

Maria Strazzullo

NON-TENURE TRACK ASSISTANT PROFESSOR AT
DISMA, POLITECNICO DI TORINO

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Personal Informations

Name Maria Strazzullo
Date of birth March 9th, 1992
Address Corso Duca degli Abruzzi, 24, 10129 Torino

Academic Experience

Assistant professor non-tenure tracked, at DISMA, Politecnico di Torino, Turin, Italy (January 2024 - ongoing)
Postdoc Excellence project fellowship at DISMA, Politecnico di Torino, Turin, Italy (January 2022 - January 2024)
Fellowship MathLab group, SISSA, Trieste, Italy (October 2021- December 2021)
Ph.D. Applied Mathematics, mathLab group, SISSA, Trieste, Italy (October 2017 - September 2021)
Predoc mathLab group, SISSA, Trieste, Italy (April 2017 - September 2017)

Scientific Interests

REDUCED ORDER METHODS, APPLIED MATHEMATICS, OPTIMAL CONTROL THEORY, TURBULENCE MODELLING, UNCERTAINTY
QUANTIFICATION, ENVIRONMENTAL AND ECOLOGICAL SCIENCES, NEURAL NETWORKS FOR PARTIAL DIFFERENTIAL EQUATIONS.

Education

International School for Advanced Studies (SISSA)

PHD IN MATHEMATICAL ANALYSIS, MODELLING, AND APPLICATIONS

Trieste, Italy
September 24, 2021.

- **Grade:** cum laude.
- **Thesis Title:** “Model Order Reduction for Nonlinear and Time-Dependent Parametric Optimal Flow Control Problems” — **Advisor:** Prof. Gianluigi Rozza, — **Co-Advisor:** Dr. Francesco Ballarin.

Università degli studi di Trieste

MASTER’S DEGREE IN MATHEMATICS

Trieste, Italy
Sep 2014 - Mar 2017

- **Grade:** 110/110 cum laude.
- **Thesis Title:** “Reduced order methods for parametrized optimal flow control problems” — **Advisor:** Prof. Gianluigi Rozza — **Co-Advisors:** Prof. Renzo Mosetti, Dr. Francesco Ballarin.

Università degli studi di Camerino

BACHELOR’S DEGREE IN MATHEMATICS

Camerino, Italy
Sep 2011 - Jul 2014

- **Grade:** 110/110 cum laude.
- **Thesis Title:** “La Teoria Dei Codici Autocorrettori” (“The theory of error-correcting codes”) — **Advisor:** Prof. Carlo Toffalori.

Liceo Classico “Giacomo Leopardi”

CLASSICAL CERTIFICATE

Macerata, Italy
Sep 2006 - Jul 2011

- **Grade:** 100/100.

Visits and Fellowships

Fellowship Research in pairs fellowship with Dr. Luca Saluzzi, Centro Ennio De Giorgi, Pisa, Italy (September 6-13, 2024)
Visiting Invited researcher at University of Siviglia (June 2024 - July 2024)
Visiting Invited researcher at Virginia Tech, Interdisciplinary Center for Applied Mathematics (ICAM) (October 2023 - November 2023)
Visiting Invited researcher at University of Siviglia (July 2023 - August 2023)
Visiting Invited researcher at Virginia Tech, Interdisciplinary Center for Applied Mathematics (ICAM) (October 2022 - November 2022)

Awards and Grants

- Award** ASN-abilitazione scientifica nazionale.
- Grant** ECCOMAS Young investigator Grant 2024: "CRAFT: Control and Reg-reduction in Applications for Flow Turbulence"(15000 €)
- Grant** PI of INdAM - GNCS Project, code CUP_E53C24001950001: "Metodi numerici efficienti per problemi accoppiati in sistemi complessi", 2025 (2800 €).
- Grant** Travel funds to participate at EUCCO 2023 (380 €).
- Grant** INdAM fellowship for a month abroad, 2023 (3000 € and travel funds).
- Grant** PI of INdAM - GNCS Project, code CUP_E53C22001930001: "Metodi numerici per lo studio di strutture geometriche parametriche complesse", 2023 (4300 €).
- Grant** GNCS grant for conference for participating to ECCOMAS 2022 (1000 €).
- Award** Finalist: BGCE Prize at SIAM-CSE Congress, March 1-5, 2021.
- Award** SIAM Student Travel Award to participate to the SIAM Conference on Computational Science and Engineering, March 1-5, 2021.
- Scholarship** ECCOMAS Scholarship for participating at the Virtual Congress WCCM-ECCOMAS January 11 to 15, 2021.
- Award** Special Mention to PhD4Innovating contest. ESOF 2020, Trieste, Italy.
- Grant** Participant in 2024 INDAM-GNCS Project: "Metodi di riduzione di modello e approssimazioni di rango basso per problemi alto-dimensionali" (4800 €).
- Grant** Participant in MIT-Fiuli Venezia Giulia (FVG) Seed Fund 2019-2020: Data Assimilation, Models for Prediction and Control of Massachussets Bay Water Acidification.
- Grant** Participant in 2018 INDAM-GNCS Project : Model Reduction in Medical Applications.

Publications and Preprints

- [23] Preprint L. Saluzzi and M. Strazzullo, "Dynamical Low-Rank Approximation Strategies for Nonlinear Feedback Control problems", *accepted in Journal of Numerical Mathematics*, 2025, <https://arxiv.org/abs/2501.07439>.
- [22] Preprint A. Borio, F. Marcon, and M. Strazzullo, "General Order Virtual Element Methods for Neumann Boundary Optimal Control Problems in Saddle Point Formulation", *Submitted*, 2024, <https://arxiv.org/abs/2411.08497>.
- [21] Preprint M. Strazzullo, F. Ballarin, T. Iliescu, and C. Canuto, "New Feedback Control and Adaptive Evolve-Filter-Relax Regularization for the Navier-Stokes Equations in the Convection-Dominated Regime", *submitted*, 2023, <https://arxiv.org/abs/2307.00675>.
- [20] Preprint F. Pichi and M. Strazzullo, "Deflation-based certified greedy algorithm and adaptivity for bifurcating nonlinear PDEs", *Communications in Nonlinear Science and Numerical Simulation*, 2025, <https://doi.org/10.1016/j.cnsns.2025.108941>.
- [19] Paper A. Ivagnes, M. Strazzullo, M. Girfoglio, T. Iliescu and G. Rozza, "Data-driven Optimization for the Evolve-Filter-Relax regularization of convection-dominated flows", *International Journal for Numerical Methods in Engineering*, 2025, <https://onlinelibrary.wiley.com/doi/10.1002/nme.70042>.
- [18] Paper M. Strazzullo, F. Ballarin, T. Iliescu, T. Chacón Rebollo, "Variational Multiscale Evolve and Filter Strategies for Convection-Dominated Flows", *Computer Methods in Applied Mechanics and Engineering*, 2025, <https://doi.org/10.1016/j.cma.2025.117811>.
- [17] Paper M. Strazzullo and F. Vicini, "POD-based reduced order methods for optimal control problems governed by parametric partial differential equation with varying boundary control", *Applied Mathematics and Computation*, 2023, <https://doi.org/10.1016/j.amc.2023.128191>.
- [16] Paper F. Zoccolan, M. Strazzullo and G. Rozza, "Stabilized Weighted Reduced Order Methods for Parametrized Advection-Dominated Optimal Control Problems governed by Partial Differential Equations with Random Inputs", *Journal of Numerical Mathematics*, <https://10.1515/jnma-2023-0006>.
- [15] Paper F. Zoccolan, M. Strazzullo and G. Rozza, "A Streamline upwind Petrov-Galerkin Reduced Order Method for Advection-Dominated Partial Differential Equations under Optimal Control", *Computational Methods in Applied Mathematics*, 2024, <https://doi.org/10.1515/cmam-2023-0171>.

- [14] Chapter** D. Torlo, M. Strazzullo, F. Ballarin and G. Rozza, "Chapter 12: Weighted Reduced Order Methods for Uncertainty Quantification", in *Advanced Reduced Order Methods and Applications in Computational Fluid Dynamics*, <https://doi.org/10.1137/1.9781611977257.ch12>.
- [13] Chapter** M. Strazzullo, F. Ballarin and G. Rozza, "Chapter 2: Finite Element-Based Reduced Basis Method in Computational Fluid Dynamics", in *Advanced Reduced Order Methods and Applications in Computational Fluid Dynamics*, <https://doi.org/10.1137/1.9781611977257.ch4>.
- [12] Chapter** F. Pichi, M. Strazzullo, F. Ballarin and G. Rozza, "Chapter 2: Finite Element-Based Reduced Basis Method in Computational Fluid Dynamics", in *Advanced Reduced Order Methods and Applications in Computational Fluid Dynamics*, <https://doi.org/10.1137/1.9781611977257.ch2>.
- [11] Proceeding** E. Donadini, M. Strazzullo, M. Tezzele and G. Rozza, "A data-driven partitioned approach for the resolution of time-dependent optimal control problems with dynamic mode decomposition", in ICOSAHOM proceedings, 2022, https://link.springer.com/chapter/10.1007/978-3-031-20432-6_13.
- [10] Paper** N. Demo, M. Strazzullo and G. Rozza "An Extended Physics Informed Neural Network For Preliminary Analysis of Parametric Optimal Control Problems", *Computers & Mathematics with Applications*, 2023, <https://doi.org/10.1016/j.camwa.2023.05.004>.
- [9] Paper** M. Strazzullo, M. Girfoglio, F. Ballarin, T. Iliescu and G. Rozza "Consistency of the Full and Reduced Order Models for Evolve-Filter-Relax Regularization of Convection-Dominated, Marginally-Resolved Flows", *International Journal for Numerical Methods in Engineering*, 2022, <https://doi.org/10.1002/nme.6942>.
- [8] Preprint** M. Strazzullo, F. Ballarin, and G. Rozza "A Certified Reduced Basis Method for Linear Parametrized Parabolic Optimal Control Problems in Space-Time Formulation", submitted, 2021, <https://arxiv.org/abs/2103.00460>.
- [7] Paper** G. Carere, M. Strazzullo, F. Ballarin, G. Rozza, R. Stevenson. "Weighted POD-reduction for parametrized PDE-constrained Optimal Control Problems with random inputs and its applications to environmental sciences", *Computers & Mathematics with Applications*, volume 102, pp. 261-276, 2021, <https://doi.org/10.1016/j.camwa.2021.10.020>.
- [6] Chapter** F. Ballarin, G. Rozza and M. Strazzullo, "Space-time POD-Galerkin approach for parametric flow control", in press, *Handbook of Numerical Analysis*, Elsevier, 2022, <https://doi.org/10.1016/bs.hna.2021.12.009>.
- [5] Paper** F. Pichi, M. Strazzullo, F. Ballarin, and G. Rozza "Driving bifurcating parametrized nonlinear PDEs by optimal control strategies: application to Navier-Stokes equations and model reduction", *ESAIM: M2AN*, 2022, <https://doi.org/10.1051/m2an/2022044>.
- [4] Paper** M. Strazzullo, F. Ballarin, and G. Rozza, "POD-Galerkin Model Order Reduction for Parametrized Nonlinear Time Dependent Optimal Flow Control: an Application to Shallow Water Equations", *Journal of Numerical Mathematics*, 2021, <https://doi.org/10.1515/jnma-2020-0098>.
- [3] Paper** M. Strazzullo, F. Ballarin, and G. Rozza, "POD-Galerkin Model Order Reduction for Parametrized Time Dependent Linear Quadratic Optimal Control Problems in Saddle Point Formulation", *Journal of Scientific Computing*, 83(3), pp. 55, 2020, <https://doi.org/10.1007/s10915-020-01232-x>.
- [2] Proceeding** M. Strazzullo, Z. Zainib, F. Ballarin, and G. Rozza, "Reduced order methods for parametrized non-linear and time dependent optimal flow control problems, towards applications in biomedical and environmental sciences", in ENUMATH2019 proceedings, 2020, https://doi.org/10.1007/978-3-030-55874-1_83.
- [1] Paper** M. Strazzullo, F. Ballarin, R. Mosetti and G. Rozza. "Model Reduction for Parametrized Optimal Control Problems in Environmental Marine Sciences and Engineering", *SIAM J. Sci. Comput.*, 40(4), B1055-B1079 (25 pages), 2018, <https://doi.org/10.1137/17M1150591>.

Talks at Conferences and Seminars

EUCCO 2025

INVITED SPEAKER AT MINISYMPOSIUM

- **Talk title:** “Dynamical Low-Rank Approximation for Nonlinear Feedback Control”.

Klagenfurt, Austria

September 29-october 2, 2025

Optimal Control and Agent Systems

INVITED SPEAKER

- **Talk title:** “Dynamical Low-Rank Approximation for Nonlinear Feedback Control”.

Roma, Italy

September 22-25, 2025

ECCOMAS Young Investigators Conference

PLANARY SPEAKER

- **Talk title:** “Regularized Reduced Order Models for Convection-Dominated Flows: Stabilization, Sensitivity, and Control”.

Pescara, Italy

September 17-19, 2025

ADMOS 2025

INVITED SPEAKER AT MINISYMPOSIUM

- **Talk title:** “VMS-Enhanced Approaches to Evolve-Filter Strategies for Convection- Dominated Navier-Stokes Equations ”.

Barcelona, Spain

June 9-11, 2025

COUPLED 2025

INVITED SPEAKER AT MINISYMPOSIUM

- **Talk title:** “Dynamical Low-Rank Approximation for Parametric Nonlinear Feedback Control”.

Villasimius, Italy

May 25-28, 2025

EMS-TAG-SCIML-25

INVITED SPEAKER

- **Talk title:** “Machine Learning for Turbulence Modeling: Increasing Accuracy in CFD Simulations”.

Milano, Italy

March 24-26, 2025

ARIA final workshop

INVITED SPEAKER

- **Talk title:** “Enhancing spatial filters: VMS-filters and parameter optimization”.

Trieste, Italy

November 25-27, 2024

Seminario di Modellistica Differenziale Numerica, Sapienza

INVITED SPEAKER

- **Talk title:** ‘Dynamical Low-Rank Approximation for Nonlinear Feedback Control”.

Roma, Italy

November 5, 2024

UniPi seminars

INVITED SPEAKER

- **Talk title:** “Nonlinear Feedback Control via Dynamical Low-Rank Approximation”.

Pisa, Italy

September 9, 2024

AMS-UMI joint meeting 2024

INVITED SPEAKER AT MINISYMPOSIUM

- **Talk title:** “Dynamical low-rank approximations for parametric infinite horizon optimal control problems”.

Palermo, Italy

July 23-26, 2024

ECM 2024

INVITED SPEAKER AT MINISYMPOSIUM

- **Talk title:** “Regularized Feedback Control strategies for Convection-Dominated Navier-Stokes Equations at Full and Reduced levels”.

Seville, Spain

July 15-19, 2024

ECCOMAS 2024

INVITED SPEAKER AT MINISYMPOSIUM

- **Talk title:** “Certifying Bifurcations in ROMs: a Deflated-Greedy Algorithm for Enhanced Accuracy in Nonlinear Parametric PDEs”.

Lisbon, Portugal

June 3-7, 2024

ECCOMAS 2024

INVITED SPEAKER AT MINISYMPOSIUM

- **Talk title:** “Regularized Reduced Order Models for Convection-Dominated Flow Simulation: Stabilization, Prediction, Sensitivity and Control”.

Lisbon, Portugal

June 3-7, 2024

New trends in Optimal Control 2024

INVITED SPEAKER

- **Talk title:** “Regularized full and reduced feedback control strategies for convection-dominated Navier-Stokes equations”.

Venice, Italy

May 14-17, 2024

SISSA Women in mathematics 2024

INVITED SPEAKER

- **Talk title:** “Regularized Feedback Control strategies for Convection-Dominated Navier-Stokes Equations: Full and Reduced models ”.

Trieste, Italy

May 13, 2024

MASCOT-NUM 2024

INVITED SPEAKER

- **Talk title:** “Reduced Order Methods for Parametric Optimal Control: an Overview and Diverse Applications”.

Hyères, France

April 3-5, 2024

SIAMUQ 2024

INVITED SPEAKER AT MINISYMPOSIUM

Trieste, Italy

February 27-March 1, 2024

- **Talk title:** “Evolve-Filter-Relax Regularization Strategies in Feedback Control for Convection-Dominated Navier-Stokes Equations at Full and Reduced Levels”.

POD UQ 2024

INVITED SPEAKER

Trieste, Italy

February 26, 2024

- **Talk title:** “Optimization problems governed by PDEs under the influence of random variables”.

GNCS 2024

INVITED SPEAKER

Rimini, Italy

February 14-17, 2024

- **Talk title:** “Metodi numerici per lo studio di strutture geometriche parametriche complesse”.

EUCCO 2024

INVITED SPEAKER AT MINISYMPOSIUM

Heidelberg, Germany

September 25-28, 2023

- **Talk title:** “Model order reduction for varying boundary optimal control problems”.

ECCOMAS YIC 2023

INVITED SPEAKER AT MINISYMPOSIUM

Oporto, Portugal

June 19-21, 2023

- **Talk title:** “Model order reduction for varying boundary optimal control problems”.

Math 2 Product congress

INVITED SPEAKER AT MINISYMPOSIUM

Taormina, Italy

May 30-June 1, 2023

- **Talk title:** “POD-Based Strategies For Varying Boundary Optimal Control”.

International Workshop on Reduced Order Methods

INVITED SPEAKER

Singapore

May 22-26, 2023

- **Talk title:** “Model order reduction for parametric optimal control problems: overview and applications”.

CFC Congress 2023

INVITED SPEAKER AT MINISYMPOSIUM

Cannes, France

April 25-28, 2023

- **Talk title:** “Full and Reduced Evolve-Filter-Relax regularization in feedback control for convection-dominated Navier-Stokes equations”.

SIAM CSE Congress 2023

INVITED SPEAKER AT MINISYMPOSIUM

Amsterdam, The Netherlands

February 26-March 3, 2023

- **Talk title:** “Model Order Reduction for Parametric Optimal Control Problems in Space-Time Formulation”.

ARIA-VT Seminar on Regularized ROMS

INVITED SPEAKER

Blacksburg, USA (hybrid)

February 2, 2023

- **Talk title:** “The role of Evolve-Filter-Relax Regularization in Feedback Control for convection-dominated Navier-Stokes Equations: full and reduced order model”.

Matematica per l'Intelligenza Artificiale e il Machine Learning

CONTRIBUTED TALK

Politecnico di Torino, Italy

November 24, 2022

- **Talk title:** “Physics-informed Neural Networks for partial differential equations and optimal control in a parametric setting”.

Virginia Tech Math colloquium

INVITED SPEAKER

Blacksburg, USA

November 17, 2022

- **Talk title:** “Model order reduction for nonlinear and time-dependent parametrized optimal control problems”.

Emory mathematics seminars

INVITED SPEAKER

Atlanta, USA

October 17, 2022

- **Talk title:** “Model order reduction for parametrized optimal control problems: from time-dependency to nonlinearity”.

GIMC SIMAI YOUNG 2022

INVITED SPEAKER AT MINISYMPOSIUM

Pavia, Italy

September 29-30, 2022

- **Talk title:** “Physics-informed Neural Networks for parametric partial differential equations and optimal control”.

MORE 2022

CONTRIBUTED TALK

Berlin, Germany

September 19-23, 2022

- **Talk title:** “Full Order Model and Reduced Order Model Consistency for Evolve-Filter-Relax Regularization”.

ECCOMAS 2022

INVITED SPEAKER AT MINISYMPOSIUM

Oslo, Norway

June 5-9, 2022

- **Talk title:** “Optimal control and bifurcating systems: an application to Navier-Stokes equations”.

Friedrich-Alexander-Universität Mini-Workshop on Model Reduction and Control

INVITED SPEAKER

- **Talk title:** “Model order reduction for time-dependent parametrized optimal control problems”.

Online

May 24, 2022

SIAM Uncertainty Quantification Conference 2022

INVITED SPEAKER AT MINISYMPOSIUM

- **Talk title:** “Stabilized Reduced Order Methods for Transport Control Problems with Random Inputs”.

Online

April 12-15, 2022

Analysis Junior Seminar

INVITED SPEAKER

- **Talk title:** “Full Order Model and Reduced Order Model Consistency for Evolve-Filter-Relax Regularization”.

Online

February 18, 2022

Pitt AWM Student Seminar Series

INVITED SPEAKER

- **Talk title:** “The role of optimal control in bifurcating phenomena: an application to Navier-Stokes equations”.

Online

December 3, 2021

COUPLED 2021

CONTRIBUTED TALK

- **Talk title:** “Reduced Order Methods for Uncertainty Quantification Problems applied to Optimal Control in Environmental Sciences”.

Online

June 14-16, 2021

FEniCS Conference 2021

CONTRIBUTED TALK

- **Talk title:** “Reduced order methods for optimal flow control: FEniCS-based applications”.

Online

March 22-26, 2021

DISMA Seminar Series

INVITED SPEAKER

- **Talk title:** “A Glimpse Of Reduced Order Methods For Parametrized Optimal Control Problems”.

Online

March 22, 2021

SIAM-CSE Congress 2021

INVITED SPEAKER AT MINISYMPOSIUM

- **Talk title:** “Reduced Order Methods for Space-Time Parametric Optimal Control Problems in Computational Fluid Dynamics”.

Online

March 1-5, 2021

SIAM-CSE Congress 2021

INVITED SPEAKER AT MINISYMPOSIUM

- **Talk title:** “Reduced Order Methods for Optimal Flow Control Problems: from time-dependency to nonlinearity”.

Online

March 1-5, 2021

WCCM-ECCOMAS Congress 2020

INVITED SPEAKER AT MINISYMPOSIUM

- **Talk title:** “Reduced Order Methods for Optimal Flow Control Problems: from time-dependency to nonlinearity”.

Online

January 11-15, 2021

MORSS 2020 - Model Order Reduction Summer School 2020

CONTRIBUTED TALK

- **Talk title:** “Advances in Reduced Order Methods for Optimal Flow Control Problems”.

Online

September 7-10, 2020

SAMM 2020 - Learning Models from Data: Model Reduction, System Identification and Machine Learning

POSTER PRESENTATION

- **Poster title:** “POD-Galerkin reduction for nonlinear time dependent optimal flow control problems with applications in environmental sciences” — *co-authors:* F. Ballarin and G. Rozza.

Online

July 19-24, 2020

Summer School on Reduced Order Methods in Computational Fluid Dynamics

LECTURER AND POSTER PRESENTATION

- **Lecture title:** “Reduced order methods for parametrized optimal flow control problems: applications in biomedical and environmental sciences” — *co-lecturer:* Z. Zainib.
- **Poster title:** “Reduced Order Methods Applied to Nonlinear Time Dependent Optimal Flow Control Problems in Environmental Marine Sciences and Engineering” — *co-authors:* F. Ballarin, R. Mosetti and G. Rozza.

SISSA, Trieste, Italy

July 8-12, 2019

ADMOS 2019 - International Conference on Adaptive Modeling and Simulation

INVITED SPEAKER AT MINISYMPOSIUM

- **Talk title:** “Reduced Order Methods for Nonlinear Time Dependent Optimal Flow Control Problems Applied to Environmental Marine Sciences and Engineering”.

El Campello (Alicante), Spain

May 27-29, 2019

Analysis, Control and Inverse Problems for PDEs

INVITED JUNIOR SPEAKER

- **Talk title:** “Reduced Order Methods for Optimal Flow Control Problem with Application in Environmental Marine Sciences and Engineering”.

Università Federico II, Napoli, Italy

November 26-3, 2018

MoRePas 2018 - Model Reduction for Parametrized System IV

École Centrale, Nantes, France

POSTER PRESENTATION

April 10-13, 2018

- **Poster title:** “POD–Galerkin reduced order methods for inverse problems and multi-physics problems in fluid dynamics” — **co-authors:** M. Nonino, Z. Zainib, F. Ballarin and G. Rozza.

QUIET 2017 - Quantification of Uncertainty: Improving Efficiency and Technology

SISSA, Trieste, Italy

POSTER PRESENTATION

July 18-21, 2017

- **Poster title:** “Reduced Order Methods for Environmental Marine Problems by Optimal Flow Control” — **co-authors:** F. Ballarin, R. Mosetti and G. Rozza.

Teaching and Other Tasks

Teaching and co-advising

- **Lecturer** - Ph.D. Course of “Model order reduction for parametric nonlinear problems: overview and applications”, Mathematical Sciences, Politecnico di Torino, 2025
- **Support Lecturer** - Course of “Model Order Reduction and Machine Learning”, master degree in mathematical engineering, Politecnico di Torino, 2023, 2024, 2025
- **Support Lecturer** - Course of “Metodi e Modelli Numerici”, master degree in mechanical engineering, Politecnico di Torino, 2022, 2023, 2024, 2025.
- **Lecturer** Basic course on reduced order modelling at “Summer School on Reduced Order Methods in Computational Fluid Dynamics (Second edition)”, Trieste (July 2022).
- **Lecturer** Monographic Lecture on reduced order modelling for Optimal Control at “Summer School on Reduced Order Methods in Computational Fluid Dynamics (Second edition)”, Trieste (July 2022).
- **Support Lecturer** - AMMA PhD- MHPC course on “Reduced Order Methods for Computational Mechanics”, SISSA, 2022.
- **Lecturer** Monographic Lecture on reduced order modelling for Optimal Control at “Summer School on Reduced Order Methods in Computational Fluid Dynamics”, Trieste (July 2019).
- **Support Lecturer** - Course of “Numerical Analysis”, master degree in Data Science and Scientific Computing, (January 2018).

Mentorship

- **Advisor** - Master thesis of Andrea Tataranni: “Physics Informed Neural Networks and Neural Tangent Kernel: preliminary results for parametric Optimal Control Problems”. Master degree in mathematical engineering, Politecnico di Torino, November (2024).
- **Co-advisor** - Master thesis of Susanna Olivero: “Deep Learning for boundary condition detection in PDEs”. Master degree in mathematical engineering, Politecnico di Torino, October (2024).
- **Co-advisor** - Master thesis of Ilaria Anselmi: “Modellazione multi-scala di un incendio in galleria”. Master degree in mathematical engineering, Politecnico di Torino, October (2024).
- **Co-advisor** - Master thesis of Carlotta Filippin: “Nonlinear reduced-order modeling with a Graph Convolutional Autoencoder for time-domain electromagnetics”. Master degree in mathematical engineering, Politecnico di Torino, October (2024).
- **Co-advisor** - Master thesis of Fabio Zoccolan: “Stabilised reduced order methods for advection-diffusion optimal control problems with random inputs”. Master degree in Mathematics, University of Trieste, Italy, December (2021).
- **Co-advisor** - Master thesis of Eleonora Donadini: “A Data-Driven Approach for Time-Dependent Optimal Control Problems by Dynamic Mode Decomposition”. Master degree in Data Science and Scientific Computing, University of Trieste, Italy, (May 2021).
- **Co-advisor** - Master thesis of Giuseppe Carere: “Reduced Order Methods for Optimal Control Problems constrained by PDEs with random inputs and applications”. Master degree in mathematics, Korteweg-de Vries Institute for Mathematics, the Netherlands, (January 2019).

Other tasks

- **Scientific Committees:** COUPLED 2025, Scientific Machine Learning: Emerging Topics 2024.
- **Research groups and Projects:** Analisi Numerica e Calcolo Scientifico at DISMA, external collaborator of SISSA MathLab group, participant to ARIA project (grant agreement 872442), participant to ERC AROMA-CFD (PI: Prof. Gianluigi Rozza), participant to PRIN project FaReX (PI: Prof. Gianluigi Rozza).
- **Reviewer:** Communications in Nonlinear Science and Simulation, SIAM Journal on Control and Optimization, Computer Methods in Applied Mechanics and Engineering, International Journal for Numerical Methods in Engineering, International Journal for Numerical Methods in Fluids, Mathematics, Computers and Mathematics with Applications, Applied Mathematics and Computation, International Journal of Heat and Fluid Flow, Journal of Scientific computing, Advances in Computational Mathematics, Journal of Computational Physics, Frontiers in Applied Mathematics and Statistics, Proceedings in Applied Mathematics and Mechanics, International Journal of Computational Fluid Dynamics.
- **Organizer of Mini-symposia:** ECCOMAS Young Investigator Conference, COUPLED 2025, SIAM UQ24, ECCOMAS24, WCCM24.
- **Organizer:** NA-G-Roms seminars (2023-ongoing).
- **Organizer:** Analysis Junior Seminars, SISSA, 2019 - 2021. SISSA Women in Mathematics 2021.
- **Student Association President:** SISSA SIAM Student Chapter, October 2020 - October 2021.
- **Student Association Vicepresident:** SISSA SIAM Student Chapter, October 2019 - September 2020.
- **Educational volunteer:** SISSA 4 SCHOOLS program, 2019 - present.
- **Educational Seminar:** “Pint of Science Festival”.
- **Internship:** formulation of a Finite Element simulation of Quasi-Geostrophic equation in the North-Atlantic Ocean at OGS (National Institute of Oceanography and Applied Geophysics), 2016.