



FF4EuroHPC Success Story

Leveraging HPC for AI and Deep Learning Powered Solutions for Asset Management

Organizations

AXYON AI is an Italian fintech SME on a mission to bring AI-powered predictive value to the investment management industry.

UNIMORE - AlmageLab is a research laboratory of the Dipartimento di Ingegneria "Enzo Ferrari" at the University of Modena and Reggio Emilia.

CINECA is the largest Italian supercomputing centre with an HPC environment equipped with cutting-edge technology and highly qualified personnel which cooperates with academia and industrial partners.



End User

Research Centre

HPC Centre & Provider



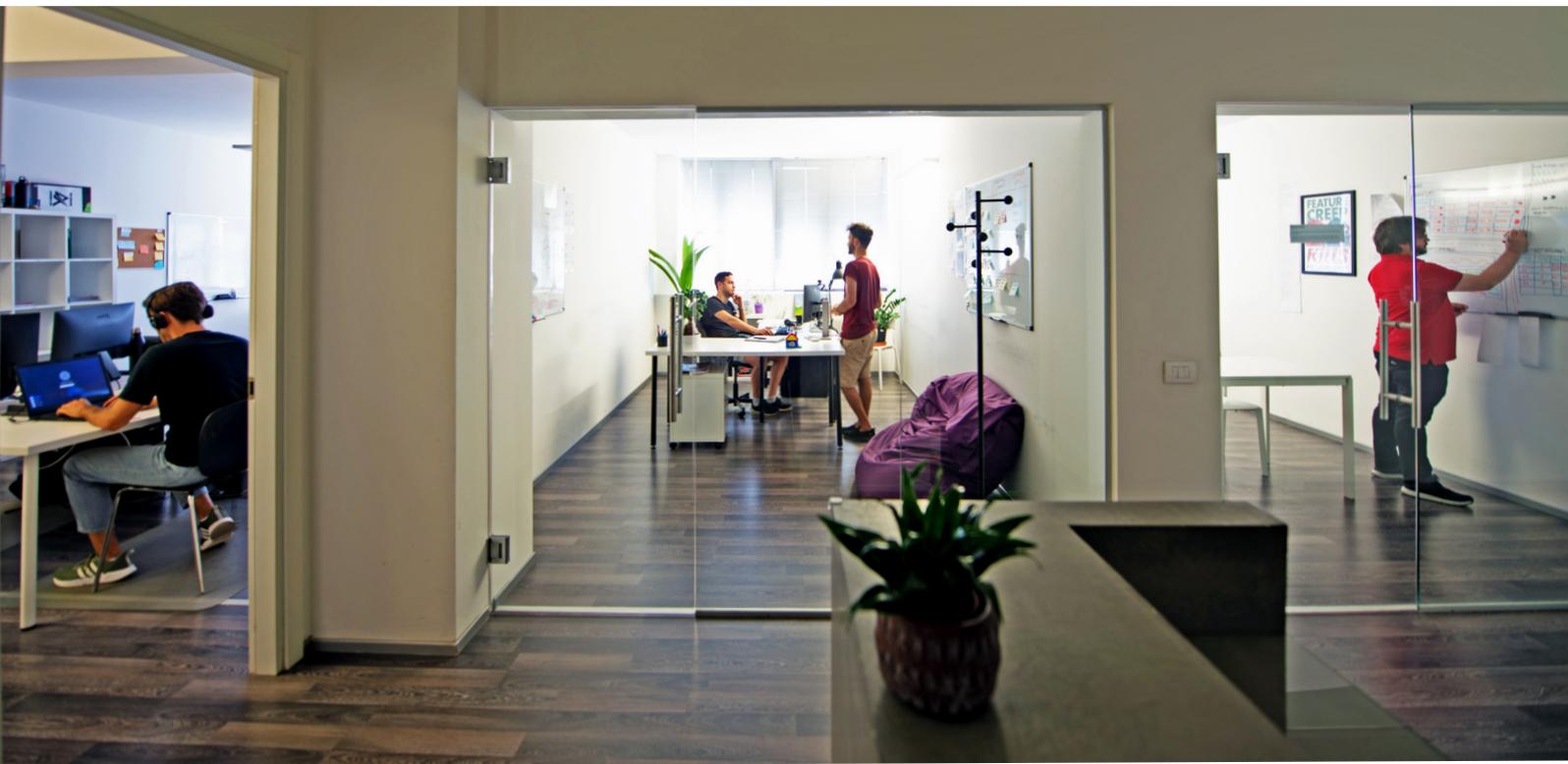
Partner CINECA is part of the NCC Italy.



The Challenge

Optimising financial portfolios composed of assets like stocks, bonds, and indices with respect to revenue and risk is a core task in the financial industry. Banks, asset managers and hedge funds face a continually increasing amount of data – such as financial time series including historical indexes and prices – which needs to be considered for optimal results. AI-based methods offer a predictive power superior to commonly used purely quantitative approaches and represent a tremendous opportunity for highly innovative fintech companies to provide such solutions to the finance industry and bring portfolio risk assessment to a new level.

The pressure exerted by the increasing amount of available data is already impacting the methods and technologies needed for portfolio construction and management. The best-performing AI methods for training and optimisation of predictive models, such as ML and DL, require HPC infrastructures. Thus, Axyon's IRIS® solution prior to the experiment was limited regarding the number of assets comprising a portfolio and its capacity for continual updates of models, constraining the addressable market and acting as a roadblock to the development of custom models for smaller enterprises in the financial sector.





Industry Sector
E-Commerce

Technology used:
HPC, AI, DL, ML

The Solution

The main result of this experiment is the development of a "factory" of AI/DL-based models to support asset management. It brings rigorousness and automation to the models that guide better investment choices and support the creation of risk management tools. These tools in turn contribute to the entire system's stability and reduce investors' risks, especially in the most challenging market moments and scenarios, thus overcoming the roadblocks previously mentioned.

With the HPC infrastructure boosting the computation scalability of the ML platform, Axyon IRIS® was further developed to support investment strategies with over 1,000 financial assets, overcoming the previously restricted 100-asset range. Further, the help of UNIMORE was vital to integrating continual learning to increase the adaptiveness of the platform, reducing the time needed for re-training the models by 30%.

The Impact

With the enhanced offering developed during the experiment, Axyon AI can expand its market reach to a wider array of customers, especially SME customers that need a complete, end-to-end solution. In detail, the following main business impacts for Axyon AI were achieved:

- Increased computational scalability of the company's ML platform allowed Axyon AI to train larger ML models on larger datasets (1 order of magnitude) and lower costs (approximately 25% of cost savings).
- Enhanced Axyon IRIS® risk management features for end-to-end portfolio construction resulted in a larger market target (approx. 150% increase of the serviceable obtainable market).
- Improved adaptability of Axyon IRIS® forecasting models decreased the time needed for the model retraining by around 30%, an important improvement in a fast-changing market scenario.

Benefits

- Approximately 25% of product cost savings.
- Ability to train AI models with over 1,000 financial assets instead of 100, resulting in a larger approachable market (150% increase of Service Obtainable Market).
- Due to the enhanced product features, improved company positioning in the market: generation of new sales opportunities (a 30% increase in leads generation expected), contributing to the completion of a €1.6m fundraising round in July 2022.