Emanuele Guidotti

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EDUCATION

Postdoc in Finance - **USI Lugano** — Since August 2023
Supervisor: L. Fresard

PhD in Finance, **University of Neuchâtel** — 2019 — 2023
Supervisor: T.A. Kroencke Co-supervisor: D. Ardia

MSc in Finance, **University of Milan** — 2015 — 2017
Final evaluation: *summa cum laude.* Supervisor: S.M. Iacus

BSc in Physics, **University of Milan** — 2012 — 2015
Final evaluation: *summa cum laude.* Supervisor: S.M. Iacus and A. Vicini

RESEARCH INTERESTS

Financial markets, Data science, Artificial intelligence.

PUBLISHED PAPERS

"Efficient Estimation of Bid-Ask Spreads from Open, High, Low, and Close Prices"
D. Ardia, E. Guidotti, T.A. Kroencke
Journal of Financial Economics, vol. 161, pag. 103916, 2024 [link]

"Text Classification with Born's Rule"
E. Guidotti, A. Ferrara
Advances in Neural Information Processing Systems, vol. 35, pag. 30990-31001, 2022 [link]

"calculus: High Dimensional Numerical and Symbolic Calculus in R"
E. Guidotti
Journal of Statistical Software, vol. 104(5), pag. 1-37, 2022. [link]

"A worldwide epidemiological database for COVID-19 at fine-grained spatial resolution"
E. Guidotti
Scientific Data, vol. 9(1), pag. 1-7. Nature Publishing Group, 2022. [link]

"COVID-19 Data Hub"
E. Guidotti, D. Ardia
Journal of Open Source Software, vol. 5(51), pag. 2376, 2020. [link]

"Are official confirmed cases and fatalities counts good enough to study the COVID–19 pandemic dynamics? A critical assessment through the case of Italy"
K. Bartoszek, E. Guidotti, S. Iacus, M. Okrój.
Nonlinear Dynamics, vol. 101(3), pag. 1951-1979. Springer, 2020. [link]

WORKING PAPERS

“A Model of Price Formation in Frictionless Markets”
E. Guidotti
SSRN, preprint. [link]

“Liquidity Premia and Bid-Ask Spreads: Evidence from 94 Years in the U.S. Stock Market”
D. Ardia, E. Guidotti, T.A. Kroencke

“Asymptotic expansion formulas for diffusion processes based on the perturbation method”
E. Guidotti, N. Yoshida

CONFERENCES AND SEMINARS

2025
Annual Meeting of the Swiss Society for Financial Market Research (SGF) - *Discussant*
Workshop on Numerical Methods For Finance and Insurance (NMFIW) - *Presenter*

2024 (all *presenter*)
International Conference on Computational and Methodological Statistics (CMStatistics)
Institute for Mathematical Statistics - Asia-Pacific Rim Meeting (IMS-APRM)

2023 (all *presenter*)
Seminar at EPFL, Swiss Finance Institute
Seminar at Linköping University, Machine Learning Series (IDA)
Seminar at OST, Interdisciplinary Center for Artificial Intelligence (ICAI)
Seminar at University of Milan, Information Systems and Knowledge Management (ISLab)

2022 (all *presenter*)
Conference on Neural Information Processing Systems (NeurIPS)
Annual Meeting of the Financial Management Association (FMA)
Annual Meeting of the European Finance Association (EFA)
International Conference on Quantitative Finance and Financial Econometrics (QFFE)
Seminar at HEC Montréal, Department of Finance

2021 (all *presenter*)
International Conference on Computational and Methodological Statistics (CMStatistics)
Annual Financial Market Liquidity Conference (AFML)
International Risk Management Conference (IRMC)
Annual Meeting of the German Finance Association (DGF)
IUPAP Conference on Computational Physics (CCP)
Quantact Seminar

2020 (all *presenter*)
International Conference on Computational and Methodological Statistics (CMStatistics)
Next Einstein Forum Global Gathering
European R Users Meeting (eRum)

2019 (all *presenter*)

International Conference on Computational and Methodological Statistics (CMStatistics)
European Meeting of Statisticians (EMS)

2018 (all *presenter*)

Seminar at the University of Tokyo, Graduate School of Mathematical Sciences

2017 (all *presenter*)

International Conference on Computational and Methodological Statistics (CMStatistics)
Annual Meeting of the Association for Mathematics Applied to Social and Economic Sciences
R/Finance Conference
Seminar at the University of Tokyo, Graduate School of Mathematical Sciences

ACADEMIC VISITS

VISITING SCHOLAR, **HEC Montréal**, Department of Decision Sciences — May 2022
Host: D. Ardia

VISITING SCHOLAR, **University of Tokyo**, Mathematical Sciences — Non-consecutive 4 months period between 2017 — 2018
Host: N. Yoshida

RESEARCH SOFTWARE

"COVID-19 Data Hub"
Total downloads: 260,000+. Data downloads: 6,230,000+. Links: [GitHub] [CRAN] [PyPI]

"bidask: Efficient Estimation of Bid-Ask Spreads from Open, High, Low, and Close Prices"
Total downloads: 16,000+. Links: [GitHub] [CRAN] [PyPI]

"bornrule: Classification with Born's Rule"
Total downloads: 11,000+. Links [GitHub] [PyPI]

"torchabc: An Abstract Class for Training, Evaluation, and Inference of PyTorch Models"
Total downloads: 42,000+. Links [GitHub] [PyPI]

"calculus: High Dimensional Numerical and Symbolic Calculus in R"
Total downloads: 52,000+. Links: [GitHub] [CRAN]

"RblDataLicense: R Interface to Bloomberg Data License"
Total downloads: 52,000+. Links [GitHub] [CRAN]

"yuimaGUI: A Graphical User Interface for the yuima Package"
Total downloads: 29,000+. Links: [CRAN]

TEACHING

Corporate Finance (Teaching) — 2024 — 2025
— *Master* in Finance, University of Lugano

Deploying Machine Learning Models on Google Cloud Platform (Teaching) — 2022 — 2025
— *Master* in Data Science for Economics, University of Milan

Stochastic Differential Equations with YUIMA (Co-Teaching) — March 2023
— *Ph.D.* course, Linköping University

Data Acquisition, Management, and Visualization (Teaching) — 2020 — 2022
— *Master* in Data Science for Economics, University of Milan

Coding for Data Science and Data Management (Co-Teaching) — 2019 — 2020
Text Mining and Sentiment Analysis (Co-Teaching)
— *Master* in Data Science for Economics, University of Milan

YUIMA Summer School on Computational and Statistical Methods for Stochastic Process (Co-Teaching) — June 2019
— *Ph.D.* course, University of Brixen

Asset Pricing (Teaching Assistant) — 2020 — 2023
Portfolio Management (Teaching Assistant)
Quantitative Methods for Finance (Teaching Assistant)
Research in Financial Analysis (Teaching Assistant)
— *Master* in Finance, University of Neuchâtel

GRANTS AND AWARDS

2025 — Open Data Quality Award by the Canadian Open Data Society
2024 — USI Research Grant in Open Research Data (CHF 50'000)
2024 — R Consortium ISC Grant Program
2022 — Neural Information Processing Systems (NeurIPS) Scholar Award
2022 — Mobility Scholarship of the University of Neuchâtel
2022 — Fonds Gold Open Access of the University of Neuchâtel
2021 — Google Cloud Research Credits
2020 — R Consortium ISC Grant Program
2020 — Institute for Data Valorization (IVADO) Research Grant

ACADEMIC SERVICE

R*eviewer of peer-reviewed journals*:

Mathematical Finance (2025)
Journal of Financial Econometrics (2024)
Financial Markets and Portfolio Management (2024)
The R Journal (2023)
Scientific Data, Nature (2022)

Jury member of PhD theses:

"Advancing Portfolio Decision Making with Machine Learning: Attention Mechanism, Convolutional Neural Networks, and Neural Tangent Kernels"
Swiss Finance Institute PhD in Finance - École Polytechnique Fédérale de Lausanne (2025)
Candidate: Boris Kuznetsov
Supervisor: Semyon Malamud
Jury members: Daniel Kuhn, Damir Filipovic, Zhang Yuan, Emanuele Guidotti

"Empirical Asset Pricing: the Role of Big Data, Machine Learning, and Deep Learning"
Swiss Finance Institute PhD in Finance - École Polytechnique Fédérale de Lausanne (2024)
Candidate: Teng Andrea Xu
Supervisor: Semyon Malamud
Jury members: Daniel Kuhn, Damir Filipovic, Zhang Yuan, Emanuele Guidotti

Supervision of Master theses:

"Multi-Agent Reinforcement Learning for a Model-based Limit Order Book Simulation"
Master's Degree in Data Science and Economics, University of Milan (2024)
Candidate: Shihab Hamati
Supervisor: Nicolò Cesa-Bianchi
Co-supervisors: Alfio Ferrara, Emanuele Guidotti

"Image Classification with Born's Rule: Assessing Adaptability, Compatibility, and Performance of the Text Classification Algorithm in the Image Domain"
Master's Degree in Data Science and Economics, University of Milan (2024)
Candidate: Guido Giacomo Mussini
Supervisor: Alfio Ferrara
Co-supervisor: Emanuele Guidotti

OTHER EMPLOYMENT AND ADDITIONAL AFFILIATIONS

Japan Science and Technology Agency CREST — 2017 — present

Partner at Algo Finance Sagl — 2017 — 2025

PROGRAMMING

Proficient in Python, R, SQL, C++ / Shell scripting / Cloud computing / WRDS HPC

LANGUAGES

Italian (native), English (C1).