AI SOFTWARE MODERNISES FINANCIAL TRADING WITH BOSTON'S HARDWARE INFRASTRUCTURE

INTRODUCTION

Globalisation and seamless trade – our world is more networked than ever. A pioneering role is played by the IT sector, which has long been networked across local borders. Other sectors are still far from it. Financial trading is one of them. To change this, Rubinstein & Schmiedel developed a new type of AI software to modernise financial trading. Bechtle Switzerland in cooperation with Boston provided the technological basis for this, including NVIDIA GPUs. An important component for equipping the innovative AI software with the necessary computing power, that makes it successful.

PLACE OF USE:	FINANCIAL SECTOR / FINANCIAL TRADING
CHALLENGES:	• Globalisation & networking of markets as well as seamless information flow of trading data • Reliable derivation of trading strategies • Efficient and fast calculation of trading models for secure trading
SOFTWARE SOLUTION:	AI SOFTWARE FOR TRADING MARKET DATA
HARDWARE INFRASTRUCTURE:	SERVER, STORAGE, GPU SOLUTION • Supermicro A+ Server, 19" Rackmount, 4U • AMD EPYC™ 7302 + 7542 CPUs • NVIDIA RTX A10 • SSDs: Micron, KIOXIA
ADVANTAGES:	• Streamlining the financial market through AI trading and algorithmic financial trading • Reliable IT infrastructure with customised, high-performance computing power and high-performance computing in petaflops speeds

BASIC THOUGHT: MODERNISATION THROUGH TECHNOLOGY

With the basic intention of changing and fundamentally modernising the world of finance, Rubinstein & Schmiedel (R&S) launched your company in 2019 after years of research and development work. The company is no ordinary start-up, but catapulted itself to the very top through software engineering, in-depth financial trading knowledge and technological know-how in the field of data science, big data and high-performance computing. R&S is already considered a **pioneer for the modern financial market of TODAY.**
Why?

The founders of R&S were convinced that artificial intelligence could profoundly change the world of finance and its financial market forecasts. For decades the implementation of suitable IT solutions was unrealisable. There was a lack of everything: suitable IT infrastructure, lack of performance, affordable or compact solutions, as well as solutions that were also suitable for SMEs. Today, in the age of high performance computing and high-speed technologies, the time is ripe for a step forward and modernise the last sector as well: **The financial market.**

FINANCIAL TRADING IN TRANSITION

Before the technology shift towards artificial intelligence, trading in finance, shares and the like was mainly based on mathematical models and rule-based algorithms. These were created by experienced and highly professional analysts as well as accomplished economists and traders. The human component was key to achieving maximum trading results.

With the increasing interconnectedness of world markets and barely separable dependencies in trade and economic flows, financial trading changed granularly and globally.

Equity and financial trading has become one of the fastest, data-driven markets in the world – a constantly changing cycle of events with extremely global dependencies. To be successful, intelligence is required that works around the clock, is networked with all trading and financial markets worldwide, recognises financial market flows from the ground up and can quickly structure and process millions of data to derive the right trading strategies and achieve positive results within minutes. Impossible for a human to realise, but quite feasible with **artificial intelligence** developed specifically **for market data.**

A BREATH OF FRESH AIR IN FINANCIAL TRADING THANKS AI

This is precisely where the AI software from R&S comes in – developed for the algorithmic trading of financial markets. The software solution contains all components – from engineering and testing to the functioning AI framework. The fully automated end-to-end software solution extracts information from stock market data, price trends, market indicators and the internet worldwide and learns complex strategies without human input, based on **data** alone.

The software includes data collection, signal generation, backtesting, trade execution, portfolio and risk management. An all-round AI engine to identify a human-independent trading strategy for **safe trading**, based on the latest AI insights and consisting of a unique AI framework. The AI follows a risk-adjusted strategy. It is therefore not subject to as many fluctuations as BitCoins, for example,

and therefore achieves a very good trading result – in a very dynamic global market that is often difficult to predict in the long term. The software manages third-party investor capital and can be seen as a kind of **AI fund for traders.**

The demand and the related success of the AI software increased continuously with the high acceptance on the financial market. Reliable and stable system performance in the background of the AI system were basic requirements for further growth. R&S was therefore looking specifically for a stable, high-performance and reliable hardware infrastructure solution on which millions of financial data and information could be stored and a sufficient density of computing units made available. The hardware solution from Boston and Bechtle met all the parameters and requirements and was awarded the contract for delivery.

AI SOFTWARE WITH TAILOR-MADE IT INFRASTRUCTURE

Boston provided the complete IT hardware infrastructure which served as the basis for the AI and its required computing power.

The focus of the entire hardware infrastructure was on **speed** and **computing power.** Trading models should be calculated within the shortest possible time. – A factor that determines a good or bad trading result in financial trading. A key selection criterion was the GPUs. They are the ones that operated under full load around the clock and had to withstand this load. R&S opted **NVIDIA A10 GPUs.** The decisive factors were the **better energy efficiency,** the **accuracy** in FP32 optimisation and the overall cost-benefit ratio of these GPUs compared to other graphics cards.

Classic AI approaches rarely outperform in the financial market environment. For this reason, a team of 10 R&S experts developed all AI algorithms from scratch, including **hand-crafted computational cores for highest performance.** Bostons' IT infrastructure, selected for high performance, supported this. Parts of the AI pipeline for machine learning, analytics and trading also run on GPU hardware to achieve maximum performance. Custom CUDA kernel were used to improve AI training speed and trading model response times.

The AI hardware and software solution has been systematically coordinated with each other and forms a strongly

wired unit. Today, R&S operates **fully automated, high-precision trading systems** who are able to generate systematic and sustainable returns across the global financial market.

The customised hardware is located in several Swiss centres, which have been specially upgraded for the high computing power of the AI software solution from R&S. All services of the AI solution are provided at geographically redundant locations. The communication channels are secured via NIST-compliant encryption and everything is biometrically secured – for maximum security.

"We are both happy and proud that we were able to support Rubinstein & Schmiedel in their vision of fundamentally modernising and streamlining financial trading with our customised IT hardware solution," emphasises Georg Klauser, Managing Director of Boston Server & Storage Solutions GmbH of DACH region. He adds, "We wish Rubinstein & Schmiedel every success in the further development of their innovative range of solutions and are always happy to assist in advising on suitable hardware upgrades."

ABOUT THE COMPANY

Rubinstein Schmiedel

Rubinstein & Schmiedel is active in algorithmic trading of financial markets and was founded in 2019 after more than six years of basic research and development. The company's central goal is to fundamentally modernise and streamline the financial market through AI support. The result, as well as the lynchpin of the company, is a novel AI that extracts information and learns complex strategies without human input based on data alone.

The company comprises more than 20 experts in Switzerland and Germany who bring years of experience and deep knowledge in AI, software engineering, data science, big data and high-performance computing. The entire R&S team is constantly working on expanding their solution offering, targeting new clients and combining traditional ways of investing with the unique AI framework.

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