

# Mattia Martini

Postdoctoral researcher

## Contact info

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## Experience

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### Postdoctoral researcher

Sept 2025 – now

Centre de Mathématiques Appliquées (CMAP), École polytechnique

- Mentors: Mao Fabrice Djete and Huyên Pham
- Part of the ANR PEPR project MIRTE

### Postdoctoral researcher

Apr 2023 – Aug 2025

Laboratoire J.A. Dieudonné (LJAD), Université Côte d'Azur

- Mentor: François Delarue
- Member of the ERC project ELISA

## Education

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**PhD Mathematical sciences**, Università degli studi di Milano

Oct 2019 – Mar 2023

- Thesis: *Advances in stochastic analysis on spaces of measures: Kolmogorov equations related to stochastic filtering and mean field optimal stopping*
- Supervisor: Marco Fuhrman

**MSc Mathematical engineering**, Politecnico di Milano (110/110 cum laude)

Sept 2017 – Oct 2019

- Thesis: *Kolmogorov Equations on Space of Measures Associated to Stochastic Filtering Processes*
- Supervisors: Sandro Salsa and Marco Furhman

**BSc Mathematical engineering**, Politecnico di Milano (110/110)

Sept 2014 – Sept 2017

- Thesis: *Quantum bits and superdense coding*
- Supervisor: Matteo Gregoratti

**High school diploma**, I.T.I.S Galileo Galilei, (100/100 cum laude)

2009 – 2014

## Publications

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### Preprints

- [1] F. Delarue, M. M., and G. E. Sodini. “HJB equations driven by the Dirichlet-Ferguson Laplacian in Wasserstein-Sobolev spaces”. arXiv:2511.03522. 2025.
- [2] A. Cosso, M. M., and L. Perelli. “Mean convergence rates for Gaussian-smoothed Wasserstein distances and classical Wasserstein distances”. arXiv:2504.17477. 2025.

### Published papers

- [3] A. Cecchin, S. Daudin, J. Jackson, and M. M. “Quantitative convergence for mean field control with common noise and degenerate idiosyncratic noise”. *Electron. J. Probab.* 30 (2025), pp. 1–62.
- [4] G. Franzese, M. M., G. Corallo, P. Papotti, and P. Michiardi. “Latent Abstractions in Generative Diffusion Models”. *Entropy* 27.4 (2025).
- [5] F. Delarue and M. M. “Fourier Galerkin approximation of mean field control problems”. *Nonlinear Differential Equations and Applications NoDEA* 32.1 (2024), p. 11.
- [6] M. M. “Kolmogorov equations on the space of probability measures associated to the nonlinear filtering equation: the viscosity approach”. *Stochastic Analysis and Applications* 42.6 (2024), pp. 987–999.
- [7] A. Cosso and M. M. “On smooth approximations in the Wasserstein space”. *Electronic Communications in Probability* 28 (2023), pp. 1–11.
- [8] B. Djehiche and M. M. “Time-inconsistent mean-field optimal stopping: A limit approach”. *Journal of Mathematical Analysis and Applications* 528.1 (2023).
- [9] M. M. “Kolmogorov equations on spaces of measures associated to nonlinear filtering processes”. *Stochastic Processes and their Applications* 161 (2023), pp. 385–423.
- [10] M. M. and G. E. Sodini. “Numerical Methods for a System of Coupled Cahn-Hilliard Equations”. *Commun. Appl. Ind. Math.* 12 (2021), pp. 1–12.

## Given talks, seminars and posters

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<b>WS Mean-field systems in finance, neurosciences and AI</b> , Folgarida, Trento Contributed talk	Jan 2026
<b>Seminario di Probabilità e Statistica</b> , Politecnico di Milano Seminar of the probability and statistics group	Jan 2026
<b>Seminari in Probabilità e Finanza</b> , Università di Padova Seminar of the probability and finance group	Dec 2025
<b>Séminaire du Pôle Probabilités</b> , École polytechnique (CMAP) Seminar of the probability group	Oct 2025
<b>Interacting Particle Systems and Applications</b> , Università di Siena Invited talk	Sept 2025
<b>16th Viennese Conference Optimal Control and Dynamic Games</b> , TU Wien In the invited session "Stochastic Control and Applications"	July 2025
<b>Durham Symposium on Mean Field Games</b> , Durham University Invited talk	March 2025
<b>WS Optimal Transport: from robust pricing to model calibration</b> , Folgarida, Trento Contributed talk	Feb 2025
<b>Probability and Statistics Seminar</b> , University of Luxembourg Seminar of the probability and statistics group	Jan 2025

<b>PDE Seminar</b> , Georgia Tech (online) Seminar of the PDE group	Sept 2024
<b>2nd AMS-UMI International Joint Meeting</b> , Università degli Studi di Palermo In the invited session "Mean Field Games and related topics"	July 2024
<b>Seminario di Probabilità e Statistica</b> , Politecnico di Milano Seminar of the probability and statistics group	June 2024
<b>Fourth Italian Meeting on Probability and Mathematical Statistics</b> , Roma In the invited session "Stochastic optimal control of McKean-Vlasov equations"	June 2025
<b>Young Researchers in Stochastic Control and Games</b> , Universität Bielefeld Invited talk	Dec 2023
<b>Séminaire de Probabilités et Statistique</b> , Université Côte d'Azur (LJAD) Seminar of the probability and statistics group	Dec 2023
<b>PGMO Days</b> , EDF Lab Paris-Saclay In the invited session "Mean field games and control"	Nov 2023
<b>A Random Walk in the Land of Stochastic Analysis and Numerical Probability</b> , CIRM Luminy Poster	Sept 2023
<b>SPDEs, optimal control and mean field games</b> , Universität Bielefeld Poster	July 2023
<b>The 9th International Colloquium on BSDEs and Mean Field Systems</b> , IAE Savoie Mont Blanc Contributed talk	July 2022
<b>Third Italian Meeting on Probability and Mathematical Statistics</b> , Università di Bologna In the contributed session "New trends in stochastic control"	June 2022
<b>100 years UMI and First UMI meeting of PhD students</b> , Università di Padova Contributed talk	May 2022
<b>Seminars cycle "Insalate di Matematica"</b> , Università degli Studi Milano-Bicocca Seminar organized by the PhD students	Nov 2021
<b>Trento-Wuppertal School on Stochastic Processes, Analysis and Semigroups</b> , Università di Trento Contributed talk	Sept 2021

## Teaching

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<b>Stochastic differential equations</b> , Politecnico di Milano Teaching assistant   MSc Mathematical Engineering	2022 - 2023
<b>Stochastic differential equations</b> , Politecnico di Milano Teaching assistant   MSc Mathematical Engineering	2021 - 2022
<b>Basics of Statistics</b> , Politecnico di Milano Teaching assistant   BSc Biomedical Engineering	2020 - 2021
<b>Stochastic differential equations</b> , Politecnico di Milano Teaching assistant   MSc Mathematical Engineering	2020 - 2021
<b>Probability and Statistics</b> , Politecnico di Milano Teaching assistant   BSc Management Engineering	2019 - 2020

## Visiting periods

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<b>University of Luxembourg</b> , 1 Week Collaboration with Michele Stecconi	Jan 2025
<b>Imperial College, London</b> , 1 Week Collaboration with Ofelia Bonesini	Jul 2024
<b>Università di Parma, Italy</b> , 1 Week Collaboration with Alessandro Calvia	Feb 2024
<b>KTH, Stockholm</b> , 1 Week Collaboration with Boualem Djehiche	May 2022

## Organization

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**Contributed session "(Stochastic) Analysis on Spaces of Probability Measures and Applications"**, with Giacomo Sodini

5th Italian Meeting on Probability and Mathematical Statistics, 2026 | Palermo

**Workshop on Stochastic Processes, Stochastic Optimal Control, and their Applications**, among the organizers  
September 26 - 27th, 2024 | Politecnico di Milano

**Contributed session "Mean Field Games and Mean Field Control I"**, with Jodi Dianetti

4th Italian Meeting on Probability and Mathematical Statistics, 2024 | Roma

**Phd Days 2021**, among the organizers

December 14 - 17th, 2021 | Università degli Studi di Milano

## Others

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**Abilitations:** Maître de conférences (26 - Mathématiques appliquées et applications des mathématiques)

**Referee activities:**

- Annals of Applied Probability, SICON, Stochastic Processes and Their Applications, Systems & Control Letters, Journal of Differential Equations
- ANR (French grant)

**Participation to research projects:**

- Sept 2025 - now: part of the ANR PEPR project MIRTE
- Apr 2023 - Aug 2025: member of the ERC ADV project ELISA (Grant agreement No. 101054746), P.I. F. Delarue.

**Mamberships:**

- From 2025: Gruppo UMI Prisma (PProbability In Statistics, Mathematics and Applications)
- From 2022: Unione Matematica Italiana (UMI)
- From 2020: Indam, GNAMPA

**Scholarships:**

- 2016 - 2018: Scholarship for the best off-site students, Politecnico di Milano
- 2015: Scholarship for the best freshmen of A.Y. 2014/2015, Politecnico di Milano

**Languages:** Italian (Native) | English (Full professional proficiency) | French (Intermediate)

December 20, 2025  
Mattia Martini