Matteo Manzi

Paris, France

LinkedIn · GitHub

Summary

- I am a serial entrepreneur in the field of Financial Machine Learning and experienced researcher in data-driven optimal control and uncertainty quantification in complex systems.

  I have a proven track record in developing successful products and quantitative methodologies in the context of high-dimensional, noisy environments, advancing the state-of-the-art of the Financial Machine Learning sector.

Relevant Experience

- **CoopHive** **06-2024 – 01-2025**
  Senior Quantitative Researcher & Early Employee
  New York City (USA)
  Successfully brought company to an oversubscribed seed round Q1 2025.
  R&D on autonomous agents coordination, building agent-based primitives of the protocol, at the intersection of EVM-compatible blockchains, differentiable economics, and agentic AI.

- **CrunchDAO** **06-2022 – 04-2024**
  Head of Quantitative Research & Co-founder
  Paris (France) - Abu Dhabi (UAE) - New York City (USA)
  Successful exit Q3 2024.
  Co-founded CrunchDAO, an asset management firm leveraging financial machine learning through blockchain-enabled crowdsourcing. Partnered with ADIA Lab, emphasizing a scientific and causal approach to financial machine learning.
  Led the development and orchestration of a full pipeline of sequential and constrained quantitative problem statements for feature engineering, statistical learning, multifactor-neutral Machine Learning alphas ensembling and optimal asset allocation, integrating convex solvers into the Machine Learning stack. Developed tailormade analytical and numerical statistical estimators, stacking techniques for covariance decomposition-and-estimation and portfolio optimization under (hyper)parametric uncertainty.
  Experienced with products from MSCI, FactSet, S&P Global, Refinitiv, QuantConnect, Algoseek.

- **European Space Agency** **10-2021 - 06-2022**
  Flight Dynamic Software Engineer
  Darmstadt (Germany)
  Development of the Consolidated Astrodynamics Platform (CAP), with a focus on State and Covariance Propagation-and-Interpolation and Robust Optimal Control for collision avoidance.

- **University of Strathclyde, Horizon Europe** **11-2019 - 05-2021**
  Marie Curie Early Stage Researcher, Research Assistant
  Glasgow (United Kingdom)
  Development of methods and tools for Uncertainty Quantification; development of an AI-based tool in support of space traffic management and resilient satellite operations; definition of optimal strategies for collision avoidance, disposal of space debris and the deflection of asteroids; improvement of prediction and control capabilities for high-risk rare events.

Education

- **MSc, Aerospace Engineering (Talent Scholarship Holder)** **2017 - 2019**
  Delft University of Technology
  Delft, Amsterdam (The Netherlands) - Milan (Italy)
- **BSc, Aerospace Engineering (98th percentile)** **2014 - 2017**
  University of Pisa
  Pisa (Italy)

Computer Skills

- **Python**
  autogluon, catboost, causalpy, clarabel, click, cvxpy, cvxpylayer, darts, giotto-tda, gpytorch, jax, keras, keras-tuner, lightgbm, matplotlib, mlextend, numba, numpy, optuna, pandas, prophet, pybind11, pyfolio, pygad, pyo3, pyro, pytest, pytorch, quantstats, river, scikit-learn, scikit-optimize, scipy, seaborn, shap, skfolio, statsmodels, tensorflow, torchsort, tsfracdiff, xgboost.
- **Julia**
  ARFIMA.jl, Convex.jl, DataDrivenDiffEq.jl, DecisionTree.jl, DiffEqFlux.jl, DiffEqOperators.jl, DifferentialEquations.jl, Distributions.jl, DynamicalSystems.jl, Flux.jl, GaussianProcesses.jl Makie.jl, NeuralPDE.jl, Optim.jl, SymbolicRegression.jl, Turing.jl
- **Airflow, Bash, C, C++, Docker, Git, Grafana, InfluxDB, IPFS, LaTeX, MarkDown, MATLAB, MySQL, Nix, Rust, Solidity, TypeScript**

List of Projects and Publications

- **ADIA Lab Market Prediction Competition**
  Partnership with ADIA Lab
  Publication Github Presentation Panel Analysis
- **Ensemble Learning in Quantitative Finance and Hidden Discrete Dynamical Systems**
  DataCrunch
  Publication Github Presentation
- **Nonlinearities in a multi-factor model framework using Machine Learning**
  Hong Kong Machine Learning Conference
  Publication Github Presentation
- **Why Topological Data Analysis detects Financial Bubbles?**
  Communications in Nonlinear Science and Numerical Simulation
  Publication
- **Machine Learning meets Statistical Physics: a Web3 perspective**
  Abu Dhabi Machine Learning
  Publication Github Presentation
- **SymINDy - Symbolic Identification of Nonlinear Dynamics**
  Journal of Open Source Software
  Publication Github Presentation
- **Polynomial Stochastic Dynamical Indicators**
  Celestial Mechanics and Dynamical Astronomy Journal (CELMEC prize winner)
  Publication

- **Machine Learning Methods for Nonlinear Reduced-order Modeling of the Thermospheric Density Field**
  Advances in Space Research
  Publication Github Presentation
- **Interplay between Chaos and Stochasticity in Celestial Mechanics**
  JuliaCon 2022
  Publication Github Presentation
- **The Stochastic Three-body problem: Stochastic Resonances and Diffusion in small-body dynamics**
  Conference: Theory, models and simulations in Celestial Mechanics
  Publication Github Presentation
- **A Flow-informed Strategy for Ballistic Capture Orbit Generation**
  Celestial Mechanics and Dynamical Astronomy Journal
  Publication Presentation
- **Autoencoder-based Thermospheric Density Estimation Using GPS Tracking Data**
  72nd International Astronautical Congress
  Publication Presentation
- **Autoencoder-based Thermospheric Density Model for Uncertainty Quantification and Real-time Calibration**
  8th European Conference on Space Debris
  Publication Presentation
- **A Robust Bayesian Agent for Optimal Collision Avoidance Manoeuvre Planning**
  8th European Conference on Space Debris
  Publication Presentation
- **Orbital Anomaly Reconstruction Using Deep Symbolic Regression**
  71st International Astronautical Congress
  Publication Presentation
- **Asteroid Deflection Under Uncertainty**
  Stardust Reloaded Global Virtual Workshop I
  Publication Presentation
- **Analysis of Stochastic Nearly-integrable Dynamical Systems using Polynomial Chaos Expansions**
  2020 AAS/AIAA Astrodynamics Specialist Conference
  Publication Presentation
- **Discovering Unmodeled Components in Astrodynamics with Symbolic Regression**
  2020 IEEE Congress on Evolutionary Computation
  Publication Presentation

Declaration

- I hereby declare that the above mentioned information is correct up to my knowledge and I bear the responsibility for the correctness of the above mentioned. References available upon request.