Mattia Martini

Postdoctoral researcher

Contact info

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Experience

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

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

Preprints

[1] A. Cosso, M. M., and L. Perelli. "Mean convergence rates for Gaussian-smoothed Wasserstein distances and classical Wasserstein distances". arXiv:2504.17477. 2025.

[2] A. Cecchin, S. Daudin, J. Jackson, and M. M. "Quantitative convergence for mean field control with common noise and degenerate idiosyncratic noise". arXiv:2409.14053. 2024.

Published papers

[3] G. Franzese, M. M., G. Corallo, P. Papotti, and P. Michiardi. "Latent Abstractions in Generative Diffusion Models". *Entropy* 27.4 (2025).

[4] F. Delarue and M. M. "Fourier Galerkin approximation of mean field control problems". *Nonlinear Differential Equations and Applications NoDEA* 32.1 (2024), p. 11.

[5] 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.

[6] A. Cosso and M. M. "On smooth approximations in the Wasserstein space". *Electronic Communications in Probability* 28 (2023), pp. 1–11.

[7] B. Djehiche and M. M. "Time-inconsistent mean-field optimal stopping: A limit approach". *Journal of Mathematical Analysis and Applications* 528.1 (2023).

[8] M. M. "Kolmogorov equations on spaces of measures associated to nonlinear filtering processes". *Stochastic Processes and their Applications* 161 (2023), pp. 385–423.

[9] 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

Séminaire du Pôle Probabilités, École polytechnique (CMAP) — Oct 2025
Seminar of the probability group

Interacting Particle Systems and Applications, Università di Siena — Sept 2025
Invited talk

16th Viennese Conference Optimal Control and Dynamic Games, TU Wien — July 2025
In the invited session "Stochastic Control and Applications"

Durham Symposium on Mean Field Games, Durham University — March 2025
Invited talk

Optimal Transport: from robust pricing to model calibration, Folgarida, Trento — Feb 2025
Contributed talk

Probability and Statistics Seminar, University of Luxembourg — Jan 2025
Seminar of the probability and statistics group

PDE Seminar, Georgia Tech (online) — Sept 2024
Seminar of the PDE group

2nd AMS-UMI International Joint Meeting , Università degli Studi di Palermo — July 2024
In the invited session "Mean Field Games and related topics"

Seminario di Probabilità e Statistica, Politecnico di Milano — June 2024
Seminar of the probability and statistics group

Fourth Italian Meeting on Probability and Mathematical Statistics, Roma — June 2025
In the invited session "Stochastic optimal control of McKean-Vlasov equations"

Young Researchers in Stochastic Control and Games , Universität Bielefeld — Dec 2023
Invited talk

Séminaire de Probabilités et Statistique, Université Côte d'Azur (LJAD) — Dec 2023
Seminar of the probability and statistics group

PGMO Days, EDF Lab Paris-Saclay — Nov 2023
In the invited session "Mean field games and control"

A Random Walk in the Land of Stochastic Analysis and Numerical Probability, CIRM Luminy — Sept 2023
Poster

SPDEs, optimal control and mean field games , Universität Bielefeld — July 2023
Poster

The 9th International Colloquium on BSDEs and Mean Field Systems, IAE Savoie Mont Blanc — July 2022
Contributed talk

Third Italian Meeting on Probability and Mathematical Statistics, Università di Bologna — June 2022
In the contributed session "New trends in stochastic control"

100 years UMI and First UMI meeting of PhD students , Università di Padova — May 2022
Contributed talk

Seminars cycle "Insalate di Matematica", Università degli Studi Milano-Bicocca — Nov 2021
Seminar organized by the PhD students

Trento-Wuppertal School on Stochastic Processes, Analysis and Semigroups, Università di Trento — Sept 2021
Contributed talk

Teaching

Stochastic differential equations, Politecnico di Milano — 2022 - 2023
Teaching assistant | MSc Mathematical Engineering

Stochastic differential equations, Politecnico di Milano — 2021 - 2022
Teaching assistant | MSc Mathematical Engineering

Basics of Statistics, Politecnico di Milano — 2020 - 2021
Teaching assistant | BSc Biomedical Engineering

Stochastic differential equations, Politecnico di Milano — 2020 - 2021
Teaching assistant | MSc Mathematical Engineering

Probability and Statistics, Politecnico di Milano — 2019 - 2020
Teaching assistant | BSc Management Engineering

Visiting periods

University of Luxembourg, 1 Week — Jan 2025
Collaboration with Michele Stecconi

Imperial College, London, 1 Week — Jul 2024
Collaboration with Ofelia Bonesini

Università di Parma, Italy, 1 Week — Feb 2024
Collaboration with Alessandro Calvia

KTH, Stockholm, 1 Week — May 2022
Collaboration with Boualem Djehiche

Organization

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

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 agree- ment No. 101054746), P.I. F. Delarue.

Mamberships:

- From 2025: Gruppo UMI Prisma (PRobability 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)

October 22, 2025
Mattia Martini