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Andrea Amato
PHD STUDENT IN MATHEMATICS

Profile

Andrea Amato is a Ph.D. student in Mathematics at the University of Bologna. His studies are focused on different areas of probability theory, form stochastic calculus and finance to numerical probability and machine learning.

He received his Master's degree in Mathematics with distinction at the University of Bologna in 2023. After this, he was offered a Ph.D. scholarship, within the PNRR European project 'Mathematical methods and models for human resource planning, public safety and environmental protection'. In this project he is studying a problem of optimization of a photovoltaic panels system in a joint project with the Department of Electrical, Electronic, and Information Engineering 'Guglielmo Marconi' at the University of Bologna.

In his research, Andrea and other authors are developing a numerical approximation of McKean-Vlasov stochastic differential equations using the stochastic gradient descent method. Also, Andrea is analyzing a portfolio optimization problem in the form of a singular stochastic optimal control problem motivated by optimal goal-based investment.

Education

2023–Now
Alma Mater Studiorum University of Bologna
PHD in Mathematics

2020–2023
Alma Mater Studiorum University of Bologna
Master's Degree in Mathematics
Thesis: *Numerical Resolution of McKean-Vlasov Stochastic Differential Equations by Stochastic Gradient Descent Method*
Advisor: Stefano Pagliarani

2017–2020
Alma Mater Studiorum University of Bologna
Bachelor's Degree in Mathematics
Thesis: *Stochastic Gradient Descent Method*
Advisors: Andrea Pascucci and Stefano Pagliarani

2012–2017
Niccolò Copernico Scientific High School
High School Diploma
Option: Applied Sciences

Tutoring Experience

2024
Alma Mater Studiorum University of Bologna
Course: PROBABILISTIC METHODS FOR MACHINE LEARNING [cod. 96791]

2023
Professors: Stefano Pagliarani and Giovanni Paolini

Alma Mater Studiorum University of Bologna
Course: CALCOLO DELLE PROBABILITA' E STATISTICA [cod. 04642]
Professors: Elena Bandini and Stefano Pagliarani

Publications	2023	**Journal paper in review** *Numerical approximation of McKean-Vlasov SDEs via stochastic gradient descent* (Agarwal Ankush, Amato Andrea, Pagliarani Stefano, dos Reis Gonçalo)

Attended Events	2024	**Conference** *4th Italian Meeting on Probability and Mathematical Statistics, University building of San Pietro in Vincoli (Rome, 10th - 14th June 2024)* Participant **Workshop** *Workshop on Stochastic Processes, Stochastic Optimal Control, and their Application, Politecnico di Milano, Department of Mathematics (Milan, 26 - 27 September 2024)* Participant

Experience	2022	**Universidad Complutense de Madrid** (Madrid, Spain) Erasmus+
	2021	**Multitraccia S.C.** (Reggio Emilia, Italy) internship

Languages	Italian	Native
	English	Fluent
	Spanish	Intermediate

Computer Skills	Microsoft Office (Word, Excel, etc.) Python (Numpy, Sklearn, Pytorch, etc.) MATLAB LaTeX Jupyter Notebook GitHub Google Colab