

MATTIA

MARTINI

CONTACT INFO

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EXPERIENCE

POST-DOC RESEARCHER Apr. 2023-present
Université Côte d'Azur | Nice, France
(Laboratoire de Mathématiques J.A. Dieudonné)

- Mentor: Prof. François Delaure
- Member of ERC project ELISA

EDUCATION

PhD IN MATHEMATICAL SCIENCES Oct. 2019-Mar. 2023
Università degli Studi di Milano | Milan, Italy

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

MSc IN MATHEMATICAL ENGINEERING Sep. 2017-Oct. 2019
Politecnico di Milano | Milan, Italy
(110/110 cum laude)

- Thesis: Kolmogorov Equations on Space of Measures Associated to Stochastic Filtering Processes
- Supervisors: Prof. Sandro Salsa and Prof. Marco Fuhrman

BSc IN MATHEMATICAL ENGINEERING Sep. 2014-Sep. 2017
Politecnico di Milano | Milan, Italy
(110/110)

- Thesis: Quantum bits and superdense coding
- Supervisor: Prof. Matteo Gregoratti

High School Diploma 2009-2014
I.T.I.S Galileo Galilei | San Secondo P.se, Italy
(100/100 cum laude)

PUBLICATIONS

Preprints	Delarue, F. and M. Martini (2024). "Fourier Galerkin approximation of mean field control problems". arXiv:2403.15642.
Articles	<p>M. Martini (2022). "Kolmogorov equations on the space of probability measures associated to the nonlinear filtering equation: the viscosity approach". <i>To appear in Stochastic Analysis and Applications</i>.</p> <p>Cosso, A. and M. Martini (2023). "On smooth approximations in the Wasserstein space". <i>Electronic Communications in Probability</i> 28, 1-11.</p> <p>Djehiche, B. and M. Martini (2023). "Time-inconsistent mean-field optimal stopping: A limit approach". <i>Journal of Mathematical Analysis and Applications</i> 528.1.</p> <p>M. Martini (2023). "Kolmogorov equations on spaces of measures associated to nonlinear filtering processes". <i>Stochastic Processes and their Applications</i> 161, 385-423.</p> <p>M. Martini and G. E. Sodini (2021). "Numerical Methods for a System of Coupled Cahn-Hilliard Equations". <i>Commun. Appl. Ind. Math.</i> 12, 1-12.</p>

GIVEN TALKS, SEMINARS AND POSTERS

PDE Seminar, Georgia Tech (online)	2024
<i>Presentation of [Delarue, M. 24] - seminar of the PDE group</i>	
2nd AMS-UMI International Joint Meeting	2024
<i>Presentation of [Delarue, M. 24] - invited session "Mean Field Games and related topics"</i>	
Seminario di Probabilità e Statistica, Politecnico di Milano	2024
<i>Presentation of [Delarue, M. 24] - seminar of the probability and statistics group</i>	
Fourth Italian Meeting on Probability and Mathematical Statistics	2024
<i>Presentation of [Delarue, M. 24] - invited session "Stochastic optimal control of McKean-Vlasov equations"</i>	
Young Researchers in Stochastic Control and Games	2023
<i>Presentation of [Delarue, M. 24] - invited talk</i>	
Séminaire de Probabilités et Statistique, LJAD	2023
<i>Presentation of [M. 23] - seminar of the probability and statistics group</i>	
PGMO Days	2023
<i>Presentation of [M. 23] - invited session "Mean field games and control"</i>	
A Random Walk in the Land of Stochastic Analysis and Numerical Probability	2023
<i>Presentation of [M. 23] - poster</i>	
SPDEs, optimal control and mean field games	2023
<i>Presentation of [M. 23] - poster</i>	
The 9th International Colloquium on BSDEs and Mean Field Systems	2022
<i>Presentation of [M. 23] - contributed talk</i>	
Third Italian Meeting on Probability and Mathematical Statistics	2022
<i>Presentation of [M. 23] - contributed session "New trends in stochastic control"</i>	
100 years UMI and First UMI meeting of PhD students	2022
<i>Presentation of [M. 23] - contributed talk</i>	

Università degli Studi Milano-Bicocca, Seminars cycle "In-salate di Matematica"	2021
<i>Backward Kolmogorov equations: a link between PDEs and SDEs</i>	
Trento-Wuppertal School on Stochastic Processes, Analysis and Semigroups	2021
<i>Presentation of [M. 23] - contributed talk</i>	
Working group on Optimal Transport and Mean Field Games, Università degli Studi di Milano - Università degli Studi di Milano Bicocca - Politecnico di Milano	2019
<i>Two lectures on differentiation in Wasserstein spaces</i>	

TEACHING

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

VISITING PERIODS

Imperial College, London	July 2024
<i>1 Week Collaboration with Ofelia Bonesini</i>	
Università di Parma	February 2024
<i>1 Week Collaboration with Alessandro Calvia</i>	
KTH, Stockholm	May 2022
<i>1 Week Collaboration with Boualem Djehiche</i>	

ORGANIZATION

Part of the organizers of "Workshop on Stochastic Processes, Stochastic Optimal Control, and their Applications"	
<i>September 26 - 27th, 2024 Politecnico di Milano</i>	
Contributed session "Mean Field Games and Mean Field Control I"	
<i>4th Italian Meeting on Probability and Mathematical Statistics, 2024 Roma</i>	
Conference "Phd Days 2021"	
<i>December 14 - 17th, 2021 Università degli Studi di Milano</i>	

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.
Part of research projects	<ul style="list-style-type: none"> From 2023: member of the ERC project ELISA (Grant agreement No. 101054746), P.I. Prof. F. Delarue.
Memberships	<ul style="list-style-type: none"> From 2022: Unione Matematica Italiana (UMI) From 2020: Indam, GNAMPA
Scholarships	<ul style="list-style-type: none"> 2016 to 2018: Scholarship for the best off-site students 2015: Scholarship for the best freshmen of A.Y. 2014/2015

Statistical and probabilistic analysis of random networks and processes

September 9 - 13, 2024 | Université Côte d'Azur (conference)

2nd AMS-UMI International Joint Meeting

July 23 - 26, 2024 | Università degli Studi di Palermo (conference)

Fourth Italian Meeting on Probability and Mathematical Statistics

June 10 - 14, 2024 | Rome (conference)

Mean-Field Interaction, Singular Kernels, and Approximation

December 18 - 22, 2023 | Institut Henri Poincaré, Paris (conference)

Young Researchers in Stochastic Control and Games

December 14 - 15, 2023 | Universität Bielefeld (workshop)

PGMO Days

November 28 - 29, 2023 | EDF Lab Paris-Saclay (conference)

A Random Walk in the Land of Stochastic Analysis and Numerical Probability

September 4 - 8, 2023 | CIRM Luminy (conference)

SPDEs, optimal control and mean field games

July 10 - 14, 2023 | Universität Bielefeld (workshop)

Summer School on Mean Field Models

June 12 - 16, 2023 | Centre Henri Lebesgue, Université de Rennes (school)

Two-day workshop on deterministic and stochastic control

September 6 - 7, 2022 | Politecnico di Milano (workshop)

9th International Colloquium on BSDEs and Mean Field Systems

June 27 - July 1, 2022 | IAE Savoie Mont Blanc, Annecy (conference)

Third Italian Meeting on Probability and Mathematical Statistics

June 13 - 16, 2022 | Università di Bologna (conference)

100 years UMI & First UMI meeting of PhD students

May 23 - 27, 2022 | Università di Padova (conference)

Stochastic Games and Martingale Optimal Transport

May 5 - 6, 2022 | Università degli Studi di Milano (workshop)

3rd Spring Colloquium on Probability and Finance

April 28 - 29, 2022 | Università di Padova, online (workshop)

Schrödinger Problem and Mean-field PDE Systems: Computational and Theoretical Advances

November 15 - 19, 2021 | CIRM Luminy (conference)

Trento-Wuppertal School on Stochastic Processes, Analysis and Semigroups

August 30 - September 3, 2021 | Università di Trento (school)

Stochastic games with partial and asymmetric information

July 6 - 7, 2021 | Collegio Carlo Alberto, online (workshop)

Stochastic Processes and their Friends

March 18 - 19, 2021 | University of Leeds, online (conference)

Mean field games in economics

September 7 - 8, 2020 | LUISS University and Einaudi Institute for Economics and Finance, online (workshop)

13th European Summer School in Financial Mathematics

August 31 - September 4, 2020 | University of Vienna (school)

Stochastic analysis brats

June 23 - 26, 2020 | Università di Pisa, online (workshop)

OTHER SKILLS

IT

- **Operating systems:** Microsoft Windows, Linux-Unix, MacOS
- **Office:** \LaTeX , Microsoft Office
- **Languages:** C++, C, MPI
- **Scientific programming:** Matlab, R, FreeFem

Languages

- Italian (native)
- English (Full professional proficiency)
- French (Basic)

Mattia Martini
23/09/2024