

PERSONAL INFORMATION **Marialuisa Volta**



Department of Mechanical and Industrial Engineering
University of Brescia (IT)

Current position 2016 - present

Full professor of Control Systems, leader of the **Integrated assessment modeling and control of dynamic systems** research unit and of the **Transitions Lab** at the Department of Mechanical and Industrial Engineering, University of Brescia (IT).

Research interests

Non linear system modeling and control; Machine Learning and Data mining; Decision modeling: Multi-objective, cost-effective, cost-benefit, multi-criteria modeling, Integrated Assessment Modeling. Health impact modelling assessment.
Air quality modelling. Efficient low carbon, air pollution and health policies including energy, end-of-pipe and behavioral mitigation measures. Energy transition modeling. Efficient energy production and consumption policies: mobility, industrial, agriculture, hard-to-abate sectors.

WORK EXPERIENCE

Previous positions

2005-2016	Associate Professor of Control Systems, University of Brescia (IT)
1999-2005	Assistant Professor of Control Systems, University of Brescia (IT)
April - October 1999	Research Fellow, Politecnico di Milano (IT)

Involvement in national and international organizations

2022-present	Member for University of Brescia at the EU Biomethane Industrial Partnership - Task force 5 Research, Development and Innovation needs
2022-present	Coordinator of the PhD program in Energy Transition and Sustainable production Systems - University of Brescia (IT)
2021-present	Member of the Global Air Pollution and Health Technical Advisory Board (WHO)
2021-2023	Member of the National Scientific Qualification Committee (Abilitazione scientifica Nazionale, ASN, ING-INF/04 AUTOMATICA). Italian Ministry of University (IT)
2020-present	Chair of the Technical Committee TC8.3 "Modelling and Control of Environmental Systems", IFAC - International Federation of Automatic Control
2020-present	Member of the Air Quality Observatory - Municipality of Brescia (IT)

2019-present	Research Advisor of Clean Air work group at the Lombardy Energy Cleantech Cluster, (IT)
2018-present	EU-TAIEX expert. Topics: Air, Climate change, Macro-regional strategies, Regional development, Sustainable urban development
2018-present	REPRISE (Register of Expert Peer-Reviewers for Italian Scientific Evaluation) expert, Italian Research Ministry. Topics: Fundamental research, Competitive industry and better society research, Scientific culture spread.
2017	Member of the Expert panel on Air Quality Directive (EU2008/50) review - European Court of Auditors, Luxembourg
2015-2020	Vice-chair of the Technical Committee TC8.3 "Modelling and Control of Environmental Systems", IFAC - International Federation of Automatic Control
2015-2022	Scientific board of B+ Labnet, Laboratory for environmental health and sustainability, University of Brescia
2013-2016	Member of the Advisory board of EU FP7 SEFIRA (Socio-economic implications for individual responses to Air Pollution Policies in EU +27) project, EU FP7 603941
2012-present	EU Project reviewer/rapporteur, European Commission Directorate Research and Innovation
2012-present	Member of EU FAIRMODE (Forum for Air Quality Modeling), AQ management (http://fairmode.jrc.ec.europa.eu)
2006-present	Member of the UNECE - Convention on Long-range Transboundary Air Pollution, Task Force on Integrated Assessment Modelling

Involvement in EU projects (competitive calls) and initiatives

2023-2026	Unit leader: European Linkage of Initiative from Science to Action in Health (Elisah), EU4Health. <i>The ELISAH project aims to reduce the burden of breast cancer by acting on modifiable risk factors (environmental pollution, built environment, life style).</i>
2017-2018	Third part: CAMS use case on air quality planning in urban areas using the ATMOSYS-CAMS application ECMWF/COPERNICUS/2017/CAMS_95f_VITO. <i>Assessment of ATMOSYS-CAMS applications in urban areas in the framework of Copernicus activities</i>
2012-2015	Project coordinator: EU FP7 APPRAISAL, Air Pollution Policies for Assessment of Integrated Strategies At regional Local scales, EU FP7 308395. <i>Designing an Integrated Assessment Modeling framework for efficient AQ&LC efficient policies. Communicating to key stake-holders and policy-makers the state-of-the-art scientific knowledge on emission abatement assessment.</i>
2010-2013	Unit leader, scientific coordinator: OPERA (Operational Pollution Emission Reduction Assessment), EU LIFE09ENV/IT/092 - Best Environmental Life projects Award 2015 (EC DG-ENV). <i>Defining and implementing an Integrated Assessment tool (RIAT+) to support regional/local authorities in the definition, application and evaluation of air quality plans policies, devoted to the reduction of population exposure to PM10, PM2.5, NO₂ and O₃. Each action of the air quality plan is evaluated both in terms of air quality concentrations and in terms of costs. GHG emission reduction and health impact in terms of external costs are assessed.</i>

- 2009-2010 PI: RIAT (Regional Integrated Assessment Tool), EC JRC 384364. *The RIAT project aims at formalizing and implementing a Decision Support System to define air quality efficient strategies at sub-national scale, assessing economic and health impacts. The system provided an AQ plan for Lombardia Region.*
- 2009-2010 Unit leader: POMI - the Po Valley Modelling Intercomparison, EC JRC (<http://aqm.jrc.it/POMI/>).
- 2008-2010 MoU: University di Brescia - International Institute for Applied System Analysis (AT)
- 2005-2010 Associate partner: EU NoE ACCENT - Atmospheric Sustainability: Mesoscale secondary pollution multi-objective control, EC DG-RTD FP6. *Promote a common European strategy for research on atmospheric composition change, optimize two-way interactions with policy-makers and the general public.*
- 2002-2004 Unit leader: CITYDELTA - CAFE, EC JRC (<http://aqm.jrc.it/citydelta/>)

Involvement in national projects (competitive calls)

- 2021-2023 Project coordinator: Data science to reduce agri-food impact on air quality in the Po Valley (AgriAir). Fondazione Cariplo (IT). *Modelling assessment of the impacts on population exposure and health of air quality and energy measures in the Po Valley.*
- 2019-2022 Unit Leader: BIOMASS Hub. Innovation Hub. POR-FESR Regione Lombardia (IT). *Circular economy of organic waste: air quality, GHG emission, health impact assessment of biomethane and hydrogen production and use in Lombardy Region.*
- 2016-2018 Project coordinator: ATHLETIC (Air quality and Life styles: Health Cobenefits), University of Brescia (IT). *Modelling assessment of health (direct and indirect) co-benefits due to behavioral changes (soft mobility, animal protein intake)*
- 2006-2010 Team Co-Leader and WP Leader: QUITSAT, Italian Space Agency (I/035/06/0). *The project is devoted to Air Quality (AQ) monitoring, forecast and planning through the fusion of observations coming from polar and geostationary satellite sensors and ground-based data collected by DOAS spectrometry, multispectral solar radiometry, lidar techniques, chemical transport modeling, Integrated Assessment Modeling.*

Involvement in research projects entrusted to the University of Brescia

- 2023-2026 The Life Cycle Assessment (LCA), sustainability assessment, and integrated assessment of air quality impact in the Lombardy region of an innovative high-efficiency micro-cogeneration technology, MISE "Accordi per l'Innovazione" 2022 [peer reviewed]. Principal Investigator IVAR (IT).
- 2019-2022 Circular economy of organic waste (sludge): air quality, GHG emission, health impact assessment in Lombardy Region. Project FANGHI Innovation Hub. POR-FESR Regione Lombardia (IT). [peer reviewed]. Principal Investigator A2A (IT).
- 2018-2019 Surrogate models identification and validation based on CTM results, EC JRC n.C686554.X0. *Artificial intelligence techniques to identify source-receptor models for Europe as a component of an AQ Integrated Assessment Model.*
- 2014-2015 VALUTA (Assessing the impact and the economic value of the Lombardia Region Air Quality Plan), ARPA Lombardia (IT). *Modelling assessment of the air quality, GHG emissions, health impacts due to the implementation of the Lombardy Region Air Quality plan, ARPA Lombardia.*

2010-2011 Project leader: NINFA. Design of a modelling system to assess the emission reduction costs in Emilia Romagna, ARPA Emilia Romagna (IT) *Design of a modelling system to assess the emission reduction costs in Emilia Romagna, ARPA Emilia Romagna (IT)*

EDUCATION AND TRAINING

PhD degree in Information Engineering (EQF level 8) University of Brescia (Italy)

Laurea degree in Electrical Engineering (EQF level 7) Politecnico di Milano (Italy)

PERSONAL SKILLS AND COMPETENCES

Communication skills	Scientific presentations to large audiences. Science communication and dissemination to policy makers, stakeholders and general public. Course teaching. Author of several commentaries on various print media.
Organisational/managerial skills	Project management and capacity planning. Research planning. Management of working teams. Management of scientific communication and dissemination events. Organization of conferences and scientific committees. Project communication strategy management.
Technical skills and competences	Use of office and mathematical software suites. Development of optimization and forecasting algorithms and software. Design and implementation of decision support systems.

ADDITIONAL INFORMATION

Awards	- BASALTO project, Oscar Masi Award for Innovation, 2017 - OPERA LIFE09ENV/IT/092 project - Best Environmental Life projects Award 2015 (EC DG-ENV)
Publications	ORCID: https://orcid.org/0000-0001-8924-6469 SCOPUS: AU-ID 6602300389
Teaching	Bachelor and master degree courses (University of Brescia, IT): Dynamic system analysis and control, Modelling and simulation, Environmental system modeling and control, Decision theory and modeling.
PhD tutoring	Supervising PhD students in PhD programmes in Technology for Health and in Computer Science, Engineering and Control Systems at University of Brescia (IT)

Brescia, April 8 2024.

Marialuisa Volta