Marco Scaratti

marco.scaratti@univr.it website google scholar marco-scaratti

ABOUT ME

I am a third-year PhD student in *Mathematics and Data Analytics for Finance* at the University of Verona. Since October 2025, I have been a visiting PhD student at Université Paris Cité, within the Laboratoire Jacques-Louis Lions.
Research interests: stochastic optimal control and neural network-based approximation mathods, mean field games and mean field control, mathematical finance.

EDUCATION

PhD in Mathematics and Data Analytics for Finance — 2023 - 2027

University of Verona, Verona, Italy

PhD Program: Economics and Finance
Supervisor: Prof. Athena Picarelli
External Courses: Discretization of Processes (Prof. Jean Jacod), Mean Field Games (Prof. Luciano Campi and Prof. Giulia Livieri), Elements of Financial Risk Management (Prof. Kim Christensen), Stochastic Processes in Finance II (Prof. Christa Cuchiero), Corporate Finance (Prof. Andrea Gamba), Machine Learning (Prof. Christoph Reisinger), Stochastic control and games with different information structures (Prof. Giorgia Callegaro and Prof. Luciano Campi), High Frequency Markets (Prof. Mathieu Rosenbaum), Continuous Time Reinforcement Learning (Prof. Xunyu Zhou), Deep Galerkin method for PDEs (Prof. Samuel Cohen).
Internal Courses: Continuous Time Econometrics (Prof. Cecilia Mancini), Mathematical Statistics (Prof. Catia Scricciolo), Stochastic Optimization and Control (Prof. Athena Picarelli), Financial Time Series (Prof. Giuseppe Buccheri and Prof. Francesca Rossi), Financial Mathematics (Prof. Alessandro Gnoatto), Stochastic Processes in Finance I (Prof. Sara Svaluto-Ferro), Introduction to Economics (Prof. Roberto Ricciuti).

Université Paris Cité, Paris, France

Visiting period at *Laboratoire Jacques-Louis Lions*, starting in October 2025.
Supervisor: Prof. Olivier Bokanowski

Master's Degree in Mathematics — 2023

University of Milan, Milan, Italy

Final Evaluation: 110/110 cum laude
Thesis: Mean Field Games in Energy Markets: a Stackelberg Competition for Demand Side Management Contracts
Advisor: Prof. Luciano Campi
Related coursework: Advanced Mathematical Statistics (PL: `R` & `Spark`), Advanced Probability, Advanced topics in Stochastic Calculus, Laboratory of Mathematical Modeling (PL: `Python`), Mathematical Finance I-II, Operations Research (PL: `AMPL` & `glpsol`), Partial Differential Equations, Point Processes and Random Sets, Real Analysis, Stochastic Calculus and Applications (PL: `Matlab`), Stochastic Optimal Control.

Bachelor's Degree in Mathematics — 2020

University of Milan, Milan, Italy

Final Seminary: Nonlinear Regression Models

PUBLICATIONS

Preprint(s)

- A. Picarelli, M. Scaratti, J. Tam (2025). *Extended mean field control: a global numerical solution via finite-dimensional approximation.* Preprint on `arXiv:2503.20510`.

SCIENTIFIC ACTIVITIES

Organization of Workshops/Conferences

- 12th General AMaMeF Conference, June 23-27, 2025, Verona, Italy.
- 2nd Verona Early Carrer Workshop in Economics, May 5-6, 2025, Verona, Italy.

Referee Activity

- SIAM Journal on Financial Mathematics
- Decisions in Economics and Finance

ACADEMIC DUTIES

- PhD Student Representative at the Faculty Board of PhD in Economics and Finance, University of Verona (January 2025 - today)
- PhD Student Representative at the QA Board of PhD in Economics and Finance, University of Verona (March 2025 - today)

TEACHING ACTIVITY

Master courses

- *Mathematical Finance*, University of Verona, 2025, T.A.
  Contents: Discrete-time models, Stochastic Calculus, Continuous-time models.
  Programming Language: `Java`
- *Quantitative Methods for Business and Economics*, University of Verona, 2024, T.A.
  Contents: Probability, Inferential Statistics, (Un)constrained Optimization, ODEs.
  Programming Language: `Matlab`

Bachelor courses

- *Mathematics for Economics*, University of Verona, 2025, Lecturer
  Contents: Mathematical and Statistical preliminaries.
- *Probability, Statistics and Computer Science*, University of Milan, 2021, T.A.
  Contents: Probability, Descriptive Statistics, Inferential Statistics.
  Programming Language: `R, IDE RStudio`

INVITED (∗) AND CONTRIBUTED TALKS

∗ Extended mean field control: a finite-dimensional numerical approximation, *PGMODays 2025, Paris, France (November 2025)*
- Extended mean field control: a finite-dimensional numerical approximation, *Vienna Congress on Mathematical Finance, Vienna, Austria (July 2025)*
- Extended mean field control: a finite-dimensional numerical approximation, *12th General AMaMef Conference, Verona, Italy (June 2025)*
- Extended mean field control: a finite-dimensional numerical approximation, *Brown Bag Seminars, Verona, Italy (March 2025)*
- Mean-field approach for demand side management contracts in energy markets, *4th Italian Meeting on Probability and Mathematical Statistics, Rome, Italy (June 2024)*

∗ Mean field games in energy markets: a study of the profitability of demand side management contracts, *PhD Seminar: Advanced Stochastic Modelling, Vienna (online), Austria (October 2023)*

ATTENDED CONFERENCES/WORKSHOPS/SCHOOLS

- *Mean field games and mean field control in economics, Paris*, France (December 2025)

- *M-DayIII- Numerics for Controls, PDEs and Images, Turin*, Italy (November 2025)
- *PGMODays 2025, Paris*, France (November 2025)
- *Vienna Congress on Mathematical Finance, Vienna*, Austria (July 2025)
- *12th General AMaMef Conference*, Verona, Italy (June 2025)
- *2nd Early Carrer Workshop in Economics*, Verona, Italy (May 2025)
- *XXVI Workshop on Quantitative Finance*, Palermo, Italy (April 2025)
- *Optimal Transport: from robust pricing to model calibration*, Winter School, Folgarida, Italy (January 2025)
- *Uncertainty and Risk in Financial Mathematics*, Milan, Italy (December 2024)
- *4th Italian Meeting on Probability and Mathematical Statistics*, Rome, Italy (June 2024)
- *1st Early Carrer Workshop in Economics*, Verona, Italy (April 2024)
- *XXV Workshop on Quantitative Finance*, Bologna, Italy (April 2024)
- *Workshop on Eco-Stat Asymptotics*, Verona, Italy (September 2023)

WORK EXPERIENCE

EY (Ernst & Young) May 2023 - Aug 2023

Milan, Italy

Junior Actuarial Consultant, Internship

- Life Insurance in European Actuarial Services.
- Regulatory changes, including Risk-Based Capital, Solvency II and IFRS17.
- *Technical Skills:* Excel VBA, Prophet, R.

Carrefour Italia Nov 2019 - Nov 2020

Milan, Italy

Data Analyst

- Analysis of Development Projects for the relevant Business Units, through predictive models and AI, in the European division SET Geo Data - Finance Department.
- Creation and management of relational databases for predictive and prescriptive models, aimed at estimating impacts and vulnerabilities.
- M&A Analysis.
- *Technical Skills:* R, Excel VBA, Tableau, Alteryx.

SKILLS

Programming

`R`, `Matlab`, `C/C++`, `Python`, `Spark`, `Prophet`, `AMPL`, `glpsol`.

Miscellaneous

Microsoft Office, Linux, LaTeX, Tableau, Alteryx.

Languages

- *English*: Full Professional Proficiency
- *Italian*: Native Proficiency
- *Spanish*: Limited Working Proficiency

INTERESTS

Outdoor sports (hiking, cycling, climbing, skiing) and music (drums, guitar).

REFERENCES

Recommendation letters are available upon request.

Last update: January 2026.