Agenda

- Company
- Products
- Axyon Platform
- SHAPE-PRACE project
- EOSC-HUB project
Axyon AI leverages the most recent advancements in **AI and deep learning** to create business applications for **trading and asset management**

**Main investors**
- ING
- UniCredit

**Main partners**
- REFINITIV
- IBM
- NVIDIA

**Company**
Axyon AI technology

- Proprietary deep learning technology for financial time series
- More than 10 AI-powered strategies launched
- Continuous R&D activity to explore new frontiers (Reinforcement learning, Generative models)
- More than 100K hours spent in computing per year (continuously growing)
IRIS: Data and predictions flow

Axyon IRIS AI engine

- Context market data
- Economics/Fundamentals
- Sentiment data
- Client's proprietary data

Target assets market data

- Predicted target metrics (rankings by return, volatility)
- Insights over the generated signals
- Predicted Market anomaly
- Several supported prediction horizons

Client's systems

- APIs
- SFTP
- E-mail

Improved strategies and positions
Why do we need computing power?

Framing → Data processing → Fully automated model training & evaluation → Test and Production
Why do we need computing power?

- Single model evolution process unifying hyperparam. optimization and feature selection
- Fully automated
- Improved time-series splitting with meta-validation
- Improved Genetic Algorithm features
SHAPE-PRACE project

Axyon core platform 2.0

- Web UI
- Database
- Master
SHAPE-PRACE project

Axyon core platform 2.0

- Web UI
- Database
- Master
- Cluster Manager
SHAPE-PRACE project

Web UI

Database

Master

CM 1
CM 2

Cluster scheduler (e.g. slurm)

Slaves cluster 1

Cluster scheduler (e.g. slurm)

Slaves cluster 2
SHAPE-PRACE project

- Web UI
- Database
- Master
  - CM 1
  - CM 2
- API
- Cluster scheduler (e.g. slurm)
- Slaves cluster 1
- Slave instance 1.32
- Slaves cluster 2
- Slave instance 2.16
- Cluster scheduler (e.g. slurm)
- D.A.V.I.D.E.
- AWS
SHAPE-PRACE project

Axyon core platform 2.0

- Master-slave architecture
- Designed for improved scalability and flexibility for multiple jobs
- Supports both cloud-like and HPC-like slave clusters
- Central job dispatcher, managing one or multiple slave clusters
- Containerized slaves with simpler logic (job executor only)
- Currently in production environment @AxyonAI
- CINECA D.A.V.I.D.E.-approved ✔
- CINECA MARCONI100 is on the way!

Diagram:
- Web UI
- Database
- Master
- CM 1, CM 2
- Cluster scheduler (e.g. slurm)
- Slave instance 1.32
- Slave instance 2.16
- Slaves cluster 1
- Slaves cluster 2
Objectives

- Parallel distributed training
- Take advantage of
  - Multi-GPU on a single node
  - Multi-node computation for a single ML job
- Huge dataset support - ~TeraBytes
Contacts

Axyon AI SRL
Modena, Italy
London, United Kingdom
info@axyon.ai

Riccardo Folloni
riccardo.folloni@axyon.ai