

Alessandro Bitetto

Assistant Professor (RUTDA) of Statistics, University of Pavia (Italy)

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Professional experience

- **Assistant Professor (RUTDA)** Oct 2022 - current
University of Pavia, Department of Economics and Management
 - Assistant Professor (RUTDA) (SECS-S/01) within the Horizon2020 European project “PERISCOPE: Pan European Response to the ImpactS of COvid-19 and future Pandemics and Epidemics”.
- **Research Associate** Oct 2022 - Feb 2023
Singapore Management University, Lee Kong Chian School of Business
 - Research Associate working on Quantitative Finance.
- **Research Fellow** Jan 2021 - Sep 2022
University of Pavia, Department of Economics and Management
 - Researcher in Statistics (SECS-S/01) within the Horizon2020 European project “PERISCOPE: Pan European Response to the ImpactS of COvid-19 and future Pandemics and Epidemics”.
 - Research activity on a) development of statistical methods to measure, monitor and manage the health and socioeconomic impacts and risks arising from the COVID-19 pandemic; b) statistical models to build synthetic indices to assess the country’s susceptibility to epidemic risks.
- **Head of R&D** Jul 2021 - Jul 2023
110 Laude S.R.L., Spin-off of University of Molise
 - Co-founder and Head of R&D (4 people).
 - Working activity: development of software to provide credit risk services for Micro, Small and Medium Enterprises, especially for unlisted firms.
- **PhD Intern** Oct 2018 - Dec 2020
Neosperience S.P.A., R&D on Data Science
 - Industrial PhD internship.
 - Intern activity on: (a) development of software for object detection and tracking to evaluate stores analytics (preferred routes, people counting, areas of interest) through deep learning techniques; (b) development of software to predict covid19 positive findings on chest x-ray and hearth echocardiography through computer vision deep learning techniques.
- **Research Fellow** Apr 2018 - Sep 2018
University of Pavia, Department of Political and Social Sciences
 - Researcher in Statistics (SECS-S/01).
 - Research activity on: Deep Learning for time series prediction.
- **Senior Data Scientist** Nov 2015 - Apr 2018
McKinsey & Company, Milan
 - Analytics Specialist & Senior Data Scientist on international projects (90% abroad, Europe and Middle East).
 - Working activity: (a) Development of Machine Learning tools to help clients (banks, insurances, telecommunication service), within Basel II and Stress Testing framework. (b) Present analytical results to non-expert audience and reporting activities. (c) Set up hackathons with clients to evangelize analytics culture and present training workshops on technical skills for junior colleagues.
 - Models: PD/LGD forecasting models, Random Forest and Gradient Boosting to predict probability and ability to pay debts.
- **Senior Quantitative Developer** Mar 2014 - Oct 2015
Ernst & Young, Milan
 - Senior Quantitative Developer on national projects.
 - Working activity: (a) Implementation of Interest Rate Models for Economic Scenario Generator, helping two major Italian insurance companies to comply with Solvency II framework. (b) Development of tests for market consistency and risk neutrality for produced scenarios and re-performing of risk models to evaluate Value at Risk metrics. (c) Present analytical results to non-expert audience and reporting activities.
 - Models: stochastic projection of risk factors (Interest Rates, Inflation, Equity, Property) with 2F-HullWhite, LIBOR market model, 2F-Vasicek, Heston, Stochastic Volatility Jump Diffusion, Cox–Ingersoll–Ross, Black&Scholes and Monte Carlo simulation with Pseudo and Quasi Random methods.

Teaching

Lecturer:

- **Data Science Methods (SECS-S/01) - PhD** Pavia (Italy)
8 hours (ENG), Istituto Universitario di Studi Superiori Pavia 2023/2024
– PhD in Sustainable Development and Climate change (SDC),
Curriculum: Socio-Economic Risk and Impacts.
- **Biostatistica e Fisica Medica (MED/01) - MSc** Milan (Italy)
40 hours, 3 ECTS (ITA), Vita-Salute San Raffaele University 2023/2024
- **Machine Learning (SECS-S/01) - BSc** Pavia (Italy)
44 hours, 6 ECTS (ENG), Department of Economics and Management, University of Pavia 2023/2024
- **Statistica Corso Avanzato (SECS-S/01) - BSc** Pavia (Italy)
22 hours, 3 ECTS (ITA), Department of Economics and Management, University of Pavia 2022/2023
2023/2024
- **Coding in Python (SECS-S/01) - MSc** Pavia (Italy)
10 hours, 1 ECTS (ENG), eXplainable Artificial Intelligence in Healthcare Management, University of Pavia 2022/2023
2023/2024
- **Introduction to Python programming - BSc (Preparatory course)** Pavia (Italy)
16 hours (ENG), Department of Economics and Management, University of Pavia 2021/2022

Assistant lecturer:

- **Big Data Analysis (SECS-S/01) - MSc** Pavia (Italy)
30 hours (ENG), Department of Economics and Management, University of Pavia 2020/2021
2021/2022

Other teaching:

- **Obblighi Formativi Aggiuntivi in Matematica e Logica** Milan (Italy)
80 hours (ITA), Department of Political and Social Sciences, University of Milano 2020/2021
2021/2022
2022/2023
- **Laboratory: From Data to Knowledge** Milan (Italy)
40 hours (ITA), Department of Political and Social Sciences, University of Milano 2021/2022
– Teaching modules: "Applied Data Science", "Final Project Presentation".

Digital Competences

- Proficiency in programming language: Python (expert), SQL, VBA (intermediate)
- Experience in statistical/econometric software: R (expert), Matlab, Stata (intermediate)
- Proficiency in data-analytics tools: Office, Git, LaTeX (expert), Tableau, Spotfire, Shiny (intermediate)
- Proficiency in web-scraping tools: Selenium (expert), HTML (intermediate)

Education

- **PhD (XXXIV Cycle), Electronics, Computer Science and Electrical Engineering** Pavia (Italy)
Major: Statistics, Machine Learning. University of Pavia Oct 2018 - Mar 2022
 - Thesis: "The role of Explainable Artificial Intelligence in risk assessment: a study on the economic and epidemiologic impact", Grade: Excellent
 - Supervisor: Prof. Dr. Paola Cerchiello, Prof. Dr. Paolo Giudici
- **MSc, Applied Mathematics** Bari (Italy)
Major: Numerical Analysis, Statistics. University of Bari Oct 2010 - Mar 2013
 - Thesis: "Statistical Methods of Multivariate Analysis for classification of archeological findings", 110/110
 - Supervisor: Prof. Dr. Rosa Maria Mininni, Prof. Dr. Annarosa Mangone
- **BSc, Mathematics** Bari (Italy)
Major: Analysis, Geometry, Algebra. University of Bari Oct 2006 - Sep 2010
 - Thesis: "One-step Methods for Single Perturbation Differential Systems", 103/110
 - Supervisor: Prof. Dr. Luciano Lopez
- **Winter/Summer Schools**
 - Aug 2022 - International School on Complexity - XVII Course: "Stochastic Forecasting in Complex Systems", Ettore Majorana Foundation and Centre for Scientific Culture, Erice, Italy
 - Aug 2019 - Mediterranean School of Complex Networks, Salina, Italy

Publications - Journal Articles

1. [2024] **Bitetto A.**, Cerchiello P., Filomeni S., Tanda A., Tarantino B., "Can we trust machine learning to predict the credit risk of small businesses?". (2024) *Review of Quantitative Finance and Accounting*. <https://doi.org/10.1016/j.rqfa.2023.101746>
2. [2023] **Bitetto A.**, Cerchiello P., Filomeni S., Tanda A., Tarantino B., "Machine learning and credit risk: Empirical evidence from small- and mid-sized businesses". (2023) *Socio-Economic Planning Sciences*, 9. <https://doi.org/10.1016/j.seps.2023.101746>
3. [2023] **Bitetto A.**, Cerchiello P., "Initial coin offerings and ESG: Allies or enemies?". (2023) *Finance Research Letters*, 57. <https://doi.org/10.1016/j.frll.2023.104227>
4. [2023] **Bitetto A.**, Cerchiello P., Mertzanis C., "On the efficient synthesis of short financial time series: A Dynamic Factor Model approach". (2023) *Finance Research Letters*, 53. <https://doi.org/10.1016/j.frll.2023.103678>
5. [2023] **Bitetto A.**, Cerchiello P., Mertzanis C., "Measuring financial soundness around the world: A machine learning approach". (2023) *International Review of Financial Analysis*, 85. <https://doi.org/10.1016/j.irfa.2022.102451>
6. [2021] **Bitetto A.**, Cerchiello P., Mertzanis C., "A data-driven approach to measuring epidemiological susceptibility risk around the world". (2021) *Scientific Reports*, 11. <https://doi.org/10.1038/s41598-021-03322-8>
7. [2016] **Bitetto A.**, Mangone A., Mininni R. M., Giannossa L. C., "A nonlinear principal component analysis to study archeometric data". (2016) *Journal of Chemometrics*, 30 (7), pp. 405-415. <https://doi.org/10.1002/cem.2807>

Revised, Submitted and Working Papers

1. **Bitetto A.**, Cerchiello P., "Initial Coin Offerings: can ESG mitigate Underpricing?". (2024) *Annals of Operations Research*. Submitted.
2. **Bitetto A.**, Cerchiello P., Mertzanis C., "Macroprudential policies and financing constraints: a machine learning approach". (2024) *Journal of Money, Credit and Banking*. Revise and Resubmit.
3. **Bitetto A.**, Filomeni S., Modena M., "Can market information predict the credit risk of unlisted MSMEs? Empirical evidence from a novel matching procedure". (2024) *Journal of Corporate Finance*. Revise and Resubmit.

Conference Proceedings, Press Articles

1. [2023] **Bitetto A.**, Cerchiello P., "The nexus between ESG and initial coin offerings: evidence from text analysis". (2023) Proceedings of the 14th Scientific Meeting of the Classification And Data Analysis Group CLADAG 2023, ISBN: 9788891935632
2. [2023] **Bitetto A.**, Cerchiello P., "Initial Coin Offerings and ESG: allies or enemies?". (2023) Proceedings of the 52nd Meeting of the Italian Statistical Society SIS 2023, ISBN: 9788891935618
3. [2023] **Bitetto A.**, Cerchiello P., "Oracle-LSTM: a neural network approach to mixed frequency time series prediction". (2023) Proceedings of the Statistics and Data Science Conference 2023, ISBN: 978-88-6952-170-6
4. [2022] **Bitetto A.**, Filomeni S., Modena M., "Can unlisted firms benefit from market information? A data-driven approach". (2022) Proceedings of the 4th International Conference on Advanced Research Methods and Analytics (CARMA 2022), ISBN: 9788413960180
5. [2021] **Bitetto A.**, Bianchi E., Dondi P., Bianchi L., Tolgyesi J., Ferri D., Lombardi L., Cerchiello P., Marceca A., Barosi A., "Deep learning detection of cardiac akinesia in echocardiograms". (2021) *ICPR 2021: Pattern Recognition. ICPR International Workshops and Challenges*, pp. 503-514.
https://doi.org/10.1007/978-3-030-68763-2_38

Scientific Memberships and Experiences

- **Journal Editor**

Mathematics, MDPI (Guest)

- **Referee**

Finance Research Letters, International Journal of Data Science and Analytics, International Review of Financial Analysis, Frontiers in Artificial Intelligence, Small Business Economics, Statistical Methods & Applications, Statistics, Research in International Business and Finance.

- **Membership in societies**

- Member, "Young Italian Statistical Society" (y-SIS), 2021 - 2022
- Member, "Statistica e Data Science" (SIS group), 2021 - current
- Member, "Società Italiana di Statistica" (SIS), 2020 - current
- Member, "European Network for Business and Industrial Statistics (ENBIS), 2023 - current

Grants

• **Funded Projects**

- European Commission Horizon2020 "PERISCOPE: Pan European Response to the ImpactS of COVID-19 and future Pandemics and Epidemics", GA No. 101016233. **participant as Research Fellow, then Assistant Prof. (RUTDA)** in coordinating team, 32 participants; total project funding: €9.993.475 (2021-2023)
- PRIN 2022 PNRR "Climate risk and uncertainty: environmental sustainability and asset pricing", Prot No. P20225MJW8. **participant as Assistant Prof. (RUTDA)**; total project funding: €45.938 (2022-2024)

Institutional Activities

- **PhD Faculty** Campobasso (Italy)
University of Molise, Department of Economics and Management 2022 - 2025
 - Member of the faculty for the XXXVIII cycle of Industrial PhD
- **International Activities** Pavia (Italy)
University of Pavia, Department of Economics and Management 2019 - 2023
 - Development of an R-based tool to automatize the selection process in the Erasmus+ program.

Conference talks and organization

• **Organizer**

- 2024 **Program Committee** "2nd World Conference on eXplainable Artificial Intelligence", Valletta (Malta)
- 2023 **Program Committee** "1st World Conference on Explainable Artificial Intelligence (XAI 2023)", Lisbon (Portugal)
- 2023 **Local Organizing Committee** "Statistics and Data Science Conference - Statistics for Data Science and Artificial Intelligence", Italian Statistical Society (SIS) Meeting, University of Pavia (Italy)

• **Participant**

- 2024 "Statistics and Data Science Conference - Statistics for Data Science and Artificial Intelligence", Italian Statistical Society (SIS) Meeting, University of Palermo (Italy)
- 2024 **Invited** "HiTEc meeting: Workshop on Complex Data in Econometrics and Statistics", Cyprus University of Technology (Cyprus)
- 2024 "18th International Conference on Business Excellence Smart Solutions for a Sustainable Future", Bucharest University of Economic Studies (Romania)
- 2024 "2nd Italian Conference On Economic Statistics", University of Firenze (Italy)
- 2023 "CLAssification and Data Analysis Group (CLADAG) Conference", University of Salerno (Italy)
- 2023 "SIS 2023 - Statistical Learning, Sustainability and Impact Evaluation", Università Politecnica delle Marche (Italy)
- 2023 "Symposium on Data Science and Statistics", American Statistical Association, St. Louis (United States of America)
- 2023 "Diversity Challenges for a Sustainable Fintech", University of Pavia, (Italy)
- 2023 "Sustainable Finance and Green FinTech Conference", Abu Dhabi University (UAE)
- 2022 "46th Annual meeting of the Italian Association for Mathematics Applied to Social and Economic Sciences", University of Palermo (Italy)
- 2022 "International Finance and Banking Society", University of Naples (Italy)
- 2022 "6th workshop on Models and Learning in Clustering and Classification", University of Catania (Italy)

- 2022 "17th Conference of the International Federation of Classification Societies", University of Porto (Portugal)
- 2022 "4th International Conference on Advanced Research Methods and Analytics", University of Valencia (Spain)
- 2022 **Invited** "51st Meeting of the Italian Statistical Society", University of Campania (Italy)
- 2022 "ISBIS Conference: Statistics and Data Science in Business and Industry", University of Naples (Italy)
- 2022 "5th International Conference On Econometrics And Statistics", Kyoto (Japan)
- 2022 "Economics of Financial Technology Conference", Edinburgh (United Kingdom)
- 2022 "CEMLA Conference: New Advances In International Finance", Centro de Estudios Monetarios Latinoamericanos, Mexico City (Mexico)
- 2022 "Maf 2022: Mathematical And Statistical Methods For Actuarial Sciences And Finance", University of Salerno (Italy)
- 2021 "Let the data speak to you: Empirical results in Economics and Management research - Hermes doctoral seminar", University of Pavia (Italy)
- 2021 "13th Conference of the Italian Region of the International Biometric Society (IBS)", Università Vita-Salute San Raffaele, Milan (Italy)
- 2021 "5th International Conference On Dynamics Of Disasters", University of Athens (Greece)
- 2021 "50th Meeting of the Italian Statistical Society", University of Pisa (Italy)
- 2021 "Big Data and Machine Learning in Finance Conference", Politecnico di Milano (Italy)
- 2021 "International Workshop on Artificial Intelligence for Healthcare Applications at ICPR2020", Milan (Italy)
- 2020 Workshop On "Fintech Risk Management", Data Analytics 2020, Nice (France)
- 2019 Workshop on "Big Data & Machine Learning applications for Central Banks", Banca d'Italia, Rome (Italy)
- 2019 "5th Meeting on Statistics", Aegina (Greece)

Thesis supervision

Supervisor of 1 MSc thesis.

1. Robin Mazal, *Initial Coin Offerings: Examining Potential Drivers of Underpricing* (2023). MSc in International Business and Entrepreneurship, University of Pavia (Italy)

Languages

- **English** - C1/C2
- **French** - A1

Pavia, June 3, 2024

Alessandro Bitetto