A Web Solution for Backtesting and Optimizing Retail Futures Trading

GROUP
fyp24083

Student: Lam Kwong Chiu, Wong Yee Wang

Supervisor: Dr. Chow Kam Pui

OVERVIEW

With retail futures trading on the rise, many existing platforms lack comprehensive, no-code tools for backtesting and optimization. FuturesVision aims to provide a user-friendly website that helps retail traders evaluate and refine their futures strategies.

MOTIVATIONS

Valuable Market: Global derivatives market reached 137.3 billion contracts in 2023. Retail traders are projected to be nearly half of total participants by 2026.
Knowledge Gap: Futures are complex and leveraged; structured backtesting helps traders understand risk before trading live.
Platform Limitations: Tools like TradingView have broad features, but often require scripting or fail to support portfolio-wide testing.

OBJECTIVES

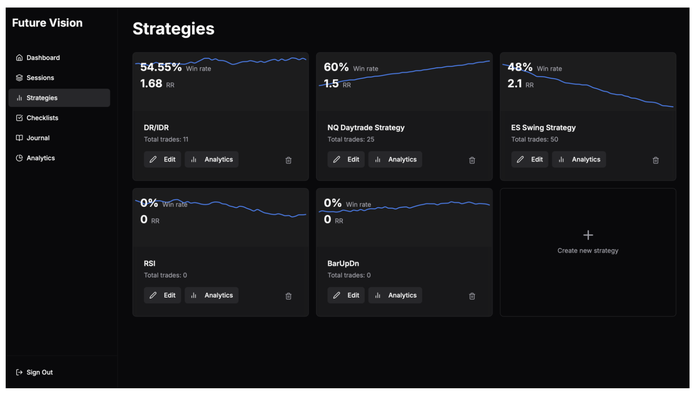
User-Friendly Platform: Provide a code-free interface to analyze futures strategies.
Risk Management Education: Integrate performance metrics (e.g., Drawdown, Sharpe Ratio).
Comprehensive Portfolio Testing: Enable multi-asset evaluations and diversification analytics.

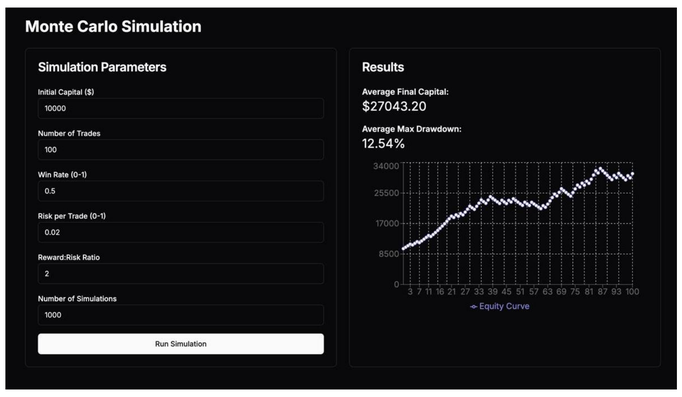
COMPETITIVE ANALYSIS

Feature	TradingView	FUTU	FUTURES VISION
Ease of Use	~ (Scripting often required)	✓ (User-friendly for stocks)	✓ (No coding required for futures backtesting)
Multi-Asset Portfolio Backtesting	~ (Script-dependent)	✗ (Mostly stock-focused)	✓ (Futures-centric & easily extendable)
Futures Replay / Simulation	✓ (Includes bar replay for futures)	✗ (No dedicated futures replay)	✓ (Scenario-based & multi-asset support)
Risk Metrics (Drawdown, Sharpe, etc.)	✓ (Comprehensive, but advanced config may require scripts)	~ (Basic margin & daily PnL tracking)	✓ (Built-in, portfolio-level stats)
Machine Learning Potential	✗ (3rd-party add-ons only)	✗ (No custom ML support)	✓ Planned integration for strategy refinement

METHODOLOGIES - Automated Backtesting

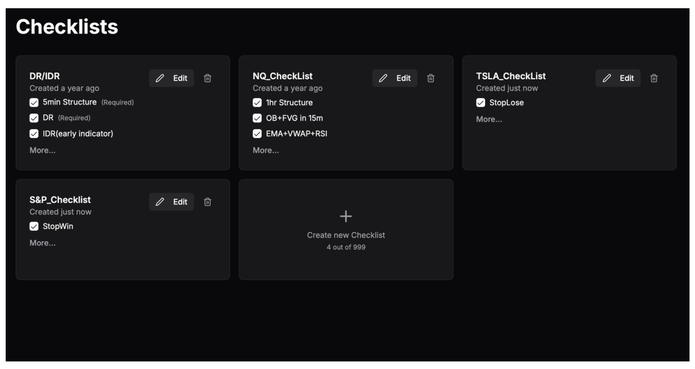
Default Strategies: RSI, BarUpDn with optimized parameters for beginners.
Portfolio Backtesting: Multi-asset coverage (indices, commodities, FX) with Sharpe Ratio, Max Drawdown, and correlation checks.
Monte Carlo Simulation: Randomized variations to stress-test strategy robustness.

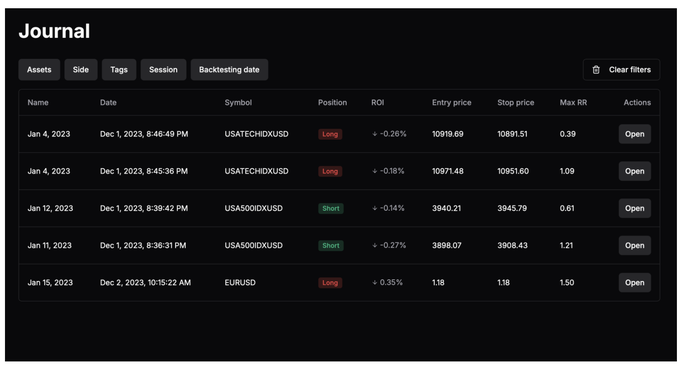




METHODOLOGIES - Manual Backtesting

Replay Backtesting: "Replay" historical scenarios at adjustable speeds to simulate real-time trades.
Journaling & Checklist: Structured logs of trades and checklists for systematic improvement.





ARCHITECTURE

Our system is built around a microservices approach, leveraging various frameworks and services to ensure modularity, scalability, and clear separation of functions: