Executive Summary

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Autonomous-Fox Laboratories is a frontier AI research lab focused on financial markets. Its scientists conduct fundamental AI research, developing original machine-learning methods to learn how market behaviour is organised, how it evolves over time and how interactions between assets shape it. Its ambition is a general-purpose representation of that structure on which trading, execution, risk and market-making systems can build.

Based in London, the lab brings together three founders with UCL Computer Science doctorates and complementary expertise in financial-market modelling, fundamental learning methods and research engineering. Its proprietary methods build on a decade of research into market behaviour. The company intends to retain its intellectual property and generate revenue through partnerships and licensing, with continued research advancing the capabilities available to its clients.

The lab is raising funding to expand its team, develop the research into an integrated system and establish its usefulness across financial applications. The full programme has a funding target of £1.70 million over twenty-four months, with shorter scenarios costed at £550,000 and £1.10 million.

The research opportunity

The lab’s research reflects a longer-term view of AI: some of its most consequential advances will come from learning systems whose complexity exceeds human intuition. Progress in language and vision has demonstrated the power of learned representations. Advances in protein structure and weather modelling point towards the potential for AI to reveal relationships and model dynamics that people cannot readily grasp unaided.

Financial markets present a demanding challenge within this frontier. Their behaviour emerges from interactions among participants and assets, across different timescales and under changing conditions. Observations are abundant, but the processes producing them are only partially visible. Learning that structure requires methods that can distinguish meaningful patterns from noise and represent how those patterns evolve and influence one another.

The opportunity is to make this knowledge reusable. A model developed for a particular trading signal may capture relationships relevant to execution, risk or market making, yet leave that knowledge embedded in a single application. A general-purpose representation would provide a foundation that multiple systems could use for their own objectives, allowing improvements in the underlying research to benefit each of them. Autonomous-Fox is pursuing that opportunity in financial markets, addressing scientific questions that also arise across other complex systems.

The approach and progress

The lab’s approach is to learn a vocabulary of recurring market patterns and model the structures they form through time and across assets. A useful analogy is the way a small alphabet of amino acids combines into an enormous variety of proteins: the range comes from the elements, their sequence and their interactions. In markets, the aim is to capture how individual patterns combine into more complex behaviour and how their meaning depends on context.

The research brings together three capabilities: learning the building blocks of market behaviour, modelling how they evolve through time, and learning relationships between assets. These are developed together, so that findings about temporal and relational structure inform how the underlying representation is learned. The resulting models are intended to provide a general-purpose account of market dynamics that different financial applications can use.

The lab has developed proprietary methods for learning these building blocks, preserving meaningful information while suppressing noise. Its training methods allow it to shape the abstractions learned: their diversity, the distinctions in market behaviour they capture, their fidelity to the underlying data and their predictability through time. The lab can also incorporate additional information about a pattern's content to guide what the representation encodes. The results show that these building blocks capture meaningful structure in how market behaviour unfolds over time and how assets relate to one another, providing a basis for investigating interactions across larger groups.

The next stage brings these capabilities into an integrated system and evaluates what they contribute together. Current work includes isolating information carried between assets and developing geometric and topological methods to represent interactions involving groups of assets. Their incremental contribution remains an active research question.

The company's intellectual property includes its proprietary tokeniser, PatientQ, novel training methods and the accumulated research knowledge required to develop and refine these representations.

What the funding advances

Funding gives the lab the people and infrastructure to develop its research into a continuously operating system. It supports further work on the learned representations, the integration of temporal and relational modelling, and evaluation across financial applications. Scientific development and practical evaluation proceed together, with results guiding the next research priorities.

The programme builds towards a full prototype within six months, bringing the vocabulary, temporal and relational components together. Subsequent work establishes an internal inference service, evaluates the models on live market data and develops the evidence needed for commercial partnerships.

Month	Programme milestone
6	Full prototype integrating the vocabulary, temporal and relational components.
11–12	Initial strategy-validation results over held-out periods, followed by an internally operating inference service.
15	Forward evaluation on live market data, with no trading capital committed, and assessment of the relational methods' contribution.
21	Combined historical and forward-validation report informing the decision to establish the separately capitalised proprietary trading partnership.
24	First external licence term sheet targeted, alongside a review of research progress and future funding needs.

These milestones describe the full twenty-four-month programme and run from funding commencement. The shorter funding scenarios retain the same research direction, with staffing and scope adjusted to the resources available.

Accessible market data, on-demand compute and mature open-source infrastructure have reduced the cost of establishing an independent research lab. Autonomous-Fox can concentrate its investment on scientific expertise, proprietary methods and the engineering needed to evaluate and operate them.

Routes to revenue

The lab's primary route to recurring revenue is a proprietary trading business established with investment partners who provide its trading capital. The lab would license its models on profit-linked terms and receive a share of profits. The ambition is for this income to sustain the lab's operations and continued research.

The trading business would operate through a separate, independently controlled company, bearing its own operating costs and trading risks. This structure allows the lab to retain its intellectual property and scientific independence, with research funding dedicated to developing the methods and systems that underpin its commercial offering.

The research programme includes strategy development, historical evaluation and forward testing to prepare the models for use by the trading business. Findings from this work guide continued refinement and development. Establishing the business requires investment partners and operational readiness; the timing and scale of licence income will depend on its trading results.

Institutional partnerships and broader licensing offer longer-term opportunities to extend the commercial reach of the research. These could include paid development engagements and access to model outputs for institutional trading, execution and risk systems. The underlying models and weights would remain on the lab's infrastructure, allowing the same research to support multiple clients.

The proprietary trading business is the intended first source of recurring commercial income. Institutional licensing would provide an additional revenue stream over time. Alongside these commercial routes, the lab will pursue grants and research-funding opportunities from national research councils, innovation agencies and other relevant programmes. Neither commercial income nor grant awards are assumed in the funding scenarios.

Team and funding

The founding team combines fundamental AI research, financial-market expertise and the engineering experience needed to turn scientific advances into operating systems.

Dr Dimitri Malandreniotis directs the research and leads representation learning and temporal modelling. He brings twelve years of machine learning for financial markets, including a decade of research into learning the underlying structure of market behaviour. Dr Stephen Pasteris leads fundamental AI and relational research, drawing on his publication record in online learning, graph-based prediction and bandits. Dr Ronnie Stafford leads operations and engineering, downstream evaluation and commercial development, combining a doctorate in model-based reinforcement learning with trading-technology experience at Reuters.

Dr Malandreniotis and Dr Pasteris work full-time on the lab; Dr Stafford will join full-time once funding is available. The full programme adds three scientists, supporting relational research from month one, representation learning from month four, and engineering and inference infrastructure from month seven.

The company works with UCL Computer Science through the Industry Exchange Network, with Dr Malandreniotis involved in project supervision. Dr Pasteris and Dr Stafford previously held Research Fellowships at UCL. A doctoral studentship is budgeted in the full programme but remains to be confirmed.

Aggregate funding	Programme	Team
£550,000	Twelve months: integrated prototype, initial strategy evaluation and internal inference service.	Three founders and one scientist.
£1.10 million	Eighteen months: additional representation-learning capacity, forward evaluation and preparation for the proprietary trading business.	Three founders and two scientists.
£1.70 million	Twenty-four months: dedicated engineering capacity, extended evaluation and commercial development.	Three founders and three scientists.

These figures describe the total funding available to the programme. Individual investors can contribute towards the round without funding an entire scenario. Approximately 70 per cent of programme expenditure is allocated to people; the funding targets include ten per cent contingency and rounding.

Investment is in ordinary shares in Autonomous-Fox Laboratories Ltd. A twenty per cent pre-round option pool is proposed to support recruitment and retention. The lab intends to supplement below-market cash remuneration with share options that vest over time, giving employees a stake in the company’s long-term success. Awards are intended to use the Enterprise Management Incentives (EMI) scheme where eligibility requirements are met. Individual grants, vesting arrangements, valuation and final investment terms remain to be agreed.

Investment in the proprietary trading business would be a separate decision on separate terms.

The EIS application was put on hold pending determination of the company structure; no advance-assurance application has been made. The proposed structure requires legal and tax review, and the funding case does not depend on EIS relief.

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