

FOOLED BY NOISE? WHY STATISTICAL LEARNING, NOT HYPE, DRIVES OUR PROCESS

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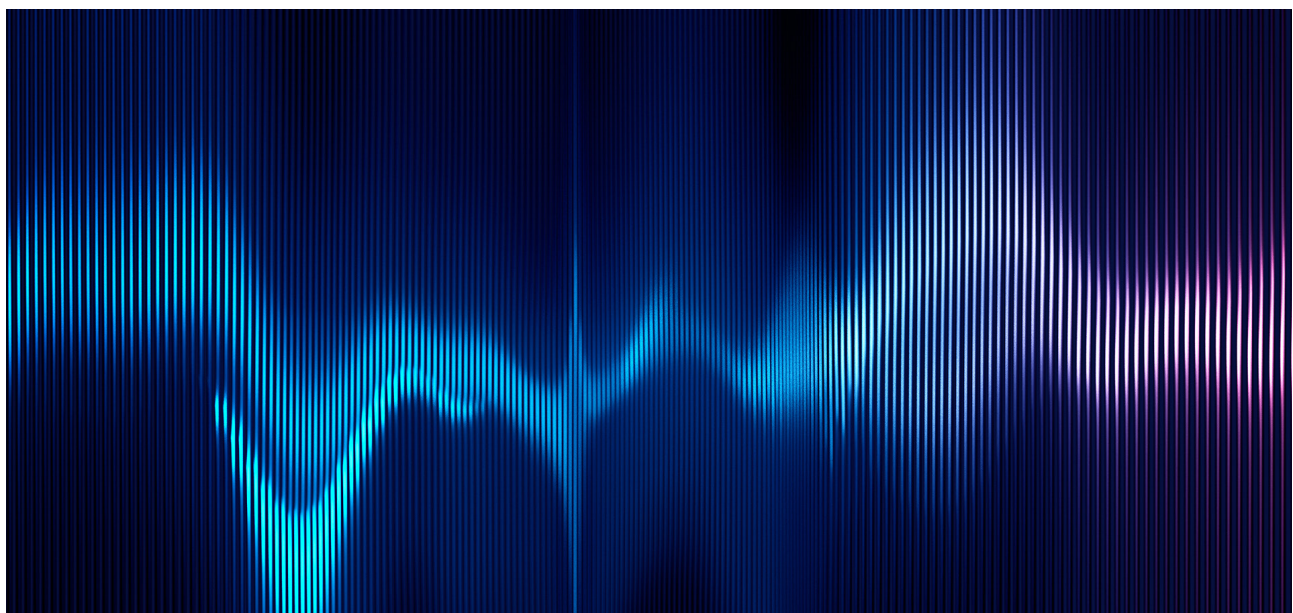
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Investment Manager
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Matus Mrazik, Investment Manager, and Amadeo Alentorn, Head of Systematic Equities at Jupiter, explain how the team, established for more than 20 years, embraces statistical learning with confidence, academic rigour, and a refusal to be misled by marketing hype.

Artificial Intelligence (AI) has become the go-to phrase to signal innovation, ambition, and future readiness. In investment management, some firms now promote “AI-powered” funds or “autonomous” decision-making as the next evolution in quantitative research¹.



¹ Bryce Elder, 3 July 2025, ‘Are bigger AI models better stock pickers?’ Financial Times. Available at <https://www.ft.com/content/89d88cbf-a92c-43d2-b8af-88ae26529be0>

Artificial Intelligence. Simulation of intelligence in machines, a wide field dating back at least to Alan Turing's 1950 paper "*Computing Machinery and Intelligence*".

Machine Learning. A type of Artificial Intelligence that uses algorithmic models to learn from data.

Natural Language Processing. A long-established type of Artificial Intelligence that allows computers to interpret natural languages such as English.

Large Language Models. A more recent type of Artificial Intelligence that involves training models on a vast amount of text and then generating language.

In the Systematic Equities team at Jupiter, we view these developments with genuine curiosity but also with caution. For us, AI is not a brand to be adopted or a trend to chase. It's a toolbox: broad, evolving, occasionally transformative but only as useful as the judgement and structure applied to it. What matters is not the label, but the process.

WHEN MORE DATA MISLEADS

In the 1936 US Presidential election, *The Literary Digest* sent out 10 million postcards to predict whether Franklin D. Roosevelt would beat Alf Landon. Over two million people responded. With a sample size dwarfing all previous efforts, they confidently predicted a Landon landslide.

They were wrong. Very wrong.

The problem wasn't the size of the sample. It was the **bias in the data**. They had drawn names from telephone directories and automobile registration lists, which were not representative of the American population during the Great Depression. As a result, their prediction, based on state-of-the-art techniques of the time, was completely overturned by **bad sampling**.

This is the core risk we face in finance when embracing machine learning (ML) and artificial intelligence (AI): not that we have too little data, but that we often misread it. In noisy, non-stationary systems like financial markets, **more data doesn't necessarily mean better forecasts**. In fact, it often means more opportunities to fool ourselves.

STATISTICAL LEARNING AT JUPITER: EMBEDDED IN OUR PROCESS

While others race to rebadge their models as AI, we prefer to describe our work as **statistical learning**. That phrase better captures the essence of our philosophy, one built on decades of applying data-driven techniques, testing hypotheses, and refining models under real-world constraints.

Nor is it something we bolt on for promotional appeal. In the Systematic Equities team at Jupiter, it has been a natural and evolving part of our research programme over the last two decades.

"Statistical learning has been a natural and evolving part of our research programme over the last two decades."

Our research toolkit always included statistical learning techniques. Some of these techniques have recently been rebranded by some in the industry as AI or machine learning models, taking advantage of AI hype.

What has changed is access to data and computational power.

We explore and apply statistical learning techniques where they are valid, robust, and genuinely additive to the investment process. For example, we investigate how non-linear interactions between investment signals can be captured more effectively using, for example, decision trees or neural networks among other techniques. These methods allow us to move beyond linear aggregation and uncover behaviour that emerges only under specific market regimes.

Our work also includes modelling regime-dependent dynamics, enabling us to adapt signal weights based on changing behavioural or structural conditions.

This allows us to shift from static signal construction toward more context-aware models that respond dynamically to the evolving market environment.

Natural language processing (NLP), a form of Artificial Intelligence that allows algorithmic models to interpret languages, such as English, is also embedded in our toolkit. We convert qualitative insights, such as company commentary and analyst reports, into structured inputs that complement our traditional datasets. This includes natural language processing methods that provide interpretable features.

ACADEMIC COLLABORATION IS CORE TO OUR PHILOSOPHY

Our team doesn't outsource thinking. We collaborate deeply with leading academics across statistics, econometrics, AI, economics, econophysics, and behavioural finance potentially to extend our process.

Some of the ongoing areas of collaborative research include: symbolic learning and model architecture search as well as generative AI and text signal extraction (University of Cambridge, and University of Exeter); Bayesian modelling and robust inference (Caltech, Harvard University, and University of Cambridge); and econophysics, complex systems and behavioural models (King's College London, and the London School of Economics). These research projects have not all yet been implemented in our process, and some may never be. Curiosity married with caution is our approach.

This programme is *active*, *applied*, and *team-led*. We do not sponsor academic research as a badge. We have in the past integrated the fruits of this research into the heart of our model research and evolution.

"You can't just throw data at a model and expect insight," said Dr. Alberto Moraglio of the University of Exeter. "You need to reframe the problem. And that's a human job."

We are not sceptical of machine learning, a well-established form of Artificial Intelligence that dates back decades. We are practitioners of it. But we are also scientists. And as scientists, we test, we question, and we remain disciplined.

OUR RESEARCH CULTURE: NOT HYPE, BUT DEPTH

We believe the industry needs more clarity on what machine learning in investing actually means. It does not mean delegating decision-making to black boxes. It does not mean blindly trusting high back-tested Sharpe ratios.

It means framing economically sound hypotheses. It means validating patterns out-of-sample. It means testing across time, markets, and environments. It means integrating priors, domain knowledge, and theoretical constraints.

And most of all, it means understanding the difference between **signal, noise, and false structure**.

“If three different machine learning models discover the same pattern, that’s a good sign. If only one does, that’s a red flag,” said James Eustace, advisor and consultant.

The language of modern ML has changed, embedding concepts like cross-validation, regularisation, representation learning, uncertainty quantification, and ensemble modelling. These are not foreign to us. They are **second nature**.

We do not need to shout about our use of statistical learning and natural language processing. We use them **because they work**, and because we understand where and how they work best.

Our approach is rooted in intellectual curiosity, not fashion.

We apply rigorous model validation and stress testing across regimes and time periods, with an uncompromising focus on generalisation and real-world robustness. Where appropriate, we adopt non-linear modelling techniques and representation learning to capture signal structures that conventional approaches miss. But we never lose sight of domain priors, financial structure, and the importance of interpretability. Every tool we use is grounded in research, guided by purpose, and integrated with judgement.

WHAT THE AMAZON HIRING SCANDAL TEACHES US ABOUT AI

In the 2010s, Amazon built an internal AI model to automate hiring decisions. It was trained on ten years of past recruitment data. The result?

An algorithm that learned to **systematically penalise CVs containing the word “women’s”**. Not because Amazon explicitly coded bias into the system, but because the data reflected past (biased) human decisions. The AI, like a dutiful student, simply absorbed those patterns².

“Any bias embedded in the training data will be reproduced in the model. In fact, it will be *amplified* because the model assumes the past reflects the future,” said Daniel Ebanks, Postdoctoral Fellow at Harvard University.

This is the cautionary tale of all machine learning: **more data only helps if the data is truly representative**. Otherwise, the model is just scaling bad assumptions.

And in finance, this problem is compounded. Our data often reflects not just past behaviour, but **past beliefs**.

²Dastin, Jeffrey, 10 Oct 2018, Insight - Amazon scraps secret AI recruiting tool that showed bias against women, Reuters. Available at <https://www.reuters.com/article/world/insight-amazon-scrap-secret-ai-recruiting-tool-that-showed-bias-against-women-idUSKCNIMK0AG/>

Strategies that worked may have done so under assumptions that no longer hold. Regimes change. Structures evolve. And the market you train your model on may no longer exist.

WHY AI WON'T BE TRADING PORTFOLIOS ANY TIME SOON

While some firms are building narratives around autonomous AI-driven investment platforms, we believe this is both premature and misleading. Even the most powerful Large Language Models (LLMs) are trained on past data. While some argue they can reason through chain-of-thought prompting, their ability to generalise under uncertainty, especially in high-noise environments like finance, remains contested.

“These models don't know what they don't know,” said Professor Jonathan Katz, Caltech. “They are trained to complete sentences, not to make forecasts.”

Ebanks echoed this:

“If everyone starts using AI to write financial commentary, we'll end up with models trained on their own output. That's how feedback loops degrade performance.”

Finance is a system where many of the key events are **non-repeatable, reflexive, or structurally unique**. These events are the very thing we try to forecast. But LLMs, by their nature, **train on what already happened**. They can mimic. But they cannot anticipate.

Which is why, even if AI becomes an excellent assistant, we do not see it replacing the investor any time soon. Yet we remain watchful. Breakthroughs may emerge. And when they do, we intend to be ready.

In fact, the team is already exploring a targeted research track: developing a domain-specific large language model fine-tuned on financial text, with the objective of generating structured representations suitable for signal extraction and testing its benefits over simpler models. Unlike typical LLM applications focused on summarisation or dialogue, our aim is to condition the model to produce latent embeddings and output features that are predictive (not descriptive) with the ultimate goal of enhancing medium-term forecasting performance.

CONCLUSION: MODELS LEARN, BUT INSIGHT BELONGS TO PEOPLE

Jupiter's Systematic Equities team continues to push the frontier of model research, not with slogans, but with science.

We partner with leading researchers, develop in-house statistical learning infrastructure, and challenge ourselves constantly to separate true insight from noise. We believe in technology. We believe in statistics. But we also believe in **human judgement, rigorous testing, and intellectual clarity**.

“More data doesn't eliminate uncertainty,” Katz reminded us. It's a seductive idea in computer science, that if you just collect more data, uncertainty will collapse. But that's rarely true in finance. In a high-noise domain, more data just means more noise, unless you understand the structure, the priors, and the mechanisms that generated it.

We don't mistake sophistication for understanding. And we don't confuse innovation with insight. That's why our process continues to evolve and continues to deliver.



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Head of Systematic Equities,
Investment Manager

20 years in team | 20 years experience



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Investment
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11 years in team | 15 years experience



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5 years in team | 11 years experience



Dr Sean Storey
Investment
Manager

7 years in team | 26 years experience



James Murray, CFA
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6 years in team | 17 years experience



Zara Azad, CFA
Investment
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1 year in team | 8 years experience

OUR ACADEMIC PROGRAMME – A TEAM-LED APPROACH

Multiple actively managed research projects with leading academics across the globe



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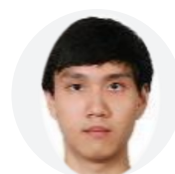
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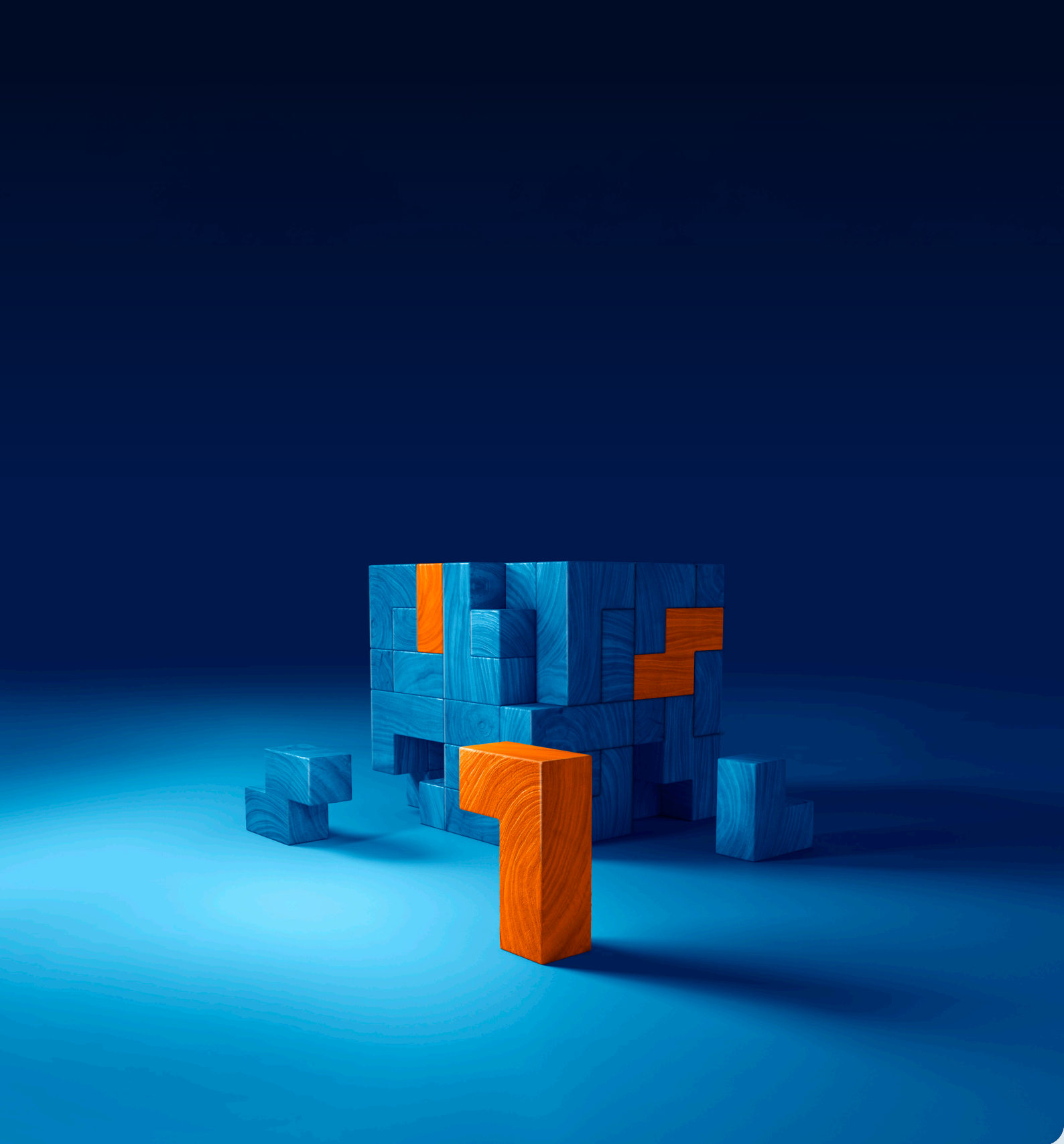
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