

## Gabriele Mosaico

Researcher at University of Genoa, Italy

### PROFESSIONAL HISTORY

1 February 2023 – now

#### **RTD-a Researcher**

Researcher within Innovation Ecosystem RAISE (Robotics and AI for Socio-Economic Empowerment) – Spoke 3  
09/E2 Sector- Electrical Energy Engineering  
ING-IND/33 Subsector – Electric Systems for Energy.  
University of Genoa, Italy

November 2021 – January 2023

#### **Assegnista di ricerca**

University of Genoa

February 2021 – July 2021

#### **Visiting PhD Student**

Training on statistical learning and microgrid control with related research activities in team, analysis of the state of the art, presentation of results.  
University of Liege (Belgium), Institut Montefiore, Département Electricité, Electronique et Informatique

March 2020 – July 2021

#### **Visiting Scientist**

Probabilistic modeling of electricity market data from a Balancing Service Providers (BSP) platform  
AlgoWatt S.p.A., Genoa, Italy

November 2018 – October 2018

#### **PhD in Science and Technology for Electrical Engineering, Naval Engineering and Complex Systems for Mobility – curriculum Electrical Engineering**

Research Activity and Training on Artificial Intelligence, Mathematics, Probability and Statistics applied to Power Systems  
University of Genoa, Italy

July 2018 – October 2018

#### **Data Scientist**

Predictive modeling for the PREDICT project (Adaptive Energy Efficiency Platform for Consumption Reduction in Non-Residential Facilities)  
IeSolutions s.r.l, Genoa, Italy

January 2018 – June 2018

**Data Scientist**

Development, together with a team of more experienced data scientists, of proof of concepts for: fraud detection application of an insurance company; operations cost reduction application of a global houseware retailer, data visualization dashboard for a sport fashion wholesaler and retailer; improved intent recognition application for the intelligent virtual assistant of a major telco operator; exploration within a predictive maintenance project for a steel processing factory

Capgemini S.p.A., Insights & Data Business Unit, Milan, Italy

## **EDUCATION AND TRAINING**

31st May 2022

**PhD in Science and Technology for Electrical Engineering, Naval Engineering and Complex Systems for Mobility – curriculum Electrical Engineering**

Thesis: Simulation, prediction, and control in energy system analysis: methodological aspects and applications

University of Genoa, Italy

20th December 2017

**Masters Degree in Stochastics and Data Science**

Thesis: Design and implementation of an innovative hybrid technique for an accurate photovoltaic generation forecasting

University of Turin, Italy

21st July 2015

**Bachelors Degree in Mathematical Statistics and Data Management**

Thesis: Application of neural networks for forecasting and modeling algorithms of electric energy consumption

University of Genoa, Italy

## ACADEMIC APPOINTMENTS

[A.Y 2025/2026](#)

**Main teacher of Advanced Forecasting And Optimization Techniques For Power Systems: An Introduction**

PhD degree in Sciences and Technologies for Electrical Engineering and Complex Systems for Mobility

University of Genoa, Italy

[A.Y 2022/2023, 2023/2024, 2024/2025, 2025/2026](#)

**Main teacher of Elements of Statistics for Tecnical Professions Course**

Bachelor's Degree in Industrial Technologies

University of Genoa, Italy

[A.Y 2022/2023, 2023/2024, 2024/2025, 2025/2026](#)

**Teacher of Inferential Statistics Course**

Bachelor's Degree in Mathematical Statistics and Data Management Bachelor's Degree in Mathematics, Master's Degree in Mathematics

University of Genoa, Italy

[A.Y 2023/2024, 2024/2025, 2025/2026](#)

**Main Teacher of Simulation, prediction, and control in energy system analysis: methodological aspects and applications course**

RAISE Liguria and University of Genoa, Italy

## AWARDS

[2024](#)

**Winner of the ISCRA type C (Italian SuperComputing Resource Allocation) call**

Project "SCRIBAM - Scaling the Contingency Risk Based Management of power system networks for application to nation-scale cases". 23400 hours won on Galileo100 HPC; CINECA, Bologna, Italy

[2023](#)

**Winner of Global Hackaton SAS 2023 – category “Forecasting”**

In collaboration with algoWatt S.p.A. and Oakland University. The hackathon involved 1400 people from 75 countries, with more than 100 teams competing from 140 organizations SAS Institute, Cary, NC, USA

[2022](#)

**Winner ex-aequo of IEEE Italy Section 2022 Ph.D. Thesis Award (“ABB Award”) on New Challenges for Energy and Industry – Sustainability Track**

IEEE Italy Section, ABB

[2021](#)

**Winner of ESRA (European Safety and Reliability Association) scholarship For participating in 2021 edition of course “RAM&PHM 4.0”**

ESRA

[2019](#)

**Third prize in “IEEE Region 8 (Europe, Asia, Africa) Student Paper Contest 2019”**

IEEE Region 8

## **ACTIVE INVOLVEMENT IN RESEARCH PROJECTS**

2025-2029

**SENTINEL: Sustainable Energy Capabilities for Enhanced Military Camps and Operations**

Scientific PI for UNIGE-DITEN-IEES

European EDF Project

2022-2026

**FLEXCHES: FlexCHES – Flexibility services based on Connected and interoperable Hybrid Energy Storage System**

European Project

2025-2027

**Resilient planning of the operation of the electricity system in the presence of uncertainties; Electrification of heavy freight and shipping: technologies, use cases, energy analysis and charging infrastructure planning**

Projects with RSE S.p.A.

2025

**URANO: Energy-autonomous and minimum-maintenance Underwater Radiation Noise Monitoring Buoy**

UNIGE Research Funds Projects

2022-2025

**RAISE Spoke 3 Product 8.1: Distributed Energy Management System: Tools for electrical distribution networks;**

**RAISE Spoke 3 Product 8.4: An AI-based solution for performance optimization of lithium storage systems in Zero Energy Buildings**

RAISE Ecosystem Projects

2022-2025

**INDY – energy Independent and Efficient Deployable Military Camps**

European EDF Project

2022-2024

**Development of a control for the risk-based management of contingencies and its application to representative network situations**

Project with RSE S.p.A.

2023-2024

**Warship Load Storage Modeling**

Project with Cetena S.p.A.

2023-2024

**Reinforcement learning for e-mobility and microgrid use cases;  
Demand & Response management integration in e-mesh models**  
Projects with Hitachi Energy S.p.A.

2018-2022

**VIRTUS - Virtual Management Of Distributed Energy Resources**  
Project with Italian Economic Development Ministry

2019-2022

**Optimal management and control of conventional, renewable generation and storage systems**  
Project with Hitachi ABB Power Grids

2021-2022

**Development Of Techniques For The Application Of Probabilistic Safety Controls To Realistic Power Grids**  
Project with RSE S.p.A.

2022

**Naval energy profiling and simulator development**  
Project with Cetena S.p.A.

2021

**Techniques for the development of probabilistic security applications and their application**  
Project with RSE S.p.A.

2021

**PNRM NEFERIS – Energy Efficiency And Cyber Security Of Strategic Infrastructures**  
Project with Leonardo S.p.A.

2020

**E-SCALE ENERGY – Services Related To The Aggregate Management Of Resources In The Electricity System**  
Project with University of Cassino and Southern Latium

2017-2021

**PODCAST: Platform for Optimizing Distribution Through the Use of Data from Electronic Meters and Distributed Storage Systems**  
Project with Italian Economic Development Ministry

2017-2019

**PREDICT: Adaptive Energy Efficiency Platform For Reducing Consumption In Non-Residential Buildings**  
Project with Regione Liguria and European Social Fund

## Institutional Activity

### 2021-current

#### **Member of IEEE PES Subcommittee On Big Data & Analytics For Power Systems**

Attività: Definire le sfide e le opportunità architettoniche, computazionali e pratiche derivanti dall'emergere del paradigma dei big data nelle smart grid, collaborare alla proposta e alla definizione dei panel e dei workshop tematici dell'IEEE PES General Meeting.

IEEE PES

### 2025-current

#### **Member of the scientific and organizing committee of the "Workshop on mathematical statistics and applications to complex data structures" (MAST)**

within the XXV anniversary of the degree course in Mathematical Statistics and Computer Data Processing

University of Genova, Italy

### 2023-current

#### **Institutional Website content manager**

IEES Lab (<https://iees.diten.unige.it/>); SHIL Lab (<https://shil.diten.unige.it/>); PHD-STIESCM (<https://phd-stiescm.diten.unige.it/>)

University of Genova, Italy

### 2019-current

#### **Affiliate of technical-scientific associations**

IEEE, PES, AEIT

University of Genova, Italy

### *EDITORIAL ACTIVITY*

#### **Reviewer for Scientific Journals**

IEEE Transportation Electrification; Journal of Modern Power Systems and Clean Energy; ACM Computer Surveys; MDPI Energies; MDPI Forecasting; MDPI MAKE

#### **Reviewer for Scientific Conferences**

IEEE PES POWERTECH 2025; IEEE PES General Meeting 2024; International Conference on Mechanical, Electric, and Industrial Engineering (ICMEIE) 2023; international conference on Smart Energy Systems and Technologies (SEST) 2023; international conference on Smart Energy Systems and Technologies (SEST) 2024; ISGT Europe 2024; PSCC 2024; PMAPS2024;

## Publications

### INTERNATIONAL JOURNALS

S. Massucco, **G. Mosaico**, M. Saviozzi, F. Silvestro: "A Hybrid Technique for Day-Ahead PV Generation Forecasting Using Clear-Sky Models or Ensemble of Artificial Neural Networks According to a Decision Tree Approach", *Energies*, 12, 1298, 2019. <https://doi.org/10.3390/en12071298>

S. Bianchi, A. De Filippo, S. Magnani, **G. Mosaico**, F. Silvestro: "VIRTUS Project: A Scalable Aggregation Platform for the Intelligent Virtual Management of Distributed Energy Resources", *Energies*, 14, 3663, 2021. <https://doi.org/10.3390/en14123663>

F. R. Bianchi, B. Bosio, F. Conte, S. Massucco, **G. Mosaico**, G. Natrella, and M. Saviozzi, "Modelling and optimal management of renewable energy communities using reversible solid oxide cells," *Applied Energy*, vol. 334, p. 120657, 2023. doi: <https://doi.org/10.1016/j.apenergy.2023.120657>.

P. Almaleck, S. Massucco, **G. Mosaico**, M. Saviozzi, P. Serra, and F. Silvestro, "Electrical consumption forecasting in sports venues: A proposed approach based on neural networks and ARIMAX Models," *Sustainable Cities and Society*, vol. 100, p. 105019, 2024. doi: <https://doi.org/10.1016/j.scs.2023.105019>.

### INTERNATIONAL CONFERENCES

S. Massucco, **G. Mosaico**, M. Saviozzi, F. Silvestro: "A Hybrid Technique for Day-Ahead PV Generation Forecasting Using Clear-Sky Models or Ensemble of Artificial Neural Networks According to a Decision Tree Approach", *Energies*, 12, 1298, 2019. <https://doi.org/10.3390/en12071298>

S. Bianchi, A. De Filippo, S. Magnani, **G. Mosaico**, F. Silvestro: "VIRTUS Project: A Scalable Aggregation Platform for the Intelligent Virtual Management of Distributed Energy Resources", *Energies*, 14, 3663, 2021. <https://doi.org/10.3390/en14123663>

F. R. Bianchi, B. Bosio, F. Conte, S. Massucco, **G. Mosaico**, G. Natrella, and M. Saviozzi, "Modelling and optimal management of renewable energy communities using reversible solid oxide cells," *Applied Energy*, vol. 334, p. 120657, 2023. doi: <https://doi.org/10.1016/j.apenergy.2023.120657>.

P. Almaleck, S. Massucco, **G. Mosaico**, M. Saviozzi, P. Serra, and F. Silvestro, "Electrical consumption forecasting in sports venues: A proposed approach based on neural networks and ARIMAX Models," *Sustainable Cities and Society*, vol. 100, p. 105019, 2024. doi: <https://doi.org/10.1016/j.scs.2023.105019>.

**G. Mosaico**, M. Saviozzi: "A hybrid methodology for the day-ahead PV forecasting exploiting a Clear Sky Model or Artificial Neural Networks", *IEEE EUROCON 2019 -18th International*

Conference on Smart Technologies, pp. 1-6, 2019, <https://doi.org/10.1109/EUROCON.2019.8861551>. (**Speaker**).

**G. Mosaico**, M. Saviozzi, F. Silvestro, A. Bagnasco, A. Vinci: "Simplified State Space Building Energy Model and Transfer Learning Based Occupancy Estimation for HVAC Optimal Control", 2019 IEEE 5th International forum on Research and Technology for Society and Industry (RTSI), pp. 353-358, 2019. <https://doi.org/10.1109/RTSI.2019.8895544>.

S. Massucco, **G. Mosaico**, P. Pongiglione, M. Saviozzi, F. Silvestro, "Probabilistic Planning for Distribution Networks including Optimal DER Regulation and Storage Allocation", 2020 IEEE Power & Energy Society General Meeting (PESGM), pp. 1-5, 2020. <https://doi.org/10.1109/PESGM41954.2020.9281710>.

S. Massucco, **G. Mosaico**, M. Saviozzi, F. Silvestro, A. Fidigatti, E. Ragaini, "An Instantaneous Growing Stream Clustering Algorithm for Probabilistic Load Modeling/Profiling", 2020 International Conference on Probabilistic Methods Applied to Power Systems (PMAPS), pp. 1-6, 2020. <https://doi.org/10.1109/PMAPS47429.2020.9183448>. (**Speaker**)

S. Massucco, **G. Mosaico**, M. Saviozzi, F. Silvestro, A. Fidigatti, E. Ragaini, "A Markov Chain Load Modeling Approach through a Stream Clustering Algorithm", 2020 AEIT International Annual Conference (AEIT), pp. 1-6, 2020. <https://doi.org/10.23919/AEIT50178.2020.9241159>.

H. H. Uslu, A. Vinci, M. Saviozzi, **G. Mosaico**, M. Assadi, F. Silvestro, H. N. Somehsaraei, "Techno-Economic Dispatch Analysis of a Case Study Consisting of Micro Gas Turbines Using Real-Time Data", Proceedings of the ASME Turbo Expo 2022: Turbomachinery Technical Conference and Exposition, Rotterdam, The Netherlands, 13-17 June 2022.

F. Conte, **G. Mosaico**, G. Natrella, M. Saviozzi and F. R. Bianchi, "Optimal Management of Renewable Generation and Uncertain Demand with Reverse Fuel Cells by Stochastic Model Predictive Control", 2022 17th International Conference on Probabilistic Methods Applied to Power Systems (PMAPS), pp. 1-6, 2022, <https://doi.org/10.1109/PMAPS53380.2022.9810605>.

F. Conte, F. D'Agostino, S. Grillo, **G. Mosaico**, F. Silvestro, "An Efficiency-Based Power Management Strategy for an Isolated Microgrid Project", Presented at 2022 IEEE Power & Energy Society General Meeting (PESGM), 2022, <https://arxiv.org/abs/2203.16228>

F. D'Agostino, B. Gabriele, **G. Mosaico**, M. Saviozzi and F. Silvestro, "Optimal Storage Allocation for Transmission Network Development Planning: Study Case of Sicily," 2023 IEEE Belgrade PowerTech, Belgrade, Serbia, 2023, pp. 1-6, doi: <https://doi.org/10.1109/PowerTech55446.2023.10202764>. (**Speaker**)

S. Massucco, **G. Mosaico**, M. Saviozzi, P. Almaleck, M. Santarelli and P. Serra, "Warm Start Fitted Q Reinforcement Learning for Electric Vehicle Depot Charging," 2023 IEEE PES Innovative Smart Grid Technologies Europe (ISGT EUROPE), Grenoble, France, 2023, pp. 1-5, doi: <https://doi.org/10.1109/ISGTEUROPE56780.2023.10408530>. (**Speaker**)

S. Massucco, **G. Mosaico**, M. Saviozzi, P. Almaleck, M. Santarelli and P. Serra, "Development and Selection of Load Forecasting Techniques for Non-Residential Buildings," 2024 18th International Conference on Probabilistic Methods Applied to Power Systems (PMAPS),

Auckland, New Zealand, 2024, pp. 1-6, doi:

<https://doi.org/10.1109/PMAPS61648.2024.10667140>. (**Speaker**)

S. Massucco, **G. Mosaico**, M. Saviozzi, P. Almaleck, M. Santarelli and P. Serra, "Two-Stage Stochastic Optimal Energy Management of Microgrids for Participation in Flexibility Markets," 2024 IEEE PES Innovative Smart Grid Technologies Europe (ISGT EUROPE), Dubrovnik, Croatia, 2024, pp. 1-5, doi: <https://doi.org/10.1109/ISGTEUROPE62998.2024.10863134>. (**Speaker**)

F. D'Agostino, J. S. Mahlalela, S. Massucco, **G. Mosaico**, M. Saviozzi and F. Silvestro, "Fault Classification in Distribution Networks Using Graph Neural Networks and Discrete Stockwell Transform," 2025 IEEE Kiel PowerTech, Kiel, Germany, 2025, pp. 1-6, doi: <https://doi.org/10.1109/PowerTech59965.2025.11180505>.

F. Conte, F. D'Agostino, **G. Mosaico**, G. Natrella, and M. Saviozzi, "Synthetic Inertia by a Wind Farm-Electrolyzer Unit: Dynamic Optimal Sizing and Service Provision," in Proc. ISGT Europe 2025, Malta, 2025. <https://doi.org/10.1109/ISGTEurope64741.2025.11305578>

J. S. Mahlalela, **G. Mosaico**, and M. Saviozzi, "Fault Classification and Localization for Advanced Distribution Management Systems Using Sobol Sequence Data Generation," in Proc. IEEE AFRICON 2025, 2025. (PRESENTED)

#### NATIONAL JOURNALS

E. Ciapessoni, D. Cirio, A. Pitto, F. Conte, S. Massucco, **G. Mosaico**, and M. Saviozzi, "Approccio Probabilistico Per la Sicurezza," *Rivista AEIT*, vol. 108, no. 7/8, pp. 36-43, 2023.

A. Bagnasco, A. Vinci, F. Silvestro, **G. Mosaico**: "Soluzioni innovative per il risparmio energetico negli edifici del terziari" in "Gestione Energia" N. 1/2020.  
[http://www.gestioneenergia.com/GEnuova/2020/gestioneenergia1/GE\\_n1\\_2020\\_web.pdf#22](http://www.gestioneenergia.com/GEnuova/2020/gestioneenergia1/GE_n1_2020_web.pdf#22)

F. Conte, S. Massucco, **G. Mosaico**, M. Saviozzi, F. Silvestro, A. Vinci: "PREDICT: Piattaforma Adattiva di Efficienza Energetica" in, *AEIT* 11 (2019): 48-55.  
<https://risparmioenergetico.unige.it/sites/risparmioenergetico.unige.it/files/pagine/PREDICT%20rivista%20AEIT.pdf>

#### NATIONAL CONFERENCES

S. Bianchi, A. De Filippo, S. Magnani, M. Milano, **G. Mosaico**, F. Silvestro "Il ruolo dei Virtual Power Plants nella gestione energetica sostenibile", Convegno Nazionale CINI sull'Intelligenza Artificiale (Ital-IA 2022). [https://www.ital-ia2022.it/articoli/documenti/sostenibilita/Ital-IA22\\_paper\\_128.pdf](https://www.ital-ia2022.it/articoli/documenti/sostenibilita/Ital-IA22_paper_128.pdf)

#### PHD THESIS

**G. Mosaico**, "Simulation, Forecasting, and Control in power system analytics: methodological aspects and applications", Genova, Maggio 2022. [https://dx.doi.org/10.15167/mosaico-gabriele\\_phd2022-05-30](https://dx.doi.org/10.15167/mosaico-gabriele_phd2022-05-30)