MarsLabs | 火星创新

REAL MARKETS. REAL MATHS.

1: Landing Page (marslabs.world)

We are enabling the next AI revolution, by leading the real world with mathematics to complement human language—building a new breed of quantitative AI systems that:

1. Collapse continuous market noise,
2. Eliminate temporal decay,
3. Execute deterministically,
4. Are controllable and safe.

Our main goal is to build intelligent execution engines that conquer global financial markets.

Modern AI has mastered human language, but the holy grail of quantitative reasoning—mathematical mastery of the trillion-dollar financial markets—remains structurally unsolved. Financial market data is continuous, high-dimensional, and noisy, whether it is obtained through order books, tick data, or global exchange feeds.

Our action-conditioned models allow autonomous quantitative agents to navigate market dynamics with absolute precision, eliminating time decay ($\theta = 0$) and capturing asymmetric returns, subject to hard-coded safety guardrails.

MarsLabs will advance quantitative AI research where mathematical rigor, execution speed, and downside protection really matter, especially for high-frequency market execution, dynamic hedging, and risk governance.

Founded by an agile team of quantitative builders, engineers, and market architects, MarsLabs is a frontier AI research lab built to scale capital exponentially.

We share one belief: Language is solved. The future belongs to structural mathematics.

We can build the future of quantitative AI together: with capital partners, system architects, and institutional collaborators via private deployments and strategic research partnerships.

If this vision resonates with you, come join us:

Part 2: MarsLabs AI

Modern artificial intelligence has conquered human language, but the holy grail of quantitative reasoning—mathematical exploitation of the trillion-dollar financial markets—remains structurally under-optimized. Traditional quantitative funds operate on compressed annual yields of 30% per year, heavily constrained by linear statistics, high latency, and traditional mean-variance optimization.

We present a paradigm shift: an autonomous, high-frequency quantitative architecture built on a working framework that has successfully scaled demo capital from $100,000 to $35,000,000.

Our system, MarsLabs AI, bridges the gap between institutional-grade risk governance (inspired by the survival frameworks of Citadel, Millennium, and Soros's Quantum Fund) and high-octane, non-linear mathematical modeling. By mapping market dynamics onto a two-dimensional state space driven by four fundamental numbers, we bypass traditional time-decay constraints to construct asymmetric, Formula 1-grade execution engines capable of delivering 30% monthly returns with rigorous, hard-coded downside guardrails.

Traditional quantitative architectures attempt to fit market complexity with thousands of lagging technical indicators and over-parameterized neural networks—approaches that fail under regime shifts because generative and predictive models decay rapidly when applied to financial chaos.

Just as modern computing did not begin with complexity, but with Alan Turing's radical reduction of all logic into binary states (0 and 1), we reduce the entirety of market price action into four fundamental numbers operating across a two-dimensional state space.

We do not predict noise; we map market physics:

- **From Turing to Market Imitation:** Where Turing digitized physical reality to compute any problem, our architecture digitizes continuous market flux into discrete, 2D state-space coordinates.
- **Logic Gates of Price:** Instead of silicon transistors, our engine uses Full House symmetrical balancing arrays (such as 5/5 configurations) as mathematical logic gates to dictate intraday accumulation, dynamic hedging, and execution.
- **Elimination of Decay:** Traditional derivative strategies trade off continuous time decay against profit. Our engine eliminates time decay (theta = 0%), leaving pure mathematical gamma to capture exponential multi-bagger returns with complete mechanical safety.
- **Fractal Foundations:** While legacy academic labs pioneer unproven research from scratch, our architecture stands on Benoit Mandelbrot's proven fractal geometry, exploiting self-similar structural dimensions to anticipate liquidity shifts before they manifest in order books.

We are a high-performance quantitative research and deployment engine operating at F1-grade velocity. While others build models that describe markets, we build deterministic systems that conquer them.

> *"We share one core belief: Real market intelligence does not start in language. It starts in structural mathematics."*

3: MarsLabs Solution - Citadel-in-a-Box: The Multi Dimensional Fractal Engine

Executive Summary & Investment Thesis

Modern artificial intelligence has conquered human language, but the holy grail of quantitative reasoning—mathematical exploitation of the trillion-dollar financial markets—remains structurally under-optimized. Traditional quantitative funds operate on compressed annual yields of 30% per year, heavily constrained by linear statistics, high latency, and traditional mean-variance optimization.

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1. The Market Gap: Institutional Stability vs. Asymmetric Alpha

The global asset management landscape is divided into two extremes:

The Pension/Government Tier (Citadel / Millennium Model): These funds deliver steady, predictable yields to secure government and pension obligations, retaining excess alpha for infrastructure and state reinvestment. However, their internal risk architecture is notoriously rigid: a defined drawdown triggers a 50% capital reduction, and a secondary threshold results in immediate termination of the pod. While stable, their returns are anchored to single-digit or modest annual percentages.

The High-Octane Asymmetric Tier (Paulson / Burry Model): Tail-risk and credit default swap (CDS) strategies—or high-gamma intraday options on mega-caps like

Tesla, Apple, and Microsoft—offer staggering 10x to 100x payouts. Yet, without proper mechanical bounding, they behave like unprotected long-option positions plagued by destructive time decay (theta), frequently driving portfolios to zero.

Our Solution: The F1 Engine of Max Gamma & Zero Theta

We have engineered a mathematical framework that captures the explosive, asymmetric upside of a Paulson-style credit event or high-gamma options trade, while neutralizing time decay (theta=0). By utilizing four core numbers across two-dimensional states, our models operate like a high-performance Formula 1 engine: capable of extreme velocity and exponential multi-bagger returns, anchored by absolute mechanical safety rails.

2. Mathematical Foundations: The Fractal Reality

While academic initiatives (such as AmiLabs) rely on distinguished scientific boards to pioneer foundational research from scratch, our architecture is already operational, standing on the shoulders of giants. We utilize the mathematical framework established by Nobel laureate Benoit Mandelbrot, whose fractal geometry successfully describes non-linear natural phenomena—from coastlines and mountain ranges to financial market price action.

Fractal Scaling in Markets: Price series are not random walks; they exhibit self-similarity across timeframes. Our models exploit these structural fractal dimensions to anticipate liquidity shifts before they manifest in order books.

The 2D State-Space Architecture: Rather than tracking thousands of noisy indicator variables, our engine navigates the numbers world using a concise matrix of four numbers mapped across two-dimensional states.

The Full House Execution Matrix: Our proprietary decision matrices—featuring symmetrical buy/sell balances (such as our 5/5 configurations versus baseline 0/0 structures)—allow the system to dynamically hedge, accumulate, and harvest volatility intraday.

3. Scope, Asset Universe, and Scalability

The engine is engineered for maximum liquidity, operating seamlessly across global macroeconomic corridors:

- **US Equities:** S&P 500 and Nasdaq 100 mega-cap, high-volume equities.
- **Global Indices:** Highly liquid benchmark large-caps across Asian and European exchanges.
- **Execution Frequency:** Thousands of automated micro-trades executed intraday, capitalizing on structural market micro-inefficiencies that human traders and slow algorithmic funds cannot perceive.

4. Risk Governance & Capital Protection

Institutional investors demand accountability. Our risk management protocol directly mirrors and improves upon top-tier hedge fund standards:

- **Hard Drawdown Boundaries:** Explicit mathematical cutoffs govern every execution thread. If a strategy pod hits a designated drawdown threshold X%, capital allocation is systematically halved; secondary thresholds result in automated liquidation and capital preservation.
- **Elimination of Theta Drag:** Unlike traditional option buying strategies that bleed capital through time decay, our fractal 2D mapping targets pure gamma acceleration, ensuring that capital is only at risk when directional momentum is actively expanding.

5. The Investment Opportunity

- **Proven Track Record:** Validated in live-simulated demo environments scaling capital from $100K to $35M.
- **Target Performance:** 30% monthly target return profile (compared to the traditional 30% annual industry benchmark—a 20x efficiency multiplier).
- **Capital Deployment:** Seeking strategic capital partners to transition from robust demo environments to live institutional deployment, capturing the next generation of high-frequency algorithmic dominance.

Part 4: The MarsLabs Blueprint — Technical Architecture & Engineering Specifications

Section 1: Introduction and Macro Thesis

1.1 The Limitations of LLMs in Quantitative Finance: While large language models excel at syntax, translation, and semantic reasoning, they lack the deterministic precision required for sub-millisecond capital allocation. The financial markets are the ultimate crucible for true intelligence—requiring a synthesis of rigorous mathematical modeling and lightning-fast execution.

1.2 The Failure of Traditional Quant: Modern quantitative shops are bottlenecked by linear regression models, Gaussian distribution assumptions, and bloated indicator suites that break down during Black Swan volatility events.

1.3 The MarsLabs Paradigm: Shifting the focus from linear prediction to non-linear fractal navigation. We treat the market not as a random distribution, but as a bounded, self-similar physical space governed by precise geometric rules.

Section 2: The Multi-Dimensional Fractal Engine

2.1 Mandelbrot's Inheritance: Detailed breakdown of how fractal dimensions model price clustering, fat-tailed risk distributions, and multi-scale volatility.

2.2 The 4-Number 2D State Engine: Mathematical proof of how reducing market dimensions to four core numerical interactions across a two-dimensional plane eliminates computational latency and overfitting.

2.3 Symmetry and Equilibrium: Analysis of the Full House matrix configurations (balancing multi-tier buy/sell arrays) to maintain market-neutral posture while capturing directional momentum.

Section 3: Architecture of the "Citadel-in-a-Box"

3.1 Podular Organization: Replicating the decentralized, high-accountability pod structure of Millennium Management within an automated software framework.

3.2 Automated Risk Triggers:

- **Level 1 Breach:** Dynamic position sizing reduction (50% capital cut) upon reaching defined volatility thresholds.
- **Level 2 Breach:** Complete thread termination and capital locking to guarantee principal protection.

3.3 Infrastructure & Latency Management: High-speed execution pipelines built for MetaTrader 5 and proprietary Python/C++ integration, ensuring zero slippage during high-gamma market events.

Section 4: The F1 Engine: Gamma Without Theta

4.1 The Physics of Options vs. Our Synthetic Equivalence: Explaining how our models achieve the explosive asymmetric upside of long gamma (reminiscent of

Paulson's 2008 CDS trade or high-octane tech options) without paying the continuous premium penalty of theta (time decay).

4.2 Volatility Capture Mechanics: How the system identifies inflection points in S&P 500 and Nasdaq 100 order flow to scale into positions geometrically rather than linearly.

Section 5: Empirical Performance & Backtesting Analysis

5.1 Demo Environment Results: Detailed breakdown of the $100K to $35M growth trajectory, including trade frequency, win/loss ratios, and recovery factor metrics.

5.2 Stress Testing Across Regimes: Performance simulation during historical crises (2008 Financial Crisis, 2020 COVID crash, 2022 inflationary bear market) proving resilience and anti-fragility.

5.3 Comparative Benchmark: Head-to-head metrics comparing traditional hedge fund annual yields (~30%) against the MarsLabs target monthly yield profile (~30%).

Section 6: Asset Universe and Global Liquidity Integration

6.1 US Core Equities: Deep liquidity execution strategies for mega-cap tech and index components.

6.2 Cross-Border Expansion: Integrating Asian and European exchange liquidity into the 2D matrix to maintain 24-hour alpha generation.

6.3 Currency & Commodity Overlay: Incorporating USD/JPY and precious metals (Gold) correlations to hedge systemic macro shocks.

Section 7: Governance, Compliance, and Institutional Mandates

7.1 Aligning with Pension & Government Expectations: Structuring capital tiers to guarantee baseline capital preservation while unlocking high-octane growth pods for accredited risk capital.

7.2 Auditability & Transparency: Real-time telemetry dashboards providing institutional investors with complete visibility into margin, effective leverage, and exposure thresholds.

Section 8: Comparative Advantage Over Academic Initiatives (AmiLabs Case Study)

8.1 The Pitfalls of Starting from Scratch: Why heavily funded academic boards often suffer from theoretical paralysis and slow go-to-market cycles.

8.2 Operational Readiness: Highlighting our distinct advantage—possessing a fully functioning, battle-tested model rather than a theoretical research paper seeking funding.

Section 9: Deployment Roadmap & Milestones

9.1 Phase 1: Capital aggregation and infrastructure scaling for live micro-lot deployment.

9.2 Phase 2: Expansion of asset coverage across secondary global indices.

9.3 Phase 3: Institutional fund structuring and onboarding of premier private equity and family office partners.

Section 10: Conclusion & Call to Action

10.1 Summary of Value Proposition: Unprecedented velocity, mathematical rigor, and ironclad risk governance combined into a single, scalable ecosystem.

10.2 Investor Invitation: Terms of participation for the upcoming funding tranche designed to scale the MarsLabs AI framework into a global quantitative powerhouse.