Martina **Iannacito** | Curriculum Vitae

Ph.D. in Applied Mathematics and Scientific Computing from the University of Bordeaux
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Research activities

Alma Mater Studiorum - University of Bologna **Italy**
Postdoctoral researcher at the Mathematics Department *April 2024 - present*
Member of V. Simoncini's research group
Keywords: matrix equation solver, tensor decomposition algorithms, randomization methods

Katholieke Universiteit Leuven **Belgium**
Postdoctoral researcher at the Science, Engineering and Technology Faculty *May 2023 - March 2024*
Member of L. De Lathauwer's research group
Keywords: blind source separation, algebraic algorithms, canonical polyadic tensor decomposition

Inria Center at the University of Bordeaux **France**
Ph.D. student *October 2019 - December 2022*
Member of the Concace and HiePACS team
Keywords: inexactness in iterative solvers, low-rank tensor approximations, data analysis

University of Trento **Italy**
Master's student *January 2019 - July 2019*
Member of the Mathematics Department
Keywords: tensor compression, hyperspectral images, remote sensing, biodiversity estimate

Education

Inria Center at the University of Bordeaux **France**
Ph.D. in Applied Mathematics and Scientific Computing *October 2019 - December 2022*
Thesis supervised by O. Coulaud and L. Giraud
Defence date December 9, 2022

University of Trento **Italy**
Master's Degree in Applied Mathematics for Life and Data Science *December 2017 - July 2019*
Thesis supervised by A. Bernardi and D. Rocchini
Defence date July 17, 2019, Summa Cum Laude

University of Parma **Italy**
Bachelor's Degree in Mathematics *October 2014 - December 2017*
Thesis supervised by A. Bandini
Defence date December 14, 2017, Summa Cum Laude

Scientific High School G. Aselli **Italy**
Maturity diploma *September 2009 - July 2014*
Defence date July 4, 2014, Summa Cum Laude

Publications

Thesis

[T2] M. Iannacito. (Dec 2022). "Numerical linear algebra and data analysis in large dimensions using tensor format". PhD thesis. Inria Center at the University of Bordeaux, France. URL: theses.fr/s349733

[T1] M. Iannacito. (Jul 2019). "HOSVD for multispectral images. A numerical approach to the plant biodiversity estimate." Master's thesis. University of Trento, Italy. URL: webapps.unitn.it/Biblioteca/it/Web/RichiestaConsultazioneTesi/365719

International journals

Authors alphabetically ordered

[J8*] Coulaud, O., L. Giraud, M. Iannacito, and M. Issa (2026). "Solving eigenvalue problems in high dimensions using contour integration and Tensor Train format". In: *SIAM Journal on Scientific Computing*. In press. URL: inria.hal.science/hal-05017425v2.

[J7*] Coulaud, O., L. Giraud, and M. Iannacito (2025). "On some orthogonalization schemes in Tensor Train format". In: *BIT Numerical Mathematics* 65.4, p. 45. DOI: 10.1007/s10543-025-01086-5.

[J6] Palitta, D., M. Iannacito, and V. Simoncini (2025). "A Subspace–Conjugate Gradient Method for Linear Matrix Equations". In: *SIAM Journal on Matrix Analysis and Applications* 46.4, pp. 2197–2225. DOI: 10.1137/25M1723402.

[J5*] Coulaud, O., L. Giraud, and M. Iannacito (Jan. 2025). "A note on TT-GMRES for the solution of parametric linear systems". In: *Electronic Transactions on Numerical Analysis* 62, pp. 163–187. DOI: 10.1553/etna_vol62s163.

[J4*] Bernardi, A., M. Iannacito, and D. Rocchini (Dec. 2021). "High order singular value decomposition for plant diversity estimation". In: *Bollettino dell'Unione Matematica Italiana* 14.4, pp. 557–591. DOI: 10.1007/s40574-021-00300-w.

[J3] Thouverai, E., M. Marcantonio, G. Bacaro, D. Da Re, M. Iannacito, E. Marchetto, C. Ricotta, C. Tattoni, S. Vicario, and D. Rocchini (Apr. 2021). "Measuring diversity from space: a global view of the free and open source rasterdiv R package under a coding perspective". In: *Community Ecology* 22.1, pp. 1–11. DOI: 10.1007/s42974-021-00042-x.

[J2] Rocchini, D., E. Thouverai, M. Marcantonio, M. Iannacito, D. Da Re, M. Torresani, G. Bacaro, M. Bazzichetto, A. Bernardi, G. M. Foody, R. Furrer, D. Kleijn, S. Larsen, J. Lenoir, M. Malavasi, E. Marchetto, F. Messori, A. Monkeywordhi, V. Moudrý, B. Naimi, C. Ricotta, M. Rossini, F. Santi, M. J. Santos, M. E. Schaepman, F. D. Schneider, L. Schuh, S. Silvestri, P. Šímová, A. K. Skidmore, C. Tattoni, E. Tordoni, S. Vicario, P. Zannini, and M. Wegmann (Feb. 2021). "rasterdiv—An Information Theory tailored R package for measuring ecosystem heterogeneity from space: To the origin and back". In: *Methods in Ecology and Evolution* 12.6, pp. 1093–1102. DOI: 10.1111/2041-210X.13583.

[J1] Rocchini, D., M. Marcantonio, D. Da Re, G. Bacaro, E. Feoli, G. M. Foody, R. Furrer, R. J. Harrigan, D. Kleijn, M. Iannacito, J. Lenoir, M. Lin, M. Malavasi, E. Marchetto, R. S.

Meyer, V. Moudry, F. D. Schneider, P. Šímová, A. H. Thornhill, E. Thouverai, S. Vicario, R. K. Wayne, and C. Ricotta (Mar. 2021). "From zero to infinity: Minimum to maximum diversity of the planet by spatio-parametric Rao's quadratic entropy". In: *Global Ecology and Biogeography* 30.5, pp. 1153–1162. DOI: 10.1111/geb.13270.

Preprints

**Authors alphabetically ordered*

[RR2*] Agullo, E., O. Coulaud, L. Giraud, M. Iannacito, G. Marait, and N. Schenkels (Sep. 2022). *The backward stable variants of GMRES in variable accuracy*. Tech. rep. RR-9483. Inria, p. 1-77. URL: https://hal.science/hal-03776837.

[RR1*] Coulaud, O., A. Franc, and M. Iannacito (Nov. 2021). *Extension of Correspondence Analysis to multiway data-sets through High Order SVD: a geometric framework*. Tech rep. RR-9429. Inria Bordeaux - Sud-Ouest; Inrae, p. 24. URL: https://hal.science/hal-03418404.

Conferences and workshop talks

[S9] Iannacito, M., D. Palitta, and V. Simoncini (Jan. 2026). "A Subspace–Conjugate Gradient method for linear matrix equations". In: *11th Workshop on Matrix Equations and Tensor Techniques*. Org. by P. Benner, H. Faßbender, L. Grasedyck, D. Kressner, B. Meini, V. Simoncini, L. De Lathauwer. Leuven, Belgium.

[S9] Iannacito, M., D. Palitta, and S. Portaro (Oct. 2025). "A practical, fully parallel implementation of the (H-)Tucker decomposition via randomization". In: *Workshop on Approximate Computing in Numerical Linear Algebra*. Org. by A. Buttari, F. Jézéquel, and T. Mary. Paris, France.

[S8] Iannacito, M., D. Palitta, and V. Simoncini (Sep. 2025). "A Subspace–Conjugate Gradient method for linear matrix equations". In: *Low-rank Structures and Numerical Methods in Matrix and Tensor Computations*. Org. by M. Benzi, B. Meini, V. Simoncini, F. Durastante, C. Pagliantini, and D. Palitta. Cortona, Italy.

[S7] Iannacito, M., O. Coulaud, and L. Giraud (May 2024). "Orthogonalization schemes in tensor train format". In: *Approximate Computing Techniques for Orthogonalization Processes*. Org. by B. Vieublé and O. Balabanov. Paris, France: SIAM Conference on Applied Linear Algebra.

[S6] Iannacito, M., L. De Lathauwer, and I. Domanov (Sep. 2023). "An algebraic algorithm for blind source separation and tensor decomposition". In: *Matrix Equations and Tensor Techniques X*. Org. by P. Benner, H. Faßbender, L. Grasedyck, D. Kressner, B. Meini, and V. Simoncini. Aachen, Germany.

[S5] Iannacito, M., L. De Lathauwer, and I. Domanov (Aug. 2023). "An algebraic algorithm for blind source separation and tensor decomposition". In: *New Directions in Applied Linear Algebra*. Org. by J. Cockayne, J. Pearson, J. Pestana, D. Silvester, and V. Simoncini. Banff, Canada: Banff International Research Station.

[S4] Iannacito, M., O. Coulaud, and L. Giraud (Jul. 2023). "On Some Orthogonalization Schemes in Tensor Train Format". In: *Geometry in Optimization and Numerical (Multi)Linear*

Algebra. Org. by U. Konstantin and Y. Qi. Eindhoven / Hybrid, Netherlands: SIAM Conference on Applied Algebraic Geometry.

[S3] Iannacito, M., O. Coulaud, and L. Giraud (Jun. 2023). "Orthogonalization schemes in Tensor Train format". In: *Approximate computing in numerical linear algebra*. Org. by N. Higham, X. Liu, and B. Vieublé. University of Strathclyde Glasgow. Glasgow, United Kingdom: 29th Biennial Conference on Numerical Analysis.

[S2] Iannacito, M., O. Coulaud, and A. Franc (Sep. 2022). "Extension of Correspondence Analysis to multiway data-sets through HOSVD: a geometric framework". In: *Tensor Decompositions for Data Science*. Org. by R. Minster and N. Vannieuwenhoven. San Diego / Hybrid, United States: SIAM Conference on Mathematics of Data Science.

[S1] Iannacito, M., E. Agullo, O. Coulaud, L. Giraud, G. Marait, and N. Schenkels (Sep. 2022). "GMRES in variable accuracy: a case study in low rank tensor linear systems". In: *GAMM - Workshop on Applied and Numerical Linear Algebra 2022*. Org. by E. Carson, I. Hnětynková, S. Pozza, P. Tichý, and M. Tůma. Prague, Czech Republic.

Seminars

[S9] Iannacito, M. (Jan. 2026). "A Subspace–Conjugate Gradient Method for Linear Matrix Equations". In: Multilinear Models for Control and Diagnosis of Energy Systems team. Hamburg, Germany: HAW Hamburg.

[S8] Iannacito, M. (Dec. 2024). "Tensor Train: description and applications". In: Course of Matrix and Tensor methods for Data Science. Bologna, Italy: Department of Mathematics, Alma Mater Studiorum - University of Bologna.

[S7] Iannacito, M. (Apr. 2024). "Potential and applications of tensor-based algorithms". In: Scube. Bologna, Italy: Department of Mathematics, Alma Mater Studiorum - University of Bologna.

[S6] Iannacito, M. (Dec. 2023). "Tensor-based algorithms: applications and challenges". In: Algorithmes Parallèles et Optimisation team. Toulouse, France: ENSEEIHT.

[S5] Iannacito, M. (Nov. 2023). "Introduzione ai tensori: dalle applicazioni alle sfide contemporanee". In: Pisan Young Seminars in Applied and NUmerical Mathematics. Pisa, Italy: Department of Mathematics, University of Pisa.

[S4] Iannacito, M. (Nov. 2023). "Discovering tensors: their challenges and applications". In: TensorDay 2023. Trento, Italy: Department of Mathematics, University of Trento.

[S3] Iannacito, M., L. De Lathauwer, and I. Domanov (Oct. 2023). "From blind source separation to tensor decomposition: an algebraic algorithm". In: NUMA seminars. Leuven, Belgium: Department of Computer science, KU Leuven.

[S2] Iannacito, M., O. Coulaud, and L. Giraud (Feb. 2022). "Solving linear systems in high dimension with TT-GMRES". In: Working group on tensors. Bordeaux, France: Inria Center at the University of Bordeaux.

[S1] Iannacito, M., O. Coulaud, and A. Franc (May 2020). "Malabar dataset: data analysis in tensor format". In: Working group on tensors. Bordeaux, France: Inria center at the University of Bordeaux.

Teaching activities

Alma Mater Studiorum - University of Bologna **Italy**
Adjunct lecturer, 5 hours *November 2025*
Master's Degree in Mathematics
Matrix and Tensor Techniques for Data Science

Alma Mater Studiorum - University of Bologna **Italy**
Adjunct lecturer, 15 hours *February 2025 - May 2025*
Bachelor's Degree in Mathematics
Computational Mathematics: Matrix methods for Data Science

Alma Mater Studiorum - University of Bologna **Italy**
Tutor, 20 hours *December 2025 - June 2025*
Bachelor's Degree in Architecture
Principles of Mathematics II

KU Leuven - Bruges **Belgium**
Adjunct lecturer, 6 hours *January 2024 - March 2024*
Master's Degree of AI in Business and Industry
Applied AI: Academic Perspectives, AI & Tensors

ENSEIRB-MatMeca **France**
Adjunct lecturer, 47 hours *March 2021 - May 2022*
Engineering Degree in Computer Science
Numerical Algorithms

University of Trento **Italy**
Tutor, 50 hours *January 2019 - June 2019*
Master's Degree in Data Science
Statistical Learning: Statistical Models

Related activities

Una Europa Virtual Exchanges for Sustainability Erasmus+ **University of Bologna**
Moderator *October 2025 - December 2025*

Final Education Project **ENSEIRB Bordeaux**
External jury member *September 2022*

Master's students supervision

Kobe Sauwens **KU Leuven**
Master's Degree in Mathematical Engineering *September 2023 - March 2024*
Thesis supervised by L. De Lathauwer and V. Rijmen
"Exploration of Polyadic Tensor Decomposition as a tool for public key cryptography"

Andreas Devogel **KU Leuven**
Master's Degree in Mathematical Engineering *September 2023 - March 2024*

Thesis supervised by L. De Lathauwer
"Algebraic algorithms for tensor-based signal separation "

Bachelor students supervision

Margherita Todesco — **University of Bologna**
Bachelor's Degree in Mathematics — *December 2024 - July 2025*
Thesis supervised by V. Simoncini
"HOSVD: analysis and implementation"

Internship students supervision

Léo Bertheas — **ENSEEIHT Toulouse**
Electrical and Electronics Engineering Degree — *June 2021 - August 2021*
2nd year stage supervised by O. Coulaud, L. Giraud, and J. R. Poirier
"Solving the heat equation in Tensor Train format"

Research visiting

Invited postdoctoral visiting — **Hamburg**
Department of Biomedical Engineering, HAW Hamburg — *January 2026*
Invited by G. Lichtenberg

Scholarships, awards and qualifications

Invited speaker at 2-days workshop — **Heidelberg**
Sandpit Workshop "Tensor Decompositions 2.0" — *2025*
Organized by K. Batselier and G. Lichtenberg
Sponsored by Klaus-Tschira Stiftung

Invited speaker at 5-days workshop — **Banff**
BIRS workshop "New Directions in Applied Linear Algebra" — *2023*
Organized by J. Cockayne, J. Pearson, J. Pestana, D. Silvester, and V. Simoncini
Hosted by Banff International Research Station

Early Career Travel Award — **Eindhoven**
Society of Industrial and Applied Mathematics — *2023*

Qualification for Associate Professor positions — **France**
Centre National des Universités — *2023*
Section 26, Applied Mathematics

Best Master's thesis of the Mathematics Department — **Trento**
Mathematics Department at the University of Trento — *2019*

Training activities

Integration of artificial intelligence tools into teaching — **Bologna**
Plenary courses — *2025*
EDVANCE: Digital Education Hub Higher Education

3rd CINI HPC Summer school — **Naples**
Plenary courses and hands-on sessions — *2025*

International Summer School on High-Performance Computing
for Science, Industry, and Society

Machine learning in Python with scikit-learn **Online**
Practical aspects and regular exercises with `Jupyter notebooks` *2021*
MOOC, Inria Learning Lab, scikit-learn @ La Fondation Inria, Inria Academy, probabl

High Performance Numerical Simulation **Inria Bordeaux**
Plenary courses and hands-on sessions *2019*
Simulation of a harmonic wave propagation,
from modelling to implementation in an HPC framework

Software contributions

pyTensorlab *2025*
Python package for tensor computations

sscg *2025*
Subspace-conjugate gradient method for linear matrix equations

Rasterdiv *2020*
Methods to calculate indices of diversity on numerical matrices based on information theory

IT skills

Coding languages	`Python, MATLAB, R, C++`
OS	`Linux, Windows`
Collaborative tools	`GitHub, GitLab`

Languages

English	Read, written, spoken	*Cambridge ESOL FCE (B2) in 2013*
French	Read, written, spoken	*Diplôme d'études en langue française (B1) in 2012*
Italian	Read, written, spoken	*Native*

Updated on January 28, 2026