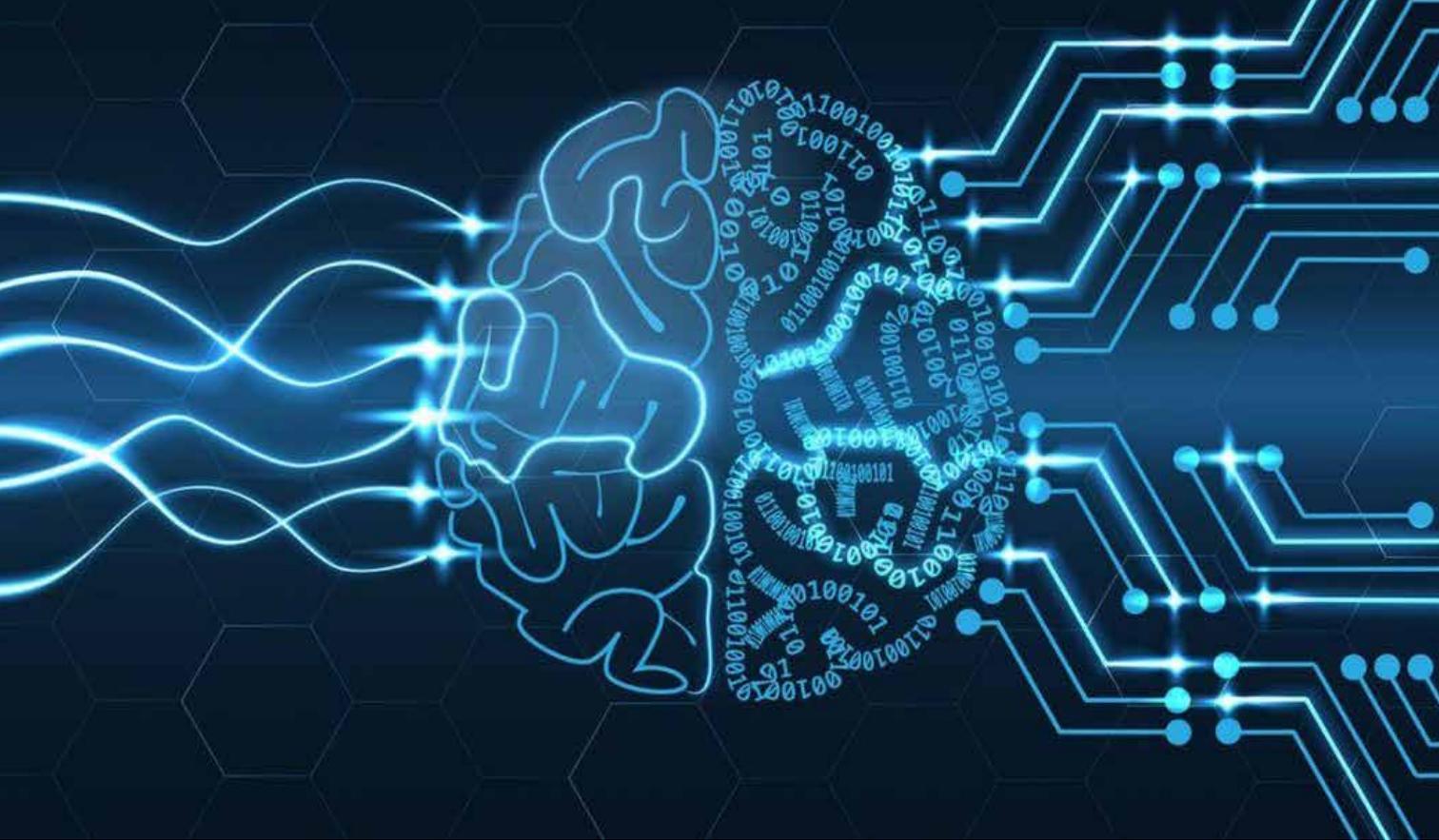




A.I. for TRADING

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**ENLIGHTENING THE BLACK BOX**



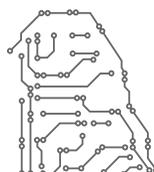
## A.I. for TRADING | A REAL FINTECH

**AGS** creating the **A.I. for Trading TEAM** combined its **experience in Machine and Deep Learning** with the **expertise of professionals in Capital Markets**, for handling complex Artificial Neural Networks into the world of finance.

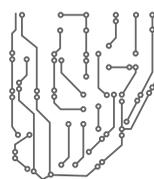
An heterogeneous team that really joins **FIN**ance and **TECH**nology.



**TRADING EXPERIENCE**



ARTIFICIAL INTELLIGENCE



The **huge amount of data available** and the **complexity of the problem** make **Machine and Deep Learning** the most relevant tool to improve the decision-making process behind any trading or investment process.

Our team can support Financial institutions, Portfolio managers and Trader in **integrating Artificial Intelligence in their investment process**, with a particular focus on deepening their available information set.



We offer a **complete set of solutions** and we can follow the customer through the entire innovation process: **from the hardware architecture to the ad hoc algorithm definition and testing.**

We can lead our customers to the conception, realization and implementation of standing alone A. I. applications for trading markets.

We are currently working on the development of an **Artificial Intelligence based platform** as our first project in financial market.

## Training classes

We organize training courses in **Machine and Deep Learning** applied to quantitative finance, dedicated to Risk Managers, Portfolio Managers, Traders and Analysts.

### Classes Topics

- Pattern recognition techniques
- Analysis of time series
- Data Augmentation Techniques

Our Teachers are certificated



DEEP  
LEARNING  
INSTITUTE

**A.I.forTRADING's program** helps traders and investors in exploiting all the information contained in market prices along two dimensions: cross assets and cross time horizons, from Intraday to the investment's horizon.



A.I.forTRADING platform has a focus in fixed income and macro assets. It will deal with:

- **Pattern recognition:** we use high frequency data (intraday) to highlight market microstructure for short term trading, cross assets dislocation and anomaly detection;
- **Longer term forecasting** (daily data) for both risk monitoring and investment recommendation;
- **Relative value and trade discovery** in correlated assets.

## A.I.forTRADING Platform is made up of 4 modules

### MARKET CLOCK

This module focuses on Intraday forecasting. Using a series of increasingly more complex models, it aims at giving the user a description of the day ahead in terms of possible outcomes.

### FORECAST

In **Forecast module**, we use machine/deep learning tools to monitor the risk drivers of a single asset and to forecast its return. The output can be used either for trading or as input to portfolio optimization.

### CROSS ASSET

Underlying relationships across assets are the focus of this module. Different asset classes are analysed together, providing relative value and systemic risk signals.

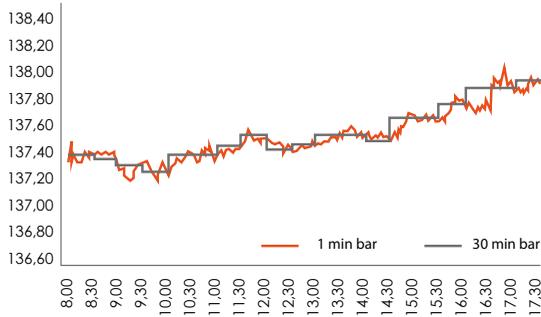
### CURVE VIEW

We apply a particular class of neural network to increase the accuracy of standard relative value tools used in fixed income markets. **Curve View** can increase market making accuracy.

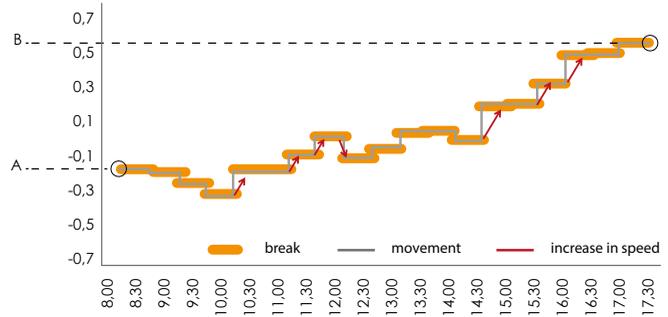
The Module Market Clock uses **pattern recognition** for forecasting in intraday horizon.

The key idea of Market Clock is to see the original price series as a trajectory in order to apply “analytics of movement” techniques.

## Example of time series preprocessing



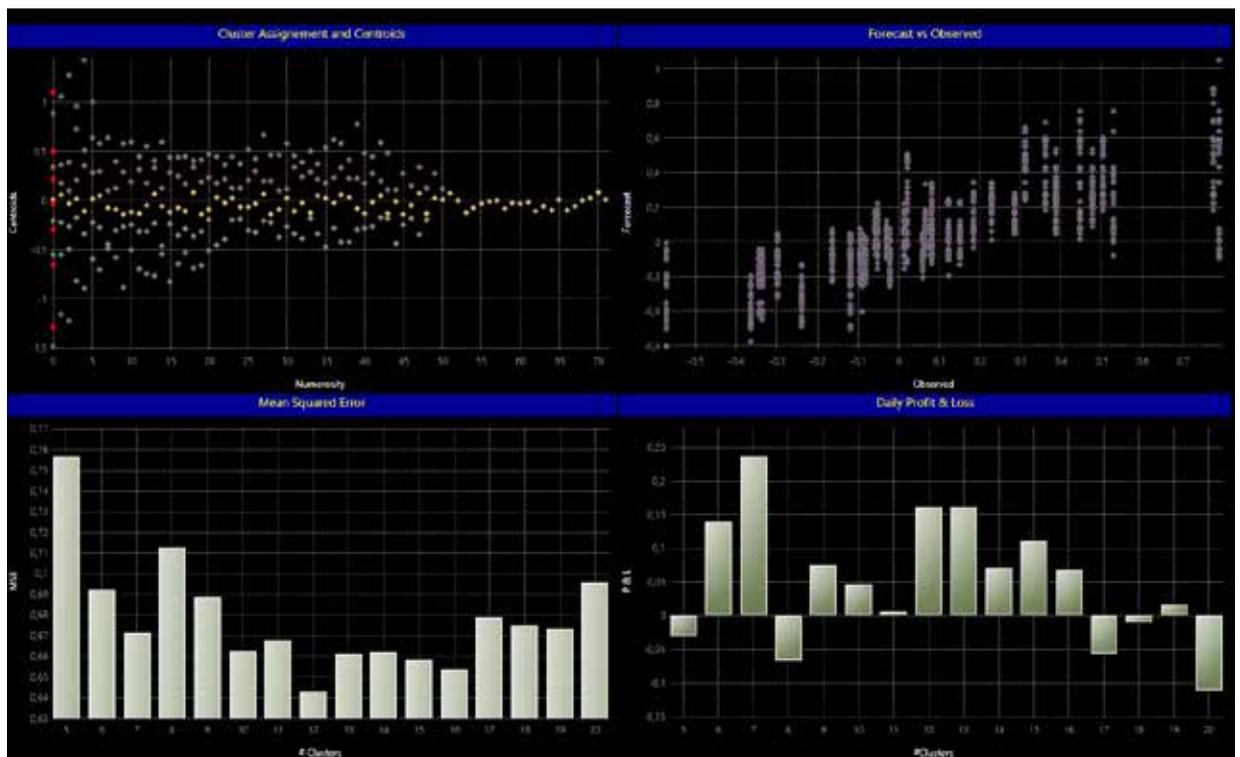
Discretization



Trajectory

The applied algorithms can be synthetically described as:

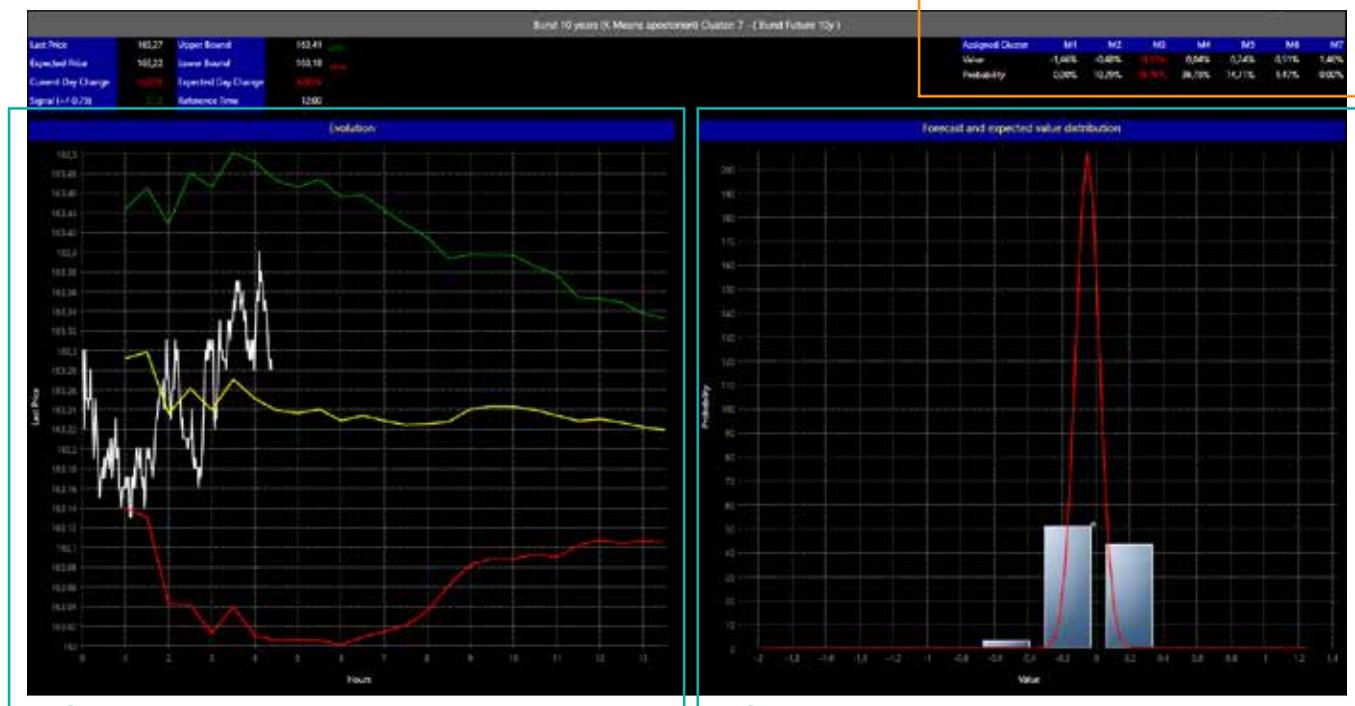
- **multilevel SVM classifier;**
- **2 proprietary versions of K-means algorithm;**
- **modified MLP for classification to mimic the previous clustering algorithms;**
- **different neural network approach via a sequential MLP (tapped delay line) with clusters.**



For each selected model, Market Clock provides synthetic accuracy measures.

## Market Clock streaming output

Whatever is the chosen algorithm, the output of Market Clock is a vector of probabilities of possible market patterns.



From the return distribution, a forecast range is visualized with a confidence range, which gives the trading range for the day.

Probability vector is translated into a return distribution, compared to a Gaussian curve.

The data used are provided by **Bloomberg**





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