Michele Azzone

RTT at Politecnico di Milano

Birth: 08/06/1994

Education

Oct 2018–Feb 2022 **PhD in Mathematical Models and Methods in Engineering**, *Politecnico di Milano*, Italy
- Thesis Title: Modeling the implied volatility surface: a new method via additive processes.
- Volatility surface modelling with Additive processes and implicit cost of funding in the equity market.
- Artificial intelligence techniques for power consumption and insurance contracts lapse prediction.
- Fin-tech ho-2020 program, sup-tech dissemination sessions with the Italian market authority (CONSOB).

Oct 2016–Oct 2018 **Master Degree in *Quantitative Finance***, *Politecnico di Milano*, Italy, **110/110 cum laude**
- Main Exams: Mathematical Finance I and II, Financial Engineering,Computational Finance and Applied Statistics.
- Thesis title: Additive process for equity index derivatives.

Sep 2013–Sep 2016 **Bachelor's Degree in *Ingegneria Matematica***, *Politecnico di Milano*, Italy, **105/110**
- Thesis title: Expectation Maximization algorithm for mixed random variable.

Sep 2008–July 2013 **Maturità classica**, *Liceo Clemente Rebora*, Italy, **95/100**
- Literature, Mathematics, Latin and ancient Greek.

Experience

May 2025–Now **Researcher RTT**, *Politecnico di Milano*, Italy
- Volatility surface modelling.
- Green and Carbon finance: CO2 Factors, EU-ETS market and ESG ratings.
- Teaching: Econometrics (5 credits) and Computational Finance (6 credits).
- Master Thesis supervisors: 10 thesis as supervisor (from 2023).
- Co-supervision of PhD students: 1 candidate.

Feb 2023–May 2025 **Researcher RTDA**, *Politecnico di Milano*, Italy
- Volatility surface modelling with Additive processes.
- Green and Carbon finance: CO2 Factors, EU-ETS market and ESG ratings.
- Teaching: Econometrics (5 credits) and Financial Engineering (2 credits).

Jun 2022–Feb 2023 **Postdoc**, *Politecnico di Milano*, Italy
- Teaching assistant in the computational finance class.
- Theory and laboratories of portfolio allocation and energy finance.
- Central bank digital currency and deposit value.

Sep 2022– Dec 2022 **Financial Stability Analyst**, *ECB, Macroprudential Policy division*, Germany
- ECB working paper: Aim, Focus, Shoot. The Choice of Appropriate and Effective Macroprudential Instruments.
- Forthcoming ECB working paper: Collateral implied volatility risk and LTV calibration with **Anacredit** data.
- Contribute to the division main outputs in internal and external policy questions.

Jun 2021–May 2022 **PhD trainee**, *ECB, Macroprudential Policy division*, Germany
- Monetary and Macroprudential policy interactions within the 3D DSGE model.
- Partecipate in drafting ECB contribution to the review of the EU macroprudential framework. Latvia country expert and monitoring of Macroprudential policy in EA countries.

Oct 2018–Jun 2020 **Research assistant**, *Politecnico di Milano*, Italy
- Tutor and assistant professor in "Financial Engineering" class.

Feb 2018–Aug 2018 **Quantitative Analyst Intern**, *Unicredit*, Italy
- Pricing of credit plain vanilla and structured products.
- Statistic and Probability analysis on **big data-set** with R-studio and Sas EG.

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National Scientific Qualification

November 2024 **National Scientific Qualification as Associate Professor**, *Mathematical Methods for Economics, Actuarial and Financial Sciences*, 13/STAT-04

Publications

October 2025 **Physical Climate Risk in Asset Management** , Corporate Social Responsibility and Environmental Management, `https://doi.org/10.1002/csr.70215`

October 2025 **Hedging carbon risk with a network approach** , Physica A: Statistical Mechanics and its Applications, `https://doi.org/10.1016/j.physa.2025.130858`

August 2025 **Leveraging Panel Data in Retailing Research with Machine Learning Analytics: An Empirical Application** , Proceedings of Advances in National Brand and Private Label Marketing , `https://doi.org/10.1007/978-3-031-97133-4_11`

June 2025 **Explicit option pricing with additive processes** , SIAM Journal of Financial Mathematics, `https://doi.org/10.1137/23M1621241`

May 2025 **The puzzle of Carbon Allowance spread** , Energy Economics, `https://doi.org/10.1016/j.eneco.2025.108459`

November 2024 **Is (Independent) Subordination Relevant in Equity Derivatives?** , Applied Stochastic Models in Business and Industry, `https://doi.org/10.1002/asmb.2904`

June 2024 **On the implied volatility skew outside the at-the-money point** , Quantitative finance, `https://doi.org/10.1080/14697688.2024.2357727`

October 2023 **Evaluation of sight deposits and central bank digital currency** , Journal of International Financial Markets, Institutions and Money, `https://doi.org/10.1016/j.intfin.2023.101841`

June 2023 **A fast Monte Carlo scheme for additive processes and option pricing** , *Computational Management Science*, `https://doi.org/10.1007/s10287-023-00463-1`

September 2022 **Short-time implied volatility of additive normal tempered stable process**, *Annals of Operations Research* , `https://link.springer.com/article/10.1007/s10479-022-04894-y`

April 2022 **A machine learning model for lapse prediction in life insurance contracts**, *Expert systems with applications*, `https://doi.org/10.1016/j.eswa.2021.116261`

December 2021 **Additive normal tempered stable processes for equity derivatives and power law scaling** , *Quantitative Finance*, `https://doi.org/10.1080/14697688.2021.1983200`

July 2021 **Synthetic forwards and cost of funding in the equity derivative market**, *Finance Research Letters*
`https://doi.org/10.1016/j.frl.2020.101841`

March 2021 **Neural Network Middle-Term Probabilistic Forecasting of Daily Power Consumption** , *Journal of Energy Markets* , `https://doi.org/10.21314/JEM.2020.216`

Preprints

August 2024 **Aim, Focus, Shoot. The Choice of Appropriate and Effective Macroprudential Instruments**, ECB working paper, `https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2979~eb7b4bfc7f.en.pdf`

March 2024 **Asset management with an ESG mandate** , `https://arxiv.org/abs/2403.11622`

Talks

September 2025 **Talk**, *AMASES 2025 Conference*, Italy
- Climate Physical Risk: A Firm Value Model Approach.

September 2025 **Lecture at Summer School**, *Data Science for Sustainable Finance and Economics 2025*, Germany
- Portfolio optimization strategies.

September 2025 **Talk**, *SCF 2025 Conference*, Portugal
- Additive normal tempered stable processes and additive subordination for equity derivatives.

July 2025 **Talk**, *SIAM Conference on Financial Mathematics and Engineering 2025*, United States
- Overcoming Misconceptions About Local Volatility: Exact Prices Lead to Sound Continuous Markovian Models

May 2025 **Talk**, *Seminar at the Department of Economics of University of Genoa*, Italy
- Overcoming Misconceptions About Local Volatility: Exact Prices Lead to Sound Continuous Markovian Models

April 2025 **Talk**, *CLIFIRIUM 2025*, Italy
- Climate Physical Risk: A Firm Value Model Approach.

February 2025 **Talk**, *Workshop on Numerical Methods for Finance and Insurance*, Italy
- The puzzle of carbon allowance spread.

February 2025 **Talk**, *Energy Finance Italia 10 conference*, Italy
- Climate Physical Risk: A Firm Value Model Approach

January 2025 **Talk**, *International Fintech Research conference*, Italy
- Climate Physical Risk: A Firm Value Model Approach

December 2024 **Talk**, *CFE-CMStatistics conference 2024*, UK
- The puzzle of carbon allowance spread.

September 2024 **Talk**, *AMASES conference 2024*, Italy
- Central bank digital currency in a macroeconomic agent based model.

July 2024 **Talk**, *ECSO-CMS conference 2024*, Sweden
- The puzzle of carbon allowance spread.

June 2024 **Talk**, *CSBF 2024*, Italy
- The puzzle of carbon allowance spread.

May 2024 **Talk**, *Meeting on Quant Finance 2024*, Italy
- Is (independent) subordination relevant in option pricing?

April 2024 **Talk**, *Quantitative Finance Workshop 2024*, Italy
- Is (independent) subordination relevant in option pricing?

April 2024 **Talk**, *International Conference on Computational Finance 2024*, Netherlands
- A fast Monte Carlo scheme for additive processes and option pricing.

March 2024 **Talk**, *DiMSEFA Seminar, Università Cattolica del Sacro Cuore*, Italy
- Asset management with an ESG mandate.

February 2024 **Talk**, *Workshop Energy Finance Italia 9*, Italy
- The puzzle of carbon allowance spread.

January 2024 **Talk**, *Green Finance workshop 2024*, Italy
- Asset management with an ESG mandate.

November 2023 **Talk**, *International Fintech Research Conference*, Italy
- Can we hedge carbon risk? A network embedding approach

September 2023 **Talk**, *AMASES Conference 2023*, Italy
- Explicit option pricing with additive processes

June 2023 **Talk**, *MathRisk Conference on Numerical Methods in Finance*, Italy
- Explicit option pricing with additive processes

April 2023 **Talk**, *Quantitative Finance Workshop 2023*, Italy
- Evaluation of sight deposits and central bank digital currency.

December 2022 **Seminar**, *DGMF Seminar, ECB*, Germany
- Macroprudential policy and monetary policy friends or foes?

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October 2022	**Talk**, *International Fintech Research Conference*, Italy ◦ Evaluation of sight deposits and central bank digital currency.
September 2022	**Talk**, *AMASES 2022 conference*, Italy ◦ Short-time implied volatility of additive normal tempered stable processes.
May 2022	**Talk**, *Intrinsic time in finance 2022*, Germany ◦ Normal tempered stable additive processes for equity derivatives and power law scaling.
May 2022	**Seminar**, *MAP Seminar, ECB*, Germany ◦ Macroprudential policy and monetary policy friends or foes?
April 2022	**Talk**, *Quantitative Finance Workshop 2022*, Italy ◦ Short-time implied volatility of additive normal tempered stable processes.
March 2022	**Talk**, *Modeling Uncertainty in Social, Economic, and Environmental Sciences*, France ◦ Short-time implied volatility of additive normal tempered stable processes.
July 2021	**Talk**, *New challenges in quantitative finance*, Spain ◦ Short-time implied volatility of additive normal tempered stable processes.
June 2021	**Talk**, *Big Data and Machine Learning in Finance Conference*, Italy ◦ A machine learning estimation of lapse rates.
May 2020	**Talk**, *Fintech Workshop on AI, Financial Automation and Market Risk*, UK ◦ Neural Network Middle-Term Probabilistic Forecasting of Daily Power Consumption.
Jan 2020	**Poster Presentation**, *Quantitative Finance Workshop*, Italy ◦ Normal tempered stable additive processes for equity derivatives.
Jan 2020	**Talk**, *Advances in Financial Mathematics 2020*, France ◦ Normal tempered stable additive processes for equity derivatives and power law scaling.
Sep 2019	**Talk**, *Vienna Conference on Mathematical Finance*, Austria ◦ Normal tempered stable additive processes for equity derivatives and power law scaling.
Jan 2019	**Poster Presentation**, *18th Winter school on Mathematical Finance*, Netherlands ◦ Normal tempered stable additive processes for equity derivatives.

Section organized

Sep 2025	**Time-Inhomogeneous Lévy(Additive) Processes:Applications in Financeand Energy**, *SCF 2025 Conference*, Portugal

Visiting Period

May 2025	**University of Genoa**, *Department of Economics* ◦ Host: Prof. Matteo Brachetta

Conferences Organized

October 2025	**Scientific and Organizing Committee**, *Algo trading & Defi Workshop*, Italy Politecnico di Milano
June 2025	**Organizing Committee**, *Financial education. Why, what works, what doesn't and for whom Workshop*, Italy Politecnico di Milano
November 2024	**Scientific and Organizing Committee**, *Algo trading & Defi Methods and Technologies Workshop*, Italy Politecnico di Milano
February 2023	**Organizing Committee**, *Energy Finance Italia 8 Conference*, Italy Politecnico di Milano
June 2021	**Organizing Committee**, *Big Data and Machine Learning in Finance Conference*, Italy Politecnico di Milano

Teaching

2024-2025 **Econometrics**, *5 Credits*
Politecnico di Milano

2024-2025 **Financial Engineering**, *2 Credits (TA)*
Politecnico di Milano

2024-2025 **Portfolio Management**, *10 Hours (TA)*
G-SOM, master finanza quantitativa

2023-2024 **Econometrics**, *5 Credits*
Politecnico di Milano

2023-2024 **Portfolio Management**, *8 Hours*
Cefriel, Master in Finance, Insurance, and New Technologies

2023-2024 **Portfolio Management**, *10 Hours (TA)*
G-SOM, master in Finanza Quantitativa

2022-2023 **Econometrics**, *5 Credits*
Politecnico di Milano

2022-2023 **Portfolio Management**, *8 Hours*
Cefriel, Master in Finance, Insurance, and New Technologies

2022-2023 **Financial Engineering**, *2 Credits (TA)*
Politecnico di Milano

2022-2023 **Portfolio Management**, *10 Hours (TA)*
G-SOM, master in Finanza Quantitativa

2022-2023 **Computational Finance**, *4 Credits (TA)*
Politecnico di Milano

2020-2021 **Financial Engineering**, *2 Credits (TA)*
Politecnico di Milano

2019-2020 **Financial Engineering**, *2 Credits (TA)*
Politecnico di Milano

Partecipation to national and international research groups

2023-Now **Ecosistema dell'Innovazione MULTILAYERED URBAN SUSTAINABILITY ACTION (MUSA)**, *finanziato dal Ministero dell'Università e della Ricerca nell'ambito del Piano Nazionale di Ripresa e Resilienza*

2019-2021 **Network FINancial supervision and TECHnology compliance training programme**, *Financed by the European Union's Horizon 2020 research and innovation program under grant agreement No 825215*

Dissemination and third mission initiatives

2023-Now **Teaching activities for PoliCollege**, *PoliCollege is an innovative Politecnico di Milano project offering talented high school students advanced online courses in technical and scientific fields,*

2023-Now **Involved in the activities of `imparalafinanza.it` with QFinLab**, *Partecipating to a wide range of educational activities among which flipped classroom for high school students, MOOC and summer schools*

Projects with industry

2023 **Fattori di sostenibilità e rischi ESG nei prodotti di investimento**, *BCC SINERGIA S.p.A. (BCC RISPARMIO &PREVIDENZA)*, Responsabile alla ricerca

Languages

Italian	Native speaker
English	C1 *Toeic score: 960/990*

Computer skills

Programming Languages	MATLAB, Python, R, Dynare, C++, LaTeX.
Software environment	Office Suite, Reuters Eikon, Sas EG.

- Autorizzo al trattamento dati ai sensi del GDPR 2016/679 del 27 aprile 2016 (Regolamento Europeo relativo alla protezione delle persone fisiche per quanto riguarda il trattamento dei dati personali).
- Autorizzo la pubblicazione del Curriculum Vitae sul sito istituzionale del Politecnico di Milano (sez. Amministrazione Trasparente) in ottemperanza al D. Lgs n. 33 del 14 marzo 2013 (e s.m.i.).
- I have been teaching a 5-credit econometrics course every year since February 2023. However, due to administrative reasons, I am formally assigned to teach a 10-credit course every two years.