Scientific Resume

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Gabriele Maria Lozito was born in Rome, 26 September 1984. He currently lives and works in Florence.

General Information

- In 2006 he received his **Laurea Triennale** (Bachelor Degree) in **Ingegneria Elettronica** (Electronic Engineering) from the **Università degli Studi Roma Tre**.
- In 2011 he received his **Laurea Magistrale** (Master Degree) in **Ingegneria Elettronica per l'Industria e l'Innovazione** from the **Università degli Studi Roma Tre**.
- In 2016 he completed his **Ph.D**. course of study receiving the title of Ph.D. in **Electronic Engineering** with a dissertation titled "**Softcomputing Techniques on Embedded Systems for Industrial Engineering and Information Technology**" from the **Università degli Studi Roma Tre**.
- He was, from 2016 to 2021, **Assegnista di Ricerca** (Research Fellow) for the **Dipartimento di Ingegneria of Università degli Studi Roma Tre**, performing research and teaching on the topics of optimization, algorithms and machine learning applied to engineering problems, with special focus on production of renewable energy from photovoltaic sources.
- In the months of May and June 2019 he was **Guest Scientist** towards the **National Physical Laboratory (NPL) of London**, for the development of an algorithm supporting an automated experimental protocol for the characterization at cell-level of sealed PV modules.
- In 10/07/2020 he achieved the **Abilitazione Nazionale** in the sector 09/E1 (**Elettrotecnica**) for the role of **Professore Associato (Associate Professor)**

- **He is currently Assistant Professor (RTD-B) in the sector ING-IND/31 (Elettrotecnica) from 01/05/2021 to 30/04/2024 for the Department of Information Engineering (DINFO) of the University of Florence.**

Scientific Research Activity

The scientific activity herein summarized in different fields of research covers a progression of almost a decade. The research was performed by G.M.L. first as Ph.D. student, then as a Research Fellow, and at the moment, as an Assistant Professor. Most of the production can be traced to important scientific collaborations, both national and international. A list of publications is included at the end of this document.

Equivalent Circuit Models for Photovoltaic Applications

The area involves the study of circuit models used to represent the electric behavior of a photovoltaic device. The research involves the definition of novel models with improved accuracy and fidelity, and the reduction of the computational costs associated to the identification procedure, both by means of advanced optimization algorithms and through technical-analytic observations on the model itself. This study deeply investigated the classic single-diode or five-parameters model, starting from the identification algorithms. The algorithms included approaches using data sheet values from the producer, machine-learning based identification techniques and experimental measurement techniques. Among the latter, important results were achieved during the collaboration with the NPL (National Physical Laboratory) of London. Following, the model was studied under different aspects including sensitivity, degradation, and generalization capabilities towards non-standard operating conditions. In particular, a study involving the compliance of the model with CIGS devices was developed in collaboration with the National Research Council (CNR) of Parma. Another notable use of the equivalent circuit model was to formulate a methodology to compute the incident irradiance on the device. This approach was implemented using a Neural Network on an FPGA and analytically on a microcontroller unit. This latter activity was developed as a cooperation with the University of Denver (Colorado-US).

Energy Conversion from PV Sources: Modelling, Monitoring and Control

To achieve the maximum energetic yield from a PV system, several studies on the Maximum Power Point Tracking (MPPT) were performed. A system based on neural networks was implemented on 8-bit and 32-bit microcontroller units, and the results were studied using high voltage CIGS panels. Moreover, an alternative formulation for the computation of the MPP was found using a quasi-analytical approach. To account for the PV device degradation, an adaptive neural MPPT algorithm was also developed, able to adjust its behavior to compensate for changes in the electrical characteristics of the device.

Concerning smaller power systems, a highly efficient control algorithm was developed for the charge of a battery from a PV device in a wireless-sensor-network application for smart agriculture. Partial shading in PV systems was also studied for power plants of large scale, considering reconfiguration techniques for arrays of PV devices. A microcontroller system (self-powered by the PV device) was developed to remotely monitor electrical quantities, array reconfiguration, and achieve short-term shading forecasting through the use of spatially distributed measurements.

Machine Learning and Optimization Algorithms for Renewable Energy Communities

This field of study focuses on the application of different numerical algorithms, belonging both to the fields of metaheuristics and machine learning, to the complex problems that arise for the management of a renewable energy community. In particular, simulations of the energetic and economic behavior of a renewable energy community were studied, considering optimal allocation of prosumers in different clusters using genetic algorithms. Generative Deep Learning based techniques where also used to construct artificial dataset of load and generation profiles for prosumers. Lastly, the effects of energy storage systems, both in the form of batteries and supercapacitors was studied. The storage systems were studied both at circuit level, modelling their circuital behavior in the generation and conversion chain from PV sources, and at community level, in the form of battery energy storage system scheduling algorithms, also exploiting forecasting techniques for load and generation.

Modelling of Magnetic Materials

This research field focuses on the study of the behaviour of hysteretic, ferromagnetic materials. The study of the materials is done mainly at macroscopic level with the aim of formulating models able to be integrated either in geometric simulations (FEM) or equivalent circuit simulations (time domain). The study foundation is the enhancement of the models for scalar, low frequency hysteresis. From this foundation, generalization towards vector hysteresis and higher frequency hysteresis was achieved, often exploiting neural networks as a basis for the black box modelling of the materials.

Inverse Problems, Optimization, Neural Networks and Algorithms

This last field of research is less application-oriented and aims at the development of new optimization algorithms to be applied to non-linear inverse problems, and the enhancement of the performances for NN-based approaches. A notable example is the formulation of a new optimization algorithm belonging to the swarm-intelligence family, for which a deep study of the swarm dynamics allowed the control of the swarm in the solution space using stability analysis. Concerning the work on Neural Networks, notable results were achieved in enhancing the computational capabilities in embedded systems (microcontrollers and FPGA) and using multi-stage training algorithms to achieve strong generalization capabilities.

Conference Organization Activity

Gabriele Maria Lozito participated in the organization of the following international conferences:

- Chairman for ICCS 2015 “International Conference on Computational Science”
- Organizing Committee Member for IEEE OIPE 2016 “Optimization and Inverse Problems in Electromagnetism”
- Track Session Chair for IEEE RTSI 2019 “Research and Technologies for Society and Industry”
- Technical Session Chair for IEEE AIM 2020 “Advances in Magnetics”
- Organizing Committee Member for IEEE AIM 2022 “Advances in Magnetics”
- Track Session Chair for IEEE MELECON 2022 “Mediterranean Electrotechnical Conference” - “Smart Solutions for High Penetration of PV generation in Renewable Energy Communities”
- Technical Program Lead Chair for IEEE VTC2022 “Vehicular Technology Conference

Editorial Activity

Gabriele Maria Lozito is currently involved in the following editorial activity:

- Guest Editor for Sensors (MDPI): “Sensing Technologies Applied in Solar Energy and Photovoltaic Systems”
- Topical Advisory Panel Member for Applied Sciences (MDPI)
- Guest Editor for Buildings (MDPI): “Smart and Sustainable Buildings: New Trends, Technologies, and Integration in the Energy Transition”
- Academic Editor for Mathematical Problems in Engineering (Hindawi)
- Guest Editor for JMMM (Elsevier): “Milestones in Magnetics”
- Gest Editor for Applied Sciences : “Advanced Renewable Energy Technologies and Systems: Development, Challenges and Opportunities”

Awards

Gabriele Maria Lozito received the Outstanding Paper Award 2022 for the paper “Synthesizing sources in Magnetics: a Benchmark Problem” from the journal COMPEL (Emerald)

Projects Activity

Gabriele Maria Lozito is involved in the following projects:

PRIN: Progetti Di Ricerca Di Rilevante Interesse Nazionale, Bando 2022 (Grant Received)
Role: Local Coordinator and Vice-PI

SHESS4REC project will focus on the study of models and algorithms for the optimization of the electric and thermal network of a Renewable Energy Community (REC). A proper functioning of a REC can be obtained thanks to a preliminary analysis of renewable energy sources, electric, and energy carriers to be involved, and the identification of the REC members, which represent the energy prosumers. Particular attention should be given to storage systems; the project modelling will combine different storage systems relying on the following energy carriers: batteries and fuel cells (chemical), water tank and biomass (thermal storage), supercapacitors (electrical) and flywheels (mechanical). The proposed Hybrid Energy Storage System (HESS) is included in the REC architecture: it needs to guarantee the necessity of the REC, by supplying both thermal energy (either by heating or cooling) and electrical one for appliances and lighting. Moreover, the storage is used to synchronize the REC load and generation profiles (from renewable sources such as from photovoltaic PV, biomass, geothermal generation) for maximum self-consumption and economic incentives achievement. For representing the internal dynamics of the storage system, different innovative models will be investigated and developed; particular attention will be paid to Dynamic Neural Networks (DNN). Therefore, the models will be also used in order to find the optimal configuration of the storage systems inserted in the low voltage network. To ensure the best operation of the REC in terms of energy efficiency, cost reduction, and social welfare, all the entities constituting the REC must be well managed and controlled. Model Predictive Control (MPC), optimization-based control, and Reinforcement Learning (RL) will be used for the control modelling of the several network devices. Advanced Machine Learning (ML) and Artificial Neural Network (ANN) techniques will be implemented for an accurate forecast of the demand and the distributed electricity generations. In order to prove the effectiveness of the modelling results, some case studies will be considered for their application, both at micro- and macro-scales. A micro-REC will be studied

in an industrial area of the city of Perugia: two existing pilot plants equipped with geothermal heat pump chip-wood/pellet boiler coupled with an absorption chiller machine will be modified on the basis of the developed models, by integrating the new HESS. Moreover, two municipalities of Umbria will be involved in order to develop in their territories macro-scale RECs, which will be studied on the basis of the outcomes of the project. Several actions will be finally taken for the dissemination of results among partners, prosumers, companies, and public administrations. The final aim of SHESS4REC is in line with the main objective of National Recovery and Resilience Plan (PNRR), which expects the complete decarbonization of the energy system up to 2030.

PRIN: Progetti Di Ricerca Di Rilevante Interesse Nazionale, Bando 2022 PNRR (Grant Received)
Role: Principal Investigator
Generation of energy from renewable sources is increasingly penetrating the urban power grids, leading to increased decentralized production mainly due to the progressive decrease in PV modules costs in the last decade. Installation of PV devices in urban and suburban environments requires specific techniques aimed at integrating the photovoltaic components in the building envelope and structure (such as the roof, or the façade), possibly replacing conventional building materials. This integration is commonly addressed as Building Integrated Photovoltaics (BIPV). From the building point of view, the BIPV devices should be accessories towards enhancing the building comfort and aesthetic. From an energetic point of view, the devices should be interfaced with a modern grid paradigm such as the one involving Renewable Energy Communities (RECs). In this respect, the purpose of this research is to: investigate the possibilities offered by BIPV using novel PV technologies such as Bifacial Solar Cells (BSC), Semi-Transparent Solar Cells (STSC) and Flexible Solar Cells (FSC); expand the capabilities of the BIPV devices by integrating sensors, conversion and storage in the device, thus designing a Building-Integrated Energy Unit (BIEU); develop estimation and control algorithms for the building equipped with such BIEU devices; develop an experimental prototype of a BIEU and a validation workbench to test the device performance. The technological investigation will define accurate electrical and thermal models to be used in sizing, design, and integration in larger simulations of the building, also exploiting machine-learning (ML) approaches. Development of such models will have a positive impact in the development of next generation buildings, spreading the use of BIPV technology. The development of estimation and control algorithms to be implemented in the BIEU will play a key role in the development of novel integrated Building Energy Management Systems (BEMS), as well as in the decision making process at REC level. The prototype development of the BIEU will have impact in the research fields involving energy storage technologies such as SuperCapacitors (SC) and Hybrid SuperCapacitors (HSC) and their energy conversion interfacing towards a PV source. The experimental workbench implemented in this project will serve two purposes. It will be used to validate the performance of the developed BIEU, and will also be a valuable asset for the future development of other BIEU prototypes based on emerging PV technologies. All the results will be disseminated in international conferences and journals with the aim of further advancing the Strategic Emerging Topic of “Sustainability and protection of natural resources”.

Teaching Activity

Gabriele Maria Lozito was professor for the following classes:

- Università degli Studi di Firenze – “Elettrotecnica” Laurea Triennale for Ingegneria Meccanica (3 years)
- Università degli Studi di Firenze – “Laboratorio di Ingegneria Elettrica” Laurea Triennale Ingegneria Meccanica (1 year)
- Università degli Studi Tor Vergata – “Elettrotecnica” for Laurea Triennale Ingegneria Meccanica and Ingegneria di Internet (3 years)
- Università degli Studi Roma Tre – “Circuiti Non Lineari” for Laurea Magistrale in Ingegneria Elettronica per l’Industria e l’Innovazione. (1 year)
- Università degli Studi Roma Tre – “Elettrotecnica dei Sistemi Energetici” for Laurea Magistrale in Ingegneria Elettronica per l’Industria e l’Innovazione. (2 years)
- Università Niccolo Cusano – “Elettrotecnica” for Laurea Triennale Ingegneria Industriale (1 year)
- Arcadia University – “Fundamentals of Electrical Engineering” for Engineering Sciences students (1 year)

Updated List of Publications

JOURNALS

[1] Antonio S.Q., Fulginei F.R., Lozito G.M., Faba A., Salvini A., Bonaiuto V., Sargeni F.,"Computing Frequency-Dependent Hysteresis Loops and Dynamic Energy Losses in Soft Magnetic Alloys via Artificial Neural Networks",2022,"Mathematics","10.3390/math10132346"

[2] Corti F., Laudani A., Lozito G.M., Reatti A., Bartolini A., Ciani L.,"Model-Based Power Management for Smart Farming Wireless Sensor Networks",2022,"IEEE Transactions on Circuits and Systems I: Regular Papers","10.1109/TCSI.2022.3143698"

[3] Bindi M., Corti F., Aizenberg I., Grasso F., Lozito G.M., Luchetta A., Piccirilli M.C., Reatti A.,"Machine Learning-Based Monitoring of DC-DC Converters in Photovoltaic Applications",2022,"Algorithms","10.3390/a15030074"

[4] Corti F., Laudani A., Lozito G.M., Reatti A., Bartolini A., Ciani L., Kazimierczuk M.K.,"Modelling of a pulse-skipping modulated DC–DC buck converter",2022,"IET Power Electronics","10.1049/pel2.12379"

[5] Talluri G., Lozito G.M., Grasso F., Iturrino Garcia C., Luchetta A.,"Optimal battery energy storage system scheduling within renewable energy communities",2021,"Energies","10.3390/en14248480"

[6] Alotto P., Di Barba P., Formisano A., Lozito G.M., Martone R., Mognaschi M.E., Repetto M., Salvini A., Savini A.,"Synthesizing sources in magnetics: a benchmark problem",2021,"COMPEL - The International Journal for Computation and Mathematics in Electrical and Electronic Engineering","10.1108/COMPEL-05-2021-0156"

[7] Corti F., Gulino M.-S., Laschi M., Lozito G.M., Pugi L., Reatti A., Vangi D.,"Time-domain circuit modelling for hybrid supercapacitors",2021,"Energies","10.3390/en14206837"

[8] Corti F., Reatti A., Lozito G.M., Cardelli E., Laudani A.,"Influence of non-linearity in losses estimation of magnetic components for dc-dc converters",2021,"Energies","10.3390/en14206498"

[9] Rimal H.P., Reatti A., Corti F., Lozito G.M., Antonio S.Q., Faba A., Cardelli E.,"Protection from Indirect Lightning Effects for Power Converters in Avionic Environment: Modeling and Experimental Validation",2021,"IEEE Transactions on Industrial Electronics","10.1109/TIE.2020.3013794"

[10] Laudani A., Lozito G.M., Fulginei F.R.,"Irradiance sensing through pv devices: A sensitivity analysis",2021,"Sensors","10.3390/s21134264"

[11] Radicioni M., Lucaferri V., De Lia F., Laudani A., Presti R.L., Lozito G.M., Fulginei F.R., Schioppo R., Tucci M.,"Power forecasting of a photovoltaic plant located in ENEA casaccia research center",2021,"Energies","10.3390/en14030707"

[12] Corti F., Laudani A., Lozito G.M., Reatti A.,"Computationally efficient modeling of DC-DC converters for PV applications",2020,"Energies","10.3390/en13195100"

[13] Gaiotto S., Laudani A., Lozito G.M., Fulginei F.R.,"A computationally efficient algorithm for feedforward active noise control systems",2020,"Electronics (Switzerland)","10.3390/electronics9091504"

[14] Lozito G.M., Salvini A.,"Swarm intelligence based approach for efficient training of regressive neural networks",2020,"Neural Computing and Applications","10.1007/s00521-019-04606-x"

[15] Blakesley J.C., Castro F.A., Koutsourakis G., Laudani A., Lozito G.M., Riganti Fulginei F.,"Towards non-destructive individual cell I-V characteristic curve extraction from photovoltaic module measurements",2020,"Solar Energy","10.1016/j.solener.2020.03.082"

[16] Quondam Antonio S., LoZito G.M., Ghanim A.M., Laudani A., Rimal H., Faba A., Chilosi F., Cardelli E.,"Analytical formulation to estimate the dynamic energy loss in electrical steels: Effectiveness and limitations",2020,"Physica B: Condensed Matter","10.1016/j.physb.2019.411899"

[17] Rimal H.P., Ghanim A.M., Quondam Antonio S., Lozito G.M., Faba A., Cardelli E.,"Modelling of dynamic losses in soft ferrite cores",2020,"Physica B: Condensed Matter","10.1016/j.physb.2019.411811"

[18] Lozito G.M., Lucaferri V., Fulginei F.R., Salvini A.,"Improvement of an equivalent circuit model for li-ion batteries operating at variable discharge conditions",2020,"Electronics (Switzerland)","10.3390/electronics9010078"

[19] Gaiotto S., Riganti Fulginei F., Lozito G.M., Salvini A.,"A low-ripple switched-capacitor voltage regulator with decoupling capabilities",2019,"International Journal of Numerical Modelling: Electronic Networks, Devices and Fields","10.1002/jnm.2258"

[20] Coco S., Laudani A., Lozito G.M., Riganti Fulginei F., Salvini A.,"Sensitivity analysis of the reduced forms of the one-diode model for photovoltaic devices",2019,"International Journal of Numerical Modelling: Electronic Networks, Devices and Fields","10.1002/jnm.2327"

[21] Bronzoni M., Colace L., De Iacovo A., Laudani A., Lozito G.M., Lucaferri V., Radicioni M., Rampino S.,"Equivalent circuit model for Cu(In,Ga)Se2 solar cells operating at different temperatures and irradiance",2018,"Electronics (Switzerland)","10.3390/electronics7110324"

[22] Coco S., Laudani A., Lozito G.M., Pollicino G.,"Effective permeability estimation of a composite magnetic shielding mortar by using swarm intelligence",2018,"International Journal of Applied Electromagnetics and Mechanics","10.3233/JAE-172278"

[23] Laudani A., Lozito G.M., Lucaferri V., Radicioni M., Fulginei F.R.,"On circuital topologies and reconfiguration strategies for PV systems in partial shading conditions: A review",2018,"AIMS Energy","10.3934/energy.2018.5.735"

[24] Cardelli E., Faba A., Laudani A., Lozito G.M., Quondam Antonio S., Riganti Fulginei F., Salvini A.,"Implementation of the Single Hysteron Model in a Finite-Element Scheme",2017,"IEEE Transactions on Magnetics","10.1109/TMAG.2017.2698238"

[25] Oliveri A., Cassottana L., Laudani A., Riganti Fulginei F., Lozito G.M., Salvini A., Storace M.,"Two FPGA-Oriented High-Speed Irradiance Virtual Sensors for Photovoltaic Plants",2017,"IEEE Transactions on Industrial Informatics","10.1109/TII.2015.2462293"

[26] Carrasco M., Laudani A., Lozito G.M., Mancilla-David F., Fulginei F.R., Salvini A.,"Low-Cost Solar Irradiance Sensing for PV Systems",2017,"Energies","10.3390/en10070998"

[27] Faba A., Gaiotto S., Lozito G.M.,"A novel technique for online monitoring of photovoltaic devices degradation",2017,"Solar Energy","10.1016/j.solener.2017.10.015"

[28] Cardelli E., Faba A., Laudani A., Lozito G.M., Riganti Fulginei F., Salvini A.,"Two-dimensional magnetic modeling of ferromagnetic materials by using a neural networks based hybrid approach",2016,"Physica B: Condensed Matter","10.1016/j.physb.2015.12.005"

[29] Cardelli E., Faba A., Laudani A., Lozito G.M., Riganti Fulginei F., Salvini A.,"A Neural-FEM tool for the 2-D magnetic hysteresis modeling",2016,"Physica B: Condensed Matter","10.1016/j.physb.2015.12.006"

[30] Laudani A., Lozito G.M., Mancilla-David F., Riganti-Fulginei F., Salvini A.,"An improved method for SRC parameter estimation for the CEC PV module model",2015,"Solar Energy","10.1016/j.solener.2015.08.003"

[31] Laudani A., Lozito G.M., Riganti Fulginei F., Salvini A.,"Hybrid neural network approach based tool for the modelling of photovoltaic panels",2015,"International Journal of Photoenergy","10.1155/2015/413654"

[32] Lozito G.M., Riganti Fulginei F., Salvini A.,"On the generalization capabilities of the ten-parameter jiles-atherton model",2015,"Mathematical Problems in Engineering","10.1155/2015/715018"

[33] Laudani A., Lozito G.M., Fulginei F.R., Salvini A.,"On training efficiency and computational costs of a feed forward neural network: A review",2015,"Computational Intelligence and Neuroscience","10.1155/2015/818243"

[34] Laudani A., Riganti Fulginei F., Lozito G.M., Salvini A.,"Swarm/flock optimization algorithms as continuous dynamic systems",2014,"Applied Mathematics and Computation","10.1016/j.amc.2014.06.046"

[35] Cecchini G., Lozito G.M., Schmid M., Conforto S., Fulginei F.R., Bibbo D.,"Neural Networks for muscle forces prediction in cycling",2014,"Algorithms","10.3390/a7040621"

[36] Laudani A., Riganti Fulginei F., Salvini A., Lozito G.M., Coco S.,"Very fast and accurate procedure for the characterization of photovoltaic panels from datasheet information",2014,"International Journal of Photoenergy","10.1155/2014/946360"

[37] Lozito G.-M., Laudani A., Riganti-Fulginei F., Salvini A.,"FPGA implementations of feed forward neural network by using floating point hardware accelerators",2014,"Advances in Electrical and Electronic Engineering","10.15598/aeee.v12i1.831"

PROCEEDINGS

[1] Lozito G.M., Grasso E., Fulginei F.R.,"A Neural-Enhanced Incremental Conductance MPPT Algorithm with Online Adjustment Capabilities",2022,"2022 IEEE International Conference on Environment and Electrical Engineering and 2022 IEEE Industrial and Commercial Power Systems Europe, EEEIC / I and CPS Europe 2022","10.1109/EEEIC/ICPSEurope54979.2022.9854781"

[2] Bindi M., Talluri G., Lozito G.M., Luchetta A., Piccirilli M.C., Grasso F.,"Smart monitoring of DC-DC converters",2022,"2022 IEEE International Conference on Environment and Electrical Engineering and 2022 IEEE Industrial and Commercial Power Systems Europe, EEEIC / I and CPS Europe 2022","10.1109/EEEIC/ICPSEurope54979.2022.9854667"

[3] Bertolini V., Lozito G.M., Grasso F.,"An Analysis of Power Losses in an LLC Converter in Matlab-Simulink Environment",2022,"2022 IEEE International Conference on Environment and Electrical Engineering and 2022 IEEE Industrial and Commercial Power Systems Europe, EEEIC / I and CPS Europe 2022","10.1109/EEEIC/ICPSEurope54979.2022.9854538"

[4] Laschi M., Corti F., Lozito G.M., Vangi D., Gulino M.-S., Pugi L., Reatti A.,"Simulation-based assessment of Supercapacitors as Enabling Technology for Fast Charging in Micromobility",2022,"MELECON 2022 - IEEE Mediterranean Electrotechnical Conference, Proceedings","10.1109/MELECON53508.2022.9842956"

[5] Grasso F., Lozito G.M., Fulginei F.R., Talluri G.,"Pareto optimization Strategy for Clustering of PV Prosumers in a Renewable Energy Community",2022,"MELECON 2022 - IEEE Mediterranean Electrotechnical Conference, Proceedings","10.1109/MELECON53508.2022.9843063"

[6] Belloni E., Lozito G.M., Reatti A.,"A Python Tool for Simulation and Optimal Sizing of a Storage Equipped Grid Connected Photovoltaic Power System",2022,"MELECON 2022 - IEEE Mediterranean Electrotechnical Conference, Proceedings","10.1109/MELECON53508.2022.9843080"

[7] Grasso F., Garcia C.I., Lozito G.M., Talluri G.,"Artificial Load Profiles and PV Generation in Renewable Energy Communities Using Generative Adversarial Networks",2022,"MELECON 2022 - IEEE Mediterranean Electrotechnical Conference, Proceedings","10.1109/MELECON53508.2022.9843062"

[8] Lozito G.M., Laudani A., Reatti A., Corti F., Piccirilli M.C., Pugi L.,"Pareto Optimization of Planar Circular Coil for EV Wireless Charging",2021,"2021 IEEE 15th International Conference on Compatibility, Power Electronics and Power Engineering, CPE-POWERENG 2021","10.1109/CPE-POWERENG50821.2021.9501217"

[9] Boutebba O., Laudani A., Lozito G.M., Corti F., Reatti A., Semcheddine S.,"A Neural Adaptive Assisted Backstepping Controller for MPPT in Photovoltaic Applications",2020,"Proceedings - 2020 IEEE International Conference on Environment and Electrical Engineering and 2020 IEEE Industrial and Commercial Power Systems Europe, EEEIC / I and CPS Europe 2020","10.1109/EEEIC/ICPSEurope49358.2020.9160518"

[10] Cardelli E., Laudani A., Lozito G.M., Lucaferri V., Salvini A., Antonio S.Q., Riganti Fulginei F.,"Neural Modelling of Magnetic Materials for Aircraft Power Converters Simulations",2020,"20th IEEE Mediterranean Electrotechnical Conference, MELECON 2020 - Proceedings","10.1109/MELECON48756.2020.9140623"

[11] Laudani A., Lozito G.M., Radicioni M., Fulginei F.R., Salvini A.,"Optimal PV Panel Reconfiguration Using Wireless Irradiance Distributed Sensing",2020,"Lecture Notes in Electrical Engineering","10.1007/978-3-030-37161-6_40"

[12] Laudani A., Lozito G.M.,"Equivalent lumped parameters model for parasitic elements in inductances for power applications",2019,"5th International Forum on Research and Technologies for Society and Industry: Innovation to Shape the Future, RTSI 2019 - Proceedings","10.1109/RTSI.2019.8895520"

[13] Laudani A., Lozito G.M., Fulginei F.R., Salvini A.,"Numerical Dynamic Modeling and Analysis of DC-DC Converters for Photovoltaic Applications",2019,"5th International Forum on Research and Technologies for Society and Industry: Innovation to Shape the Future, RTSI 2019 - Proceedings","10.1109/RTSI.2019.8895536"

[14] Lucaferri V., Lozito G.M., Fulginei F.R., Salvini A.,"A novel method for dynamic battery model identification based on CFSO",2019,"PRIME 2019 - 15th Conference on Ph.D. Research in Microelectronics and Electronics, Proceedings","10.1109/PRIME.2019.8787760"

[15] Laudani A., Lozito G.M.,"Smart Distributed Sensing for Photovoltaic Applications",2019,"Progress in Electromagnetics Research Symposium","10.1109/PIERS-Spring46901.2019.9017556"

[16] Lozito G.M., Lucaferri V., Parodi M., Radicioni M., Fulginei F.R., Salvini A.,"Parallel algorithm based on singular value decomposition for high performance training of neural networks",2019,"Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)","10.1007/978-3-030-22750-0_54"

[17] Laudani A., Lozito G.M., Lucaferri V., Radicioni M.,"Short-term irradiance forecasting on the basis of spatially distributed measurements",2019,"Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)","10.1007/978-3-030-22750-0_57"

[18] Bertoluzzo M., Sieni E., Zordan M., Forato M., Mognaschi M.E., Lozito G.M., Riganti Fulginei F.,"Neural Networks for Maximum Power Point Tracking Application to Silicon and CIGS Photovoltaic Modules",2018,"IEEE 4th International Forum on Research and Technologies for Society and Industry, RTSI 2018 - Proceedings","10.1109/RTSI.2018.8548445"

[19] Di Barba P., Mognaschi M.E., Lozito G.M., Salvini A., Dughiero F., Sieni I.E.,"The Benchmark TEAM Problem for Multi-Objective Optimization Solved with CFSO",2018,"IEEE 4th International Forum on Research and Technologies for Society and Industry, RTSI 2018 - Proceedings","10.1109/RTSI.2018.8548364"

[20] Laudani A., Lozito G.M., Lucaferri V., Radicioni M., Fulginei F.R., Salvini A., Coco S.,"An analytical approach for maximum power point calculation for photovoltaic system",2017,"2017 European Conference on Circuit Theory and Design, ECCTD 2017","10.1109/ECCTD.2017.8093270"

[21] Bibbo D., Conforto S., Laudani A., Lozito G.M.,"Solar energy harvest on bicycle helmet for smart wearable sensors",2017,"RTSI 2017 - IEEE 3rd International Forum on Research and Technologies for Society and Industry, Conference Proceedings","10.1109/RTSI.2017.8065926"

[22] Cardelli E., Faba A., Laudani A., Lozito G., Antonio S.Q., Fulginei F.R., Salvini A.,"Implementation of the Single Hysteron Model in a Finite Element Scheme",2017,"2017 IEEE International Magnetics Conference, INTERMAG 2017","10.1109/INTMAG.2017.8008014"

[23] Laudani A., Lozito G.-M., Riganti-Fulginei F., Salvini A., Cardelli E., Faba A., Quondam S.,"Generalization of the vector hysteron model through the dependence of moving functions on frequency",2017,"2017 International Applied Computational Electromagnetics Society Symposium - Italy, ACES 2017","10.23919/ROPACES.2017.7916356"

[24] Laudani A., Lozito G.M., Fulginei F.R., Salvini A.,"Modeling dynamic hysteresis through Fully Connected Cascade neural networks",2016,"2016 IEEE 2nd International Forum on Research and Technologies for Society and Industry Leveraging a Better Tomorrow, RTSI 2016","10.1109/RTSI.2016.7740619"
[25] Laudani A., Lozito G.M., Fulginei F.R., Salvini A.,"FEM model identification for a vector hysteresis workbench",2016,"2016 IEEE 2nd International Forum on Research and Technologies for Society and Industry Leveraging a Better Tomorrow, RTSI 2016","10.1109/RTSI.2016.7740620"
[26] Laudani A., Lozito G.M., Fulginei F.R., Salvini A.,"Identification of a FEM based model through CFSO3 algorithm",2016,"AEIT 2016 - International Annual Conference: Sustainable Development in the Mediterranean Area, Energy and ICT Networks of the Future","10.23919/AEIT.2016.7892808"
[27] Coco S., Laudani A., Lozito G.M., Fulginei F.R., Salvini A.,"3D ELF magnetic field strength modeling through fully connected cascade networks",2016,"AEIT 2016 - International Annual Conference: Sustainable Development in the Mediterranean Area, Energy and ICT Networks of the Future","10.23919/AEIT.2016.7892807"
[28] Laudani A., Lozito G.M., Coco S., Pollicino G.,"FE analysis of magnetic shielding screens based on mortars containing ferromagnetic particles",2015,"2015 IEEE 1st International Forum on Research and Technologies for Society and Industry, RTSI 2015 - Proceedings","10.1109/RTSI.2015.7325092"
[29] Fulginei F.R., Lozito G.M., Gaiotto S., Salvini A.,"Improving the Jiles-Atherton model by introducing a full dynamic dependence of parameters",2015,"2015 IEEE 1st International Forum on Research and Technologies for Society and Industry, RTSI 2015 - Proceedings","10.1109/RTSI.2015.7325091"
[30] Lozito G.M., Salvini A.,"An empirical investigation on the static Jiles-Atherton model identification by using different set of measurements",2015,"2014 AEIT Annual Conference - From Research to Industry: The Need for a More Effective Technology Transfer, AEIT 2014","10.1109/AEIT.2014.7002045"
[31] Laudani A., Lozito G.M., Fulginei F.R.,"Dynamic hysteresis modelling of magnetic materials by using a neural network approach",2015,"2014 AEIT Annual Conference - From Research to Industry: The Need for a More Effective Technology Transfer, AEIT 2014","10.1109/AEIT.2014.7002044"
[32] Fulginei F.R., Lozito G.M., Salvini A.,"A ten-parameter model for the static hysteresis simulation of ferromagnetic materials",2015,"2015 AEIT International Annual Conference, AEIT 2015","10.1109/AEIT.2015.7415264"
[33] Laudani A., Lozito G.M., Coco S., Pollicino G.,"Effective permeability of shielding mortars containing ferromagnetic particles by using FEM",2015,"2015 AEIT International Annual Conference, AEIT 2015","10.1109/AEIT.2015.7415265"
[34] Lozito G.M., Schmid M., Conforto S., Riganti Fulginei F., Bibbo D.,"A neural network embedded system for real-time estimation of muscle forces",2015,"Procedia Computer Science","10.1016/j.procs.2015.05.196"
[35] Lozito G.M., Bozzoli L., Salvini A.,"Microcontroller based maximum power point tracking through FCC and MLP neural networks",2014,"EDERC 2014 - Proceedings of the 6th European Embedded Design in Education and Research Conference","10.1109/EDERC.2014.6924389"
[36] Laudani A., Lozito G.M., Fulginei F.R., Salvini A.,"An efficient architecture for floating point based MISO neural neworks on FPGA",2014,"Proceedings - UKSim-AMSS 16th International Conference on Computer Modelling and Simulation, UKSim 2014","10.1109/UKSim.2014.15"
[37] Laudani A., Lozito G.M., Radicioni M., Fulginei F.R., Salvini A.,"Model identification for photovoltaic panels using neural networks",2014,"NCTA 2014 - Proceedings of the International Conference on Neural Computation Theory and Applications","10.5220/0005039201300137"
[38] Laudani A., Fulginei F.R., Salvini A., Lozito G.M., Mancilla-David F.,"Implementation of a neural MPPT algorithm on a low-cost 8-bit microcontroller",2014,"2014 International Symposium on Power Electronics, Electrical Drives, Automation and Motion, SPEEDAM 2014","10.1109/SPEEDAM.2014.6872101"