Personal information

Name / Surname	**Bruno Carpentieri**
Affiliation	Free University of Bozen-Bolzano, Bolzano, Italy
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Research interests

High-Performance Scientific Computing
Numerical Linear Algebra
Krylov Subspace Methods
Scientific Machine Learning
Computational Electromagnetics

Professional Experience

Period	May 2017 - Present
Position and Title	Associate Professor in Numerical Analysis
Activities and Responsibilities	Research, teaching, supervision
Organization	Free University of Bozen-Bolzano (Italy) - Faculty of Engineering (formerly Faculty of Computer Science), Bolzano, Italy
Position Type	Academic
Period	April 2016 - April 2017
Position and Title	Reader in Applied Mathematics
Activities and Responsibilities	Research, teaching, supervision
Organization	Nottingham Trent University - College of Arts and Science, Nottingham, UK
Position Type	Academic
Period	January 2010 - January 2016
Position and Title	Assistant Professor
Activities and Responsibilities	Research, teaching, supervision
Organization	University of Groningen - Faculty of Mathematics and Natural Sciences - Johann Bernoulli Institute of Mathematics and Computing Science, Groningen, The Netherlands
Position Type	Academic
Period	August 2008 - December 2009
Position and Title	Consultant for a European project
Activities and Responsibilities	Research and development within the European project (No. 224381) preDiCT: The Road to Real-Time Cardiac Simulations on the Next-Generation Computing Systems
Organization	CRS4 Bioinformatics Laboratory, Pula, Italy
Result	Development of parallel numerical methods to be integrated into the cardiac simulator Chaste developed by the University of Oxford. Collaboration with the University of Oxford, the University of Valencia, Fujitsu, and pharmaceutical companies AUREUS Pharma, NOVARTIS, and ROCHE.
Position Type	Research and development
Period	January 2005 - July 2008
Position and Title	Post-doctoral Researcher Fellow

Activities and Responsibilities	Research and teaching
Organization	Karl-Franzens University of Graz, Institut of Mathematics and Scientific Computing, Graz, Austria
Result	Development of numerical methods for the Navier-Stokes equations in Fluid Dynamics. Collaboration with the University of Glasgow and the University of Basilicata
Position Type	Academic
Period	January 2003 - December 2004
Position and Title	Post-doctoral Researcher Fellow
Activities and Responsibilities	Research and development
Organization	CERFACS, Toulouse, France
Result	Development of numerical methods for Maxwell's equations in Computational Electromagnetics to be integrated into the industrial code AS_ELFIP. Collaboration with EADS.
Position Type	Academic
Period	January 2002 - December 2002
Position and Title	Research Assistant
Activities and Responsibilities	Research
Organization	Università di Bari, Dipartimento di Matematica, Bari, Italy
Position Type	Academic
Period	October 1998 - December 2001
Position and Title	PhD Student
Activities and Responsibilities	Research aimed at obtaining a Ph.D. degree
Organization	CERFACS, Toulouse, France
Result	Development of numerical methods for Maxwell's equations in Computational Electromagnetics. Collaboration with EADS.
Position Type	Academic

Education and training

Dates	22 September 2011
Title of qualification awarded	University Teaching Qualification in Higher Education
Description	Certificate recognized by all Universities in the Netherlands, demonstrating competences in teaching practice
Organization providing education and training	University of Groningen, The Netherlands.
Dates	23 April 2002
Title of qualification awarded	Ph.D. degree
Principal subjects	Title: Sparse preconditioners for dense linear systems from electromagnetic applications. Keywords: Krylov subspace methods, preconditioning techniques, sparse approximate inverse, Frobenius-norm minimization method, nonzero pattern selection strategies, electromagnetic scattering applications, boundary element method, fast multipole method
Organization providing education and training	Institut National Polytechnique de Toulouse, France
Classification	Highest grade: Léopold Escande award for the best thesis of the Institut National Politechnique of Toulouse in Computer Science of 2002.
Dates	21 March 1997
Title of qualification awarded	Laurea in Mathematics (equivalent of M.Sc.)

Principal subjects

Title: Numerical treatment of bifurcation problems. Keywords: Bifurcation, continuation techniques, nonlinear algebraic equations, Runge-Kutta methods for ordinary differential equations.

Organization providing education and training

University of Bari, Italy

Classification

Highest grade: Summa cum laude.

Bibliometrics

Google Scholar (02/02/2026): 2,100 citations; h-index 24; i10-index 46

Scopus (02/02/2026): 133 documents; 1,267 citations; h-index 19

Books: 11 total (1 Author, 1 Editor, 9 Associate Editor)

Grant Support (PI, Last 5 Years)

Title: High Performance Computing infrastructure for Numerical Analysis of Metal Additive Manufacturing Systems Using Artificial Intelligence. Acronym: AI4AM. Project type: ERDF 2021-2027. Funding body: Autonomous Province of Bolzano/Bozen. Period: 01/01/2025 - 31/12/2027. Budget: €657.606,32. Role: Principal Investigator.

Title: Fast $\mathcal{H}^2$-matrix arithmetic based solvers for thermonuclear energy research. Acronym: FH2ASTER. Project type: 4th call for Research. Funding body: Autonomous Province of Bolzano/Bozen. Period: 01/10/2020 - 31/12/2023. Budget: €166.877. Role: Principal Investigator.

Title: Prediction of microstructure and mechanical properties of additively manufactured medical products by finite element modelling of laser powder bed fusion processes. Acronym: PREDICT. Project type: Mobility. Funding body: Autonomous Province of Bolzano/Bozen. Period: 01/01/2023 - 31/12/2024. Budget: €176.400. Role: Principal Investigator.

Title: Simulations in additive manufacturing using finite element method. Acronym: HiTech Manufacturing. Project type: Seal of Excellence. Funding body: Autonomous Province of Bolzano/Bozen. Period: 01/01/2021 - 31/12/2022. Budget: €151.319 Role: Principal Investigator.

Title: Integrating physics-based and data-driven modelling for efficient process parameters, material design and optimisation in additive manufacturing for Industry 4.0. Acronym: SmartPrint. Project type: Internal CRC call. Funding body: Free University of Bozen-Bolzano (Italy). Period: 15/12/2021 - 14/12/2024. Budget: €75.293. Role: Principal Investigator.

Title: Innovative matrix solvers for large-scale web ranking applications. Acronym: PRAGA. Project type: Start-up fund. Funding body: Free University of Bozen-Bolzano (Italy). Period: 01/02/2018 - 31/07/2021. Budget: €50.000. Role: Principal Investigator.

Title: Innovative matrix methods for large linear systems. Acronym: MathSys. Project type: Ubbo Emmius scholarship. Funding body: University of Groningen. Period: 01/06/2013 - 30/06/2017. Budget: €120.000. Role: Principal Investigator.

Teaching in Academics

Undergraduate and graduate teaching in Linear Algebra and Computational Mathematics, with continuous responsibility for core courses since 2019.

At the Faculty of Computer Science (and since March 2023 at the Faculty of Engineering), Free University of Bozen-Bolzano (Italy):

- Linear Algebra: 2019/2020, 2020/2021,2021/2022,2022/2023,2023/2024,2024/2025,2025/ Term I.
- Computational Mathematics: 2019/2020 Term II, 2022/2023, 2023/2024, 2024/2025, 2025/2026 Term I.
- Introduction to Linear Algebra and Discrete Mathematics: 2019/2020, 2020/2021, 2021/2022, 2022/2023, 2023/2024, 2024/2025, 2025/2026 Term I.
- Preparatory Course in Mathematics: 2019/2020, 2020/2021, and 2021/2022 Term I.

Supervision

Supervised 7 Ph.D. students, 21 Bachelor's theses, 2 Master's theses, 5 postdoctoral researchers, and 3 assistant professors.

Computer skills and competences

Programming	C/C++, Fortran, MATLAB, R, Python; OpenMP, MPI
Scientific computing	Numerical linear algebra, large-scale solvers, HPC
Libraries	BLAS, LAPACK, PETSc, HSL, SuperLU, MUMPS
Architectures	Shared- and distributed-memory HPC systems

Professional service

Editorial roles

Editorial Board Member of the journals: Journal of Applied Mathematics, The Scientific World Journal (Mathematical Analysis), The Open Information Systems Journal. Editorial Committee Member of Mathematical Reviews (American Mathematical Society).

PhD & Habilitation jury service

Jury member for the Ph.D. thesis of Seyed Shayan Sajjadinia, Rafiq Usman, Giovanni Gravina (May 2022), Victor Magri (November 2018), Muhamad Younas (February 2012), Ivan Vujacic (July 2014), Jia Liao (November 2015).

Jury member for the Habilitation thesis of Dr. Roland Griesse e of Dr. Boris Vexler (June 2008).

Conference service

Program Committee / Scientific Board member of the following conferences: ENUMATH'07 (Graz, 2007), Beteq'09 (Athens, 2009), Beteq'08 (Seville, 9-11th July 2008), Beteq'07 (Naple, 24-26th July2007), CEM'11 (Izmir, 2011), CEM'13 (Izmir, 2013), CEM'15 (Izmir, 2015), CEM'17 (Barcelona, 2017), CEM'18 (Stellenbosch, 2018), HPC2014 (Tampa, Florida, 2014), HPC2015 (Alexandria, Virginia, 2015), HPC2016 (Pasadena, California, 2016), HPC2017 (Virginia Beach, Virginia, 2017), HPC2018 (Baltimore, MD, USA), HPC2019 (Tucson, AZ, USA), ICBCB 2017 (Hong Kong, 2017), HPC/SmartTechCon2017 (Bengaluru, India, 2017), the 2022 International Conference on Computer, Big Data and Artificial Intelligence ICCBDAI 2022 (Huaihua, China, 2022); review team member of CSAE2019 (Sanya, China, 2019), MLIS 2019 (National Dong Hwa University, Taiwan, 2019), ANNSIM 2021 (George Mason University, VA, USA, 2021), ACES2021 (Online-Live, 2021), MMBD 2021 (Quanzhou, China, 2021), Elsevier International Conference on Computational Intelligence and Data Science (Dehradun, India, April 2022), 8th International Conference on Fuzzy Systems and Data Mining (FSDM 2022, Xiamen, China, 2022), 12th International Conference on Electronics, Communications and Networks (CECNet2022, Xiamen, China, 2022, Elsevier International Conference on Machine Learning and Data Engineering (ICMLDE2022, Dehradun, India, 2022, 7-8 September 2022), Elsevier International Conference on Machine Learning and Data Engineering (ICMLDE2022, Dehradun, India, 2023, 23-24 November 2023), ICMLDE2024 (28th-29th November 2024 Dehradun, India), IOCFF2026 (1st International Online Conference on Fractal and Fractional, 13-15 April 2026, online).

Evaluation and reviewing

Reviewer for the following scientific journals (in alphabetical order): Advances in Materials Science and Engineering, Advances in Engineering Software, Applied Computational Electromagnetics Society (ACES) Journal, Applied Mathematics and Computation, Applied Mathematics Letters, Applied Mathematical Modelling, Applied Numerical Mathematics, Applied Computational Electromagnetics Society Journal, BIT Numerical Mathematics, Computational Mechanics, Computers & Structures, Computer Methods in Applied Mechanics and Engineering, Computer Modeling in Engineering and Sciences, Computer Physics Communications, Computing, IEEE Access,IEEE Antennas and Wireless Propagation Letters, IEEE Transactions on Parallel and Distributed Systems, International Journal of Antennas and Propagation, International Journal of Computer Mathematics, International Journal of RF and Microwave Computer-Aided Engineering, Journal of Computational Physics, Journal of Electromagnetic Waves and Applications, Journal of Engineering Mathematics, Journal of Systems and Software, Mathematical and Computational Applications, Lecture Notes in Computer Science, Mathematics and Computers in Simulation, Mathematical and Computer Modelling, Mathematical Modelling and Analysis, Mathematical Problems in Engineering, Mathematical Reviews, NDT and E International, Numerical Linear Algebra with Applications, Parallel Computing, Progress In Electromagnetics Research, Radio Science, Scientific Report, SIAM Journal of Scientific Computing, SIMAI Communications in Applied and Industrial Mathematics, Stat, The International Journal for Computation and Mathematics in Electrical and Electronic Engineering, Turkish Journal of Electrical Engineering and Computer Sciences.

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Reviewer of book proposals for Wiley, and of project proposals for King Fahd University of Petroleum & Minerals (KFUPM), Irish Research Council, (IRC), Dutch Research Council (NWO).

Institutional service

Quality Assurance Coordinator for the Faculty of Engineering (2026-present), Free University of Bozen-Bolzano, Italy.

Quality Assurance Coordinator for the PhD Program in Computer Science (2025-present), Free University of Bozen-Bolzano, Italy

Faculty Member of the Quality Committee (2021-2024), Free University of Bozen-Bolzano, Italy.

Coordinator of the Joint Teaching Staff-Student Committees for the Faculties of Computer Science and Engineering (2019-2024), Free University of Bozen-Bolzano (Italy).

Coordinator of the research activities of the “IDSE Center for Information and Database Systems Engineering”, the Free University of Bozen-Bolzano (Italy) (2019-20).

Awards

2023 Teaching award - Best Teacher 2023. Faculty of Engineering. Free University of Bozen-Bolzano (Italy).

2018 Teaching award - Best Teacher 2017. Faculty of Computer Science. Free University of Bozen-Bolzano (Italy).

2013 Teaching award - Supervision of Best Propedeutic Project. Faculty of Mathematics and Physics. University of Groningen.

2013 Teaching award - Nomination for the Teaching of the Year Election in Mathematics. Faculty of Mathematics and Physics. University of Groningen.

2009 Conference award - 2nd prize for outstanding research paper at the 11th Chinese Computational Mathematics Annual Meeting, Guiyang, China, July 20-23, 2009.

2006 Conference award - Best mathematical presentations at the IABEM’06 conference, 10-12 July 2006.

2003 Léopold Escande - Best thesis of the Institut National Politechnique de Toulouse in Computer Science of 2002.

1997 Summa cum laude - B. S. mention, University of Bari.

1988 Alfiere del Lavoro - Presidential award for performance excellence study.

1988 Rotary award - Performance excellence study.

Languages

	Listening	Reading	Spoken	Writing
English	Very good	Very good	Very good	Very good
French	Very good	Very good	Very good	Good
German	Basic	Basic	Basic	Basic
Dutch	Basic	Basic	Basic	Basic