

**PERSONAL INFORMATION**

**Claudio Giardini**



📍 University of Bergamo,  
Department of Management, Information and Production Engineering  
Via Pasubio 7/b, 24044, Dalmine (BG)

☎ +39 035 2052305 📠 +39

✉ [claudio.giardini@unibg.it](mailto:claudio.giardini@unibg.it)

🌐 [State personal website\(s\)](#)

- Institutional web page:  
<https://unibg.unifind.cineca.it/individual?uri=http://irises.unibg.it/resource/person/1181>
- orcid: <https://orcid.org/0000-0001-5216-7951>
- linkedin: <https://www.linkedin.com/in/claudio-giardini-860b911>
- scopus: <https://www.scopus.com/authid/detail.uri?authorId=7006773020>
- SSD: IIND-04/A – Tecnologie e sistemi di lavorazione
- GSD: 09/IIND-04 – Tecnologie e sistemi di lavorazione

Sex Male | Date of birth 25/10/1960 | Nationality Italian

Enterprise	University	EPR
<input type="checkbox"/> Management Level	<input checked="" type="checkbox"/> Full professor	<input type="checkbox"/> Research Director and 1st level Technologist / First Researcher and 2nd level Technologist / Principal Investigator
<input type="checkbox"/> Mid-Management Level	<input type="checkbox"/> Associate Professor	<input type="checkbox"/> Level III Researcher and Technologist
<input type="checkbox"/> Employee / worker level	<input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator	<input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator

**WORK EXPERIENCE**

Oct. 1986 – Feb. 2001

Mar. 2001 – Oct. 2004

Nov. 2004 – Sept 2006

Oct. 2006 – today

**Researcher**

University of Brescia, Department of Mechanical Engineering

**Associate professor**

University of Brescia, Department of Mechanical Engineering

**Associate professor**

University of Bergamo, Department of Design and Technologies

**Full professor**

University of Bergamo, Department of Design and Technologies

University of Bergamo, Department of Management, Information and Production Engineering

Via Pasubio 7/b, 24044 Dalmine (BG), Italy

Fields of research:

- Manufacturing technologies.
- Discrete event simulation techniques applied in manufacturing and healthcare systems.
- Quality analysis and improvement of manufacturing systems.
- Development of modelling for optimization and forecasting (simulative, analytical and mathematical models) of manufacturing processes (plastic deformation, cutting, sheet and tube deformation, ...).
- Implementation of new process characteristics and performances with particular attention to metal material extrusion, selective laser melting, micro-electrical discharges machining, friction stir welding.
- Use of ANN and PSO in process optimization.

Business or sector:

- Technology and Manufacturing systems

He has held the following courses at Brescia University, Bergamo University, Polytechnic of Milan:

- Mechanical technologies
- Advanced manufacturing technologies
- Industrial quality management
- Industrial quality management II
- Non-conventional manufacturing processes
- Machine tools
- Manufacturing studies
- Management quality systems
- Quality improvement in healthcare
- Continuous improvement and quality management
- Integrated production systems
- Digital innovation management lab

He has held courses on Quality in the following masters:

- Industrial maintenance management
- Technologies and processes of the textile supply chain
- Hospital management
- Smart factory management
- School management

He has held courses on Design of Experiments in the doctoral courses:

- School of Engineering Science – UniBs
- Doctoral Research in Economics and Management of Technology (DREAMT) – Innovation and Technology Management Track – UniBg
- Technology, Innovation and Management (DTIM) – UniBg

## EDUCATION AND TRAINING

Oct. 1984

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### **Master degree in Mechanical Engineering**

University of Brescia

## RESEARCH ACTIVITIES

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### **Collaborations with research centres and groups**

- Collaboration with the WZL (Machine Tools and Production Engineering Laboratory) of the University of Aachen (Germany) directed by Prof. Klocke in the context of the research "Modelling of micro tribological contact in cold forming.
- Collaboration with the ERC-NSF (Engineering Research Center for Net Shape Manufacturing) of the University of Ohio (USA) directed by Prof. Altan.
- Collaboration with the CRF of Turin on the topic of hydroforming of sheets and tubes.
- Collaboration with Prof. Amodio and Callegari of the Polytechnic University of Marche in the context of a project to study sheet incremental forming.
- Collaboration with Prof. Ceretti of the University of Brescia.
- Collaboration with Prof. Filice of the University of Calabria.
- Collaboration with Prof. Micari and Prof. Fratini of the University of Palermo.
- Collaboration with the CRF of Trento on the topic of sheet incremental forming.

### **Participation in research projects**

- Participation in the project of national interest "Numerical models and tests for programming deformation processes", central coordinator Prof. Perotti of the Polytechnic of Turin.
- Participation in the project of national interest "Systems and models in plastic deformation processes", central coordinator Prof. Perotti of the Polytechnic of Turin.
- Participation in the project of national interest "Application of CAD techniques in the analysis of material flow in moulding operations" with central coordinator Prof. Perotti of the Polytechnic of Turin.
- Participation in the project of national interest "On the models of supply flow management in FMS" with central coordinator Prof. Noto La Diega of the University of Palermo.
- Participation in the project of national interest "Theoretical-experimental analysis of contact pressures in stamping operations" with central coordinator Prof. Alberti of the University of Palermo.
- Participation in the project of national interest "Management of supply flows in flexible systems"

with central coordinator Prof. Noto La Diega of the University of Palermo.

- Participation in the project of national interest "Models for the management of production systems under uncertainty" central coordinator Prof. Villa.
- Participation in the project of national interest "Improving the reliability of FEM simulation of mechanical processes through accurate models of material rheology and separation and fracture phenomena" central coordinator Prof. Bariani.
- Participation in the project of national interest "Quality in production measurements carried out with coordinate measuring machines" central coordinator Prof. Levi.
- Responsible for the CNR research 95.04109.CT11 entitled "Implementation of an adaptive control system in milling operations through analysis of vibrations induced on the workpiece table based on the use of neural networks".
- Local coordinator of the project "Study of the formability limits and optimization of the process in sheet metal hydroforming through simulation and experimental verification" within the project of national interest PRIN 2003 entitled "New aspects in the formability, design and simulation of the process for hydroforming technology" central coordinator Prof. Bariani.
- Participation in the project of national interest PRIN 2005 "High Temperature Processing of Aluminium and Magnesium Alloy Sheet Metal: Development of Tests and Models for the Evaluation of Friction (acronym "S.M.A.R.T.")" with central coordinator Prof. Bariani and local coordinator Brescia-Bergamo offices Prof. Ceretti.
- Local coordinator of the project of national interest PRIN 2008 "Definition of experimental tests for the identification of welding boundary conditions with development and implementation in the numerical field of welding models and experimental evaluation of the deformability of the extruded products obtained (project "EXTR-CHAIN")" with central coordinator Prof. Micari.
- Coordinator of the UNIBG branch of the project "Michelangelo" entitled: "Increase in the level of automation, self-diagnosis, precision and functional integration of Italian machine tools through artificial cognitive systems that perform perception/decision processes" within the financing interventions "Industria 2015" of the Ministry of Economic Development - Industry 2015 - New Technologies for Made in Italy.
- Participation to SLIM – Smart Living in Manufacturing, as part of the Action "Development of new collaboration agreements with universities for research, innovation and technology transfer", Program of interventions for the economic recovery of the Regione Lombardia.
- Participation to WATCHMAN - Workload-reduction mAchine vision-based TeChnology Hub for MANufacturing, funded by Regione Lombardia.
- Participation to SMART4CPPS - Smart solutions for Cyber-Physical Production systems, funded by Regione Lombardia.

## OTHER ACTIVITIES

### Other university roles and activities

- Participation in many concourse commissions for the roles of researcher, associate professor and full professor.
- Representative of the University (University of Bergamo) in the Board of Directors of the Spin Off "MD2", from September 2011 to February 2016.
- Chair of the Teaching Council of the Department of Engineering of the University of Bergamo, from December 2012 for the Academic Years 12/13, 13/14.
- Chair of the Board (Dean) of the School of Engineering of the University of Bergamo from January 2, 2015 to June 30, 2018 for the Academic Years 14/15, 15/16, 16/17, 17/18.
- Chair of the Quality Committee of the University of Bergamo from January 8, 2019 to November 15, 2021.
- Member of the Board of the CESC - Centre for Economic, Social and Cooperation Dynamics of the University of Bergamo for the Academic Years 21/22, 22/23, 23/24.
- Member of the board of the Engineering Laboratory centre of the University of Bergamo for the AA 22/23, 23/24, 24/25.
- TECO Delegate of the University for the A.A. 14/15.
- Member of the steering committee of the GTTS 1 "Systems for customized production" of the Intelligent Factory Cluster from September 2015 to October 2018.
- Member of the Disciplinary Board of the University of Bergamo from October 2025 to September 2028.
- Participation in the teaching board for the PhD Course in "Technology, Innovation and

Management" DTIM at the University of Bergamo, A.A. 17/18, 18/19, 19/20, 20/21, 21/22, 22/23, 23/24, 24/25, 25/26.

### Editorial activities

- Technical director for the journal "Stampi" edited by "Tecniche nuove".
- Referee for many Conferences and more than 20 Scientific Journals.

## ADDITIONAL INFORMATION

### Scientific publications

- Publications in peer-reviewed journals (SCOPUS): 98
- Publications at International Conferences (SCOPUS): 68
- Book chapters (SCOPUS): 9
- Editorials (SCOPUS): 2
- Citations (SCOPUS): 2.600+
- H-index (SCOPUS): 27

### Publications of the last 3 years

- Antonini L.; Manzoni V.; Giardini C.; Quarto M. - Applications of large language models to customer satisfaction survey for summarization and topic extraction in manufacturing - Results in engineering – DOI: 10.1016/j.rineng.2025.107178
- Locatelli G.; Quarto M.; D'Urso G.; Giardini C. - Addressing positional and laser source variability in laser powder bed fusion: a mapping method for quality optimization - 2025 - International Journal of Advanced Manufacturing Technology - DOI: 10.1007/s00170-025-16196-1
- Cappellini C.; D'Urso G.; Giardini C. - Multi-Step Tool Paths Development for Reducing Geometric Deviation and Pillow Effect in the Single-Point Incremental Forming - 2025 - Journal of Manufacturing Science and Engineering - DOI: 10.1115/1.4068238
- Quarto M.; Cappellini C.; Giardini C.; D'Urso G. - A novel deposition strategy to reduce porosity and enhance density in material extrusion production - 2025 - Progress in Additive Manufacturing, Springer Science and Business Media Deutschland GmbH - DOI: 10.1007/s40964-024-00694-x
- Bocchi S.; D'Urso G.; Giardini C. - Enhancing Sustainability in Aluminum Recycling: Investigating the Energy Efficiency of Friction Stir Extrusion versus Traditional Hot Extrusion - 2025 - Journal of Materials Engineering and Performance, Springer - DOI: 10.1007/s11665-025-11434-9
- Cappellini C.; Giardini C.; Bocchi S. - SPIF accuracy improvement by FEM analysis of multi-step tool trajectories with experimental validation - 2025 - Materials Research Proceedings, Association of American Publishers - DOI: 10.21741/9781644903551-9
- Quarto M.; Bocchi S.; Giardini C. - Multi-ANN approach for forecasting joint hardness and process variability in the friction stir welding process of AA2024-T3 - 2025 - International Journal of Advanced Manufacturing Technology, Springer Science and Business Media Deutschland GmbH - DOI: 10.1007/s00170-024-14981-y
- Sala F.; D'Urso G.D.; Giardini C. - Evaluation of the Integration of Topological Optimisation in the Process Chain for Manufacturing Customised Orthopaedic Devices via Additive Manufacturing - 2024 - Prosthesis, Multidisciplinary Digital Publishing Institute (MDPI) - DOI: 10.3390/prosthesis6060109
- Bocchi S.; Zambelli M.; D'Urso G.; Giardini C. - Efficiency and Microstructural Forecasts in Friction Stir Extrusion Compared to Traditional Hot Extrusion of AA6061 - 2024 - Journal of Manufacturing and Materials Processing, Multidisciplinary Digital Publishing Institute (MDPI) - DOI: 10.3390/jmmp8040172
- Locatelli G.; Quarto M.; D'Urso G.; Giardini C. - Geometric Benchmarking of Metal Material Extrusion Technology: A Preliminary Study - 2024 - Applied Sciences (Switzerland), Multidisciplinary Digital Publishing Institute (MDPI) - DOI: 10.3390/app14146229
- Bocchi S.; Quarto M.; D'Urso G.; Giardini C. - A comparative analysis of forecasting surface hardness in various aluminum friction stir welded joints: FEM-ANN hybrid versus ANN-PSO-integrated approaches - 2024 - International Journal of Advanced Manufacturing Technology, Springer Science and Business Media Deutschland GmbH - DOI: 10.1007/s00170-024-13770-

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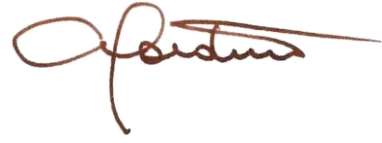
- Bocchi S.; D'Urso G.; Giardini C. - Simulative Model for the Feasibility Study and Stress Analysis of Full Dense Rods and Pipes Produced by Friction Stir Extrusion - 2024 - Lecture Notes in Mechanical Engineering, Springer Science and Business Media Deutschland GmbH - DOI: 10.1007/978-3-031-41023-9\_41
- Bocchi S.; Negozio M.; Giardini C.; Donati L. - Prediction of the microstructure evolution during the friction stir extrusion of a AA6061 aluminum alloy - 2024 - Materials Research Proceedings, Association of American Publishers - DOI: 10.21741/9781644903131-75
- Bocchi S.; D'Urso G.; Giardini C. - Influence of copper interlayer on the mechanical performance of friction stir welded AA2024 - 2024 - International Journal of Advanced Manufacturing Technology, Springer Science and Business Media Deutschland GmbH - DOI: 10.1007/s00170-024-14106-5
- Cappellini C.; Giardini C.; Bocchi S. - A multi-objective optimization workflow of ring-rolling process parameters based on production energy and time - 2024 - Procedia CIRP, Elsevier B.V. - DOI: 10.1016/j.procir.2024.01.095
- Bocchi S.; D'Urso G.; Giardini C.; Carminati M.; Borriello C.; Tammaro L.; Galvagno S. - Reuse of green parts for metal material extrusion: A recycling approach for improved sustainability - 2024 - Journal of Cleaner Production, Elsevier Ltd - DOI: 10.1016/j.jclepro.2023.140165
- Quarto M.; Bocchi S.; Giardini C.; D'Urso G. - An ANN based approach for the friction stir welding process intrinsic uncertainty - 2023 - Materials Research Proceedings, Association of American Publishers - DOI: 10.21741/9781644902479-117
- Bocchi S.; D'Urso G.; Giardini C. - Preliminary study of the mechanical characteristics implementation of friction stir welded AA2024 joints by adding pure copper - 2023 - Materials Research Proceedings, Association of American Publishers - DOI: 10.21741/9781644902417-27
- Quarto M.; Giardini C. - Additive manufacturing of metal filament: when it can replace metal injection moulding - 2023 - Progress in Additive Manufacturing, Springer Science and Business Media Deutschland GmbH - DOI: 10.1007/s40964-022-00348-w
- Bocchi S.; D'Urso G.; Giardini C. - Numerical Modeling of a Sustainable Solid-State Recycling of Aluminum Scraps by Means of Friction Stir Extrusion Process - 2023 - Materials, MDPI - DOI: 10.3390/ma16124375
- Sala F.; Quarto M.; D'Urso G.; Giardini C. - Preliminary evaluation of an additive manufacturing procedure for producing patient-specific upper-limb orthotic devices - 2023 - Materials Research Proceedings, Association of American Publishers - DOI: 10.21741/9781644902714-13
- Bocchi S.; Cappellini C.; D'Urso G.; Giardini C. - Feasibility study and stress analysis of friction stir extruded rods and pipes: a simulative model - 2023 - Materials Research Proceedings, Association of American Publishers - DOI: 10.21741/9781644902714-50
- Quarto M.; Bocchi S.; D'Urso G.; Giardini C. - Multiresponse optimization of friction stir welding by an integrated ANN-PSO approach - 2023 - Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture, SAGE Publications Ltd - DOI: 10.1177/09544054221138143
- Ginestra P.; Quarto M.; Abeni A.; Attanasio A.; Ceretti E.; D'Urso G.; Giardini C. - Novel methodology for burr extension estimation on machined SLM surfaces - 2023 - Materials Research Proceedings, Association of American Publishers - DOI: 10.21741/9781644902479-143
- Sala F.; D'Urso G.; Giardini C. - Customized Wrist Immobilization Splints Produced via Additive Manufacturing—A Comprehensive Evaluation of the Viable Configurations - 2023 - Prosthesis, Multidisciplinary Digital Publishing Institute (MDPI) - DOI: 10.3390/prosthesis5030056
- Carminati M.; D'Urso G.; Giardini C. - The enhancement of mechanical properties via post-heat treatments of AISI 630 parts printed with material extrusion - 2023 - Progress in Additive Manufacturing, Springer Science and Business Media Deutschland GmbH - DOI: 10.1007/s40964-023-00401-2
- Sala F.; D'Urso G.; Giardini C. - Discrete-event simulation study of a COVID-19 mass vaccination centre - 2023 - International Journal of Medical Informatics, Elsevier Ireland Ltd - DOI: 10.1016/j.ijmedinf.2022.104940

*According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV*

Replace with First name(s) Surname(s)

Dalmine, 24/11/2025

Prof. Claudio Giardini

A handwritten signature in brown ink, appearing to read 'Giardini', with a long horizontal stroke extending to the right.