Transformer (SST) technology, examining its innovations, practical applications, and potential to improve renewable energy integration and energy management in modern power grids. This work encompasses a comprehensive 150-page document supported by 103 references.

- **Design and simulation of a grid connected single-phase full-bridge inverter**
October 2023

Project developed in PLECS, design of a single-phase inverter for connecting photovoltaic systems to the main grid.

- **Preliminary Design of a Grid-Connected Photovoltaic Self-Consumption System**
March 2023

Preliminary design of a grid-connected photovoltaic system to optimize industrial energy self-consumption, including power estimation, component sizing, and economic analysis.

- **BsC's thesis: "Kinematic Design of the Flap Control System for a Moth-Type Vessel"**
September 2021

Project developed in Matlab, design of the Flap control system through kinematic analysis and the propagation of movements of the various components.

WORK EXPERIENCE

- **Researcher at the Power Electronics Laboratory of University of Pavia** Pavia, IT
October 2024 – February 2024

Worked as a researcher at the Power Electronics Laboratory, University of Pavia, focusing on integrating deep neural networks with grid-forming and grid-following systems.

ADDITIONAL

- **Community Festival & Events Organization | Local Government** Pavia, IT

Event Organizer January 2020 – Present

I led the development of three distinct event formats and successfully directed the organization of local festivals and events, overseeing logistics and coordinating teams of up to 20 volunteers for gatherings exceeding 2,500 attendees.

- **Founder of a non-profit artistic gymnastics club** Pavia, IT
September 2024 – Present

Lilium Gym, a non-profit organization, was founded to encourage local youth to engage in artistic gymnastics, develop physical and social skills, and learn the values of teamwork while promoting an active lifestyle and positive principles.

- **Organized Fundraiser and Delivered Supplies for Ukrainian War Refugees**
March 2024

Successfully organized a fundraising campaign, raising 3,000€ to support Ukrainian war refugees. Personally delivered essential supplies across the Romanian border to refugee centers, ensuring critical resources reached those in need.

- **Member of the Sailing Team UniPV**

September 2020 - September 2021

Member of the Structure Team at the University of Pavia Sailing Team. Designed and developed the kinematic control system for the flap.