BRAINCITIES
We Are The Data Alchemists
FinTech AI UseCase

📍 21 Boulevard Haussmann
75009, Paris France
📱 +33 1 56 03 67 52

✉ contact@braincities.co
@ www.braincities.co
@ www.datachain.one

S.A.A.M.
Smart Artificial Asset Manager

The Context

BRAINCITIES Lab and our Frankfurt Fintech partner BITA Data, are working together to develop an Artificial Intelligence system capable of determining the future states of financial markets.

The Goal

We are building a model-independent AI system that performs estimations of market performance. With the objective to determine the best investment strategy to follow, given the future state of the market.

To achieve this, we chose the US Stocks Market daily data, and complemented it with different types of measurements and indices known to affect the state of these markets. These can be divided into three types:

1. Market Data - US Stocks
    a) 7600+ selected companies
2. Corporate Fundamentals
    a) Value state of Company data
    b) Central Bank Decisions information
    c) Macroeconomic data
3. Geopolitical Events
    a) Political, economic, natural events news
    b) Social media scanning (Twitter)
    c) Newspaper journals and Magazines

The Dataset

The Market Data comprises standar market information (Open, High, Low, Close, Volume) for a universe of over 7600 companies existing from 1970 to 2018. Whilst the Corporate Fundamentals include Leading indicators, P/E ratios, dividend yields, market quantitative data indicators such as: RSI, Momentum, macroeconomic data, unemployment rate, etc.

Finally the Geopolitical events correspond to known news or events happening in the social media that affect the market dynamics, i.e. Mr Trump's Twitter account ...

In simple words, all the considered data can be segmented into quantitative (numbers) and qualitative (text) data. These last type of data will be made quantitative by processing it with the current BRAINCITIES Big5 text analysis API.

The state of the market will be determined and compared with the well known Sharpe Ratio and Russell 1000-2000 indices.

The AI Architecture

Determining the market behaviour dynamics is a widely studied problem. Several mathematical models have been shown to give good results when investments come into play. Some models work better than other in certain conditions, and there is no consensus on which one, or which combination of them, to use given the market state. Therefore, at the end of the day, the investors will follow their asset manager intuition.

Taking this into account, the problem can be reduced to determine the state of the market (**T**) of the next month (**n+1**), using the information available during the month on course.

Time series have shown to give reasonable short term market predictions, but they are limited to external events that are known that also affect the market. On the other hand, AI models have been widely used to replicate time series performance, carrying with them similar limitations.

*The S.A.A.M. system will be able to predict at T(**n**)*
*what the stock market behavior at T(**n+1**) will be*

Our proposal is based in the latest advances in Computer Vision, the area of AI that performs by far the best. Image and object recognition, given by CNN[1] network architectures, have accomplished greater performance than humans in several areas, including decision-making problems[2]. This is done by dividing an image into feature maps iteratively until an underlying structure (feature) is found.

The strategy

Transforming all the selected data into RGB image files and train a CNN AI that will predict the distribution of the three selected stock market indices.

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[1] See 'Yann LeCun' Convolutional Neural Networks (CNN).
[2] See MNIST and AlphaGo cases.

About Braincities Lab

Braincities Lab bridges the gap between humans and their ever-changing environments by making ecosystems such as cities and businesses more responsive through DCoS, the first artificial intelligence with judgment and empathy.

Founded in 2013, Braincities Lab is a French Startup based in Paris. The company specializes in Artificial Intelligences and Data Science. We create dynamically evolving knowledge bases to train then fuel our predictive models and measure the maturity of evolving processes.

We combine our Artificial Intelligence with a deployable decentralized infrastructure as a service: Datachain. Datachain and our universal personal data wallet, are natively compliant with European GDPR regulations. The associated services and protocols secure the data used by our Algorithms to provide accurate and reliable recommendations to individuals, businesses, and governments.

Datachain's infrastructure is powered by a neural network, which will ultimately be the first decentralized cognitive operating system. By 2025 DCoS will endowed all computerized equipment with judging and empathy capabilities for better interactivity with humans.

Looking for ways to grow your business with AI? Contact:

Daniel S. COVACICH
Chief Data Officer
Email. daniel.covacich@braincities.co
www.braincities.co

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