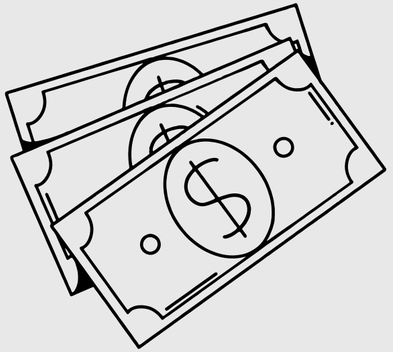
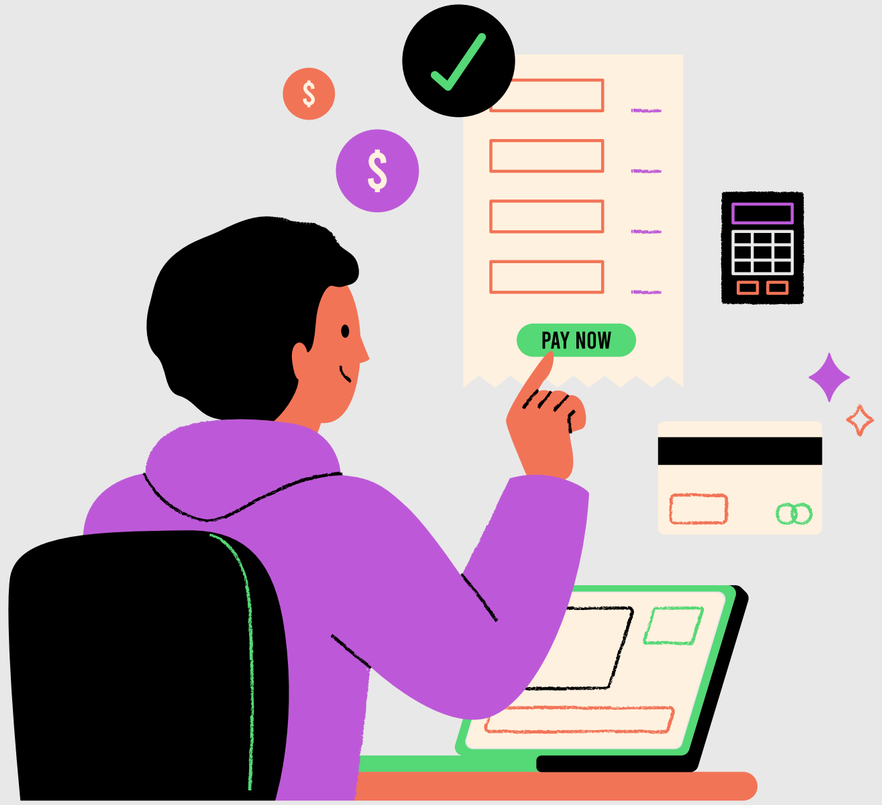


DhanYaantra

Agentic AI Quantum Finance System

A Next-Gen Autonomous Financial Architecture



Presented by- LocalHost:3000

Problem Statement

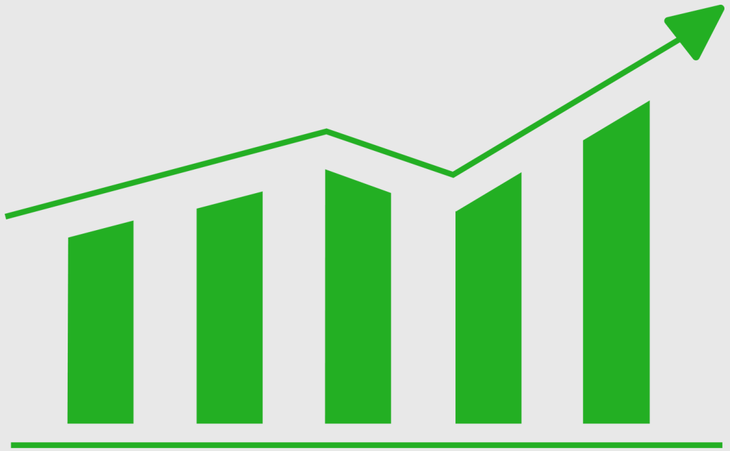
This project addresses these challenges by proposing a multi-agent, quantum-enhanced autonomous finance architecture that integrates quantum optimization with agentic AI for end-to-end, real-time financial decision-making.

Traditional financial systems face significant limitations in addressing the dynamic and non-stationary nature of modern markets. Classical portfolio optimization techniques struggle to scale with increasing asset dimensionality and complex real-world constraints. Additionally, AI-driven trading systems are often monolithic, slow to adapt to market shifts, and computationally expensive, especially under high volatility conditions.

There is a critical need for an intelligent, modular, and adaptive financial system capable of:

- Continuously ingesting and analyzing both structured (market) and unstructured (alternative) data in real-time.
- Generating robust, risk-aware trading strategies using advanced optimization techniques.
- Adapting to market drift through continuous learning and autonomous retraining.
- Leveraging quantum computational techniques to enhance the efficiency of non-convex portfolio optimization problems.

Motivation



Limitations of Traditional & Classical AI Finance

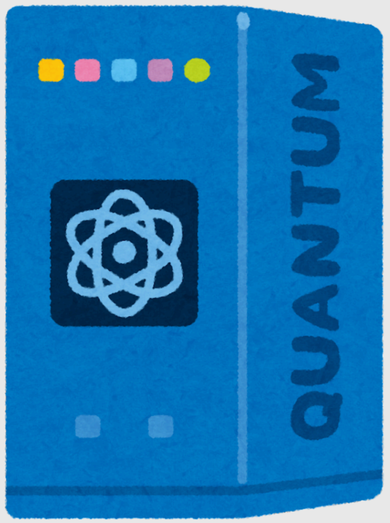
- Static Rules: Underperform in dynamic markets
- Convex Assumptions: Break in real-world scenarios
- Monolithic Systems: Fragile to volatility, slow to adapt
- AI Challenges: Data-hungry, overfit, poor scalability

Shift to Modular, Autonomous Intelligence

- Continuous perception, reasoning, action
- Multi-agent systems: Specialized, resilient, collaborative
- Modularity: Extensible, maintainable, retrainable

Quantum Edge in Finance

- Non-convex optimization via QAOA, VQE
- Superposition/Entanglement explores complex solution spaces
- Faster solutions to portfolio constraints



Our Professional Services

Data & Signal Pipeline

We build real-time pipelines for market and alternative data, enabling a continuous stream of actionable information. Our feature extraction uses technical indicators and NLP to transform raw inputs into predictive signals that power downstream trading intelligence.

Quantum & AI Strategies

We optimize portfolios using quantum algorithms like QAOA and VQE. Simultaneously, our AI-driven strategy agents employ multi-agent reinforcement learning to adaptively generate trade signals and capitalize on dynamic market conditions.

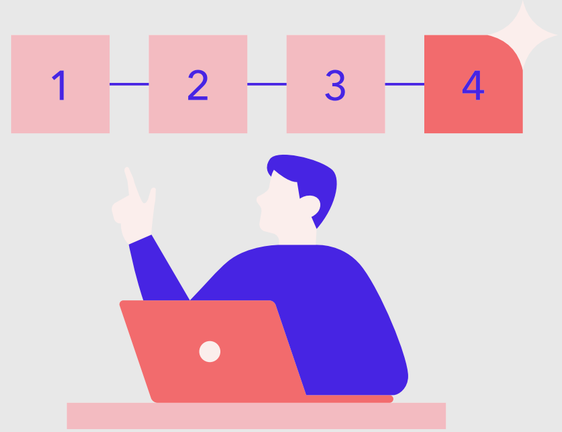
Risk & Compliance Control

Risk is actively managed with VaR and CVaR constraints, ensuring controlled exposure. Our compliance module ensures regulatory alignment through automated monitoring, reducing the risk of violations in fast-evolving markets.

Smart Execution & Feedback

Our execution system connects with broker APIs to place trades efficiently. A feedback mechanism tracks market drift and model degradation, triggering automated retraining to keep trading strategies robust and responsive.

Workflow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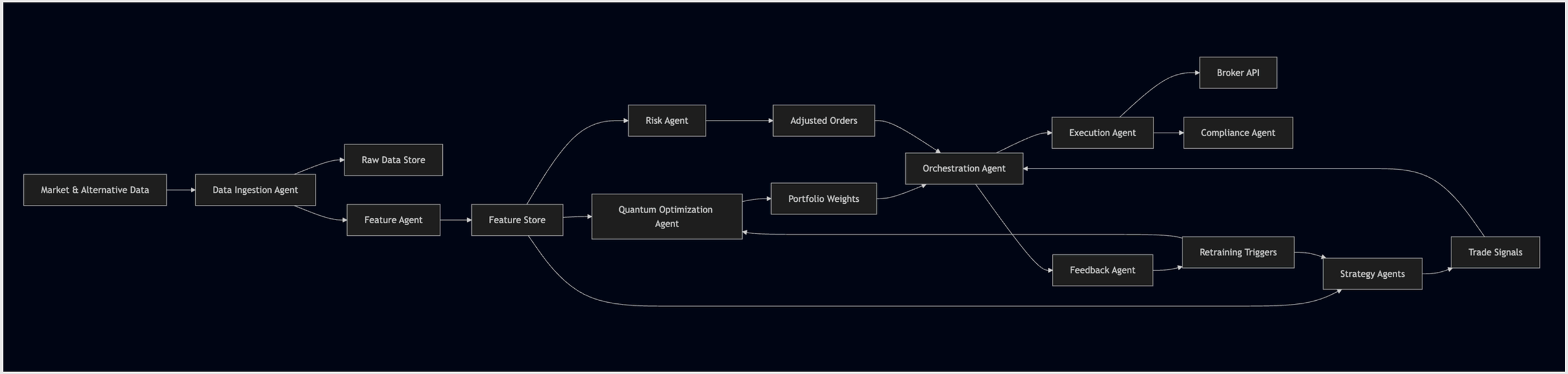
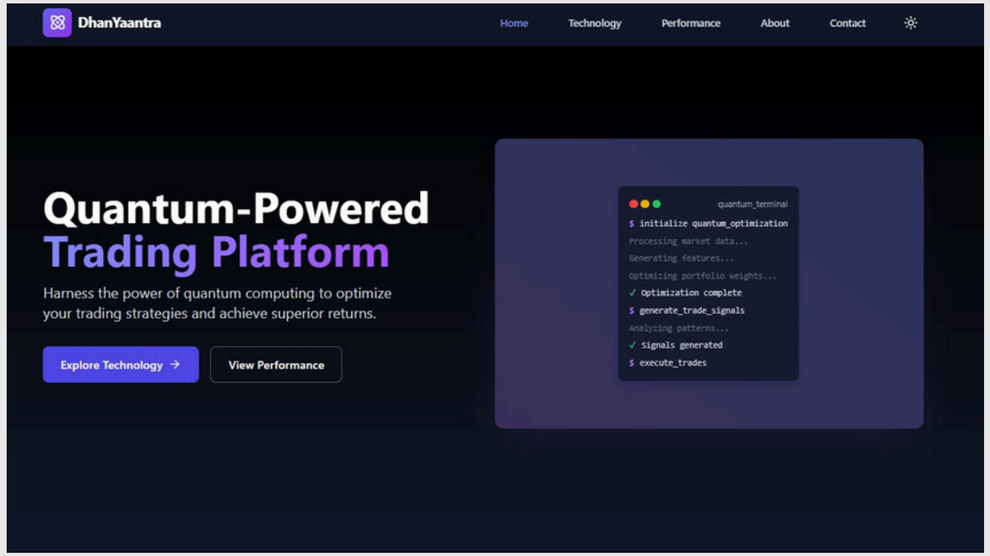

Market & Alternative Data
Data Ingestion Agent
Raw Data Store
Feature Agent
Feature Store
Risk Agent
Adjusted Orders
Quantum Optimization Agent
Portfolio Weights
Orchestration Agent
Execution Agent
Broker API
Compliance Agent
Feedback Agent
Retraining Triggers
Strategy Agents
Trade Signals

Architecture Diagram

- **Layered system:** Organized into Data, Analysis, Execution, and Feedback layers.
- **Data flow:** Ingests market data, extracts features, stores them centrally.
- **Quantum core:** Uses quantum agents for portfolio optimization.
- **Adaptive loop:** Feedback triggers model retraining dynamically.
- **Smart execution:** Executes trades via Broker API with compliance checks.

Prototype


DhanYaantra
Home
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Performance
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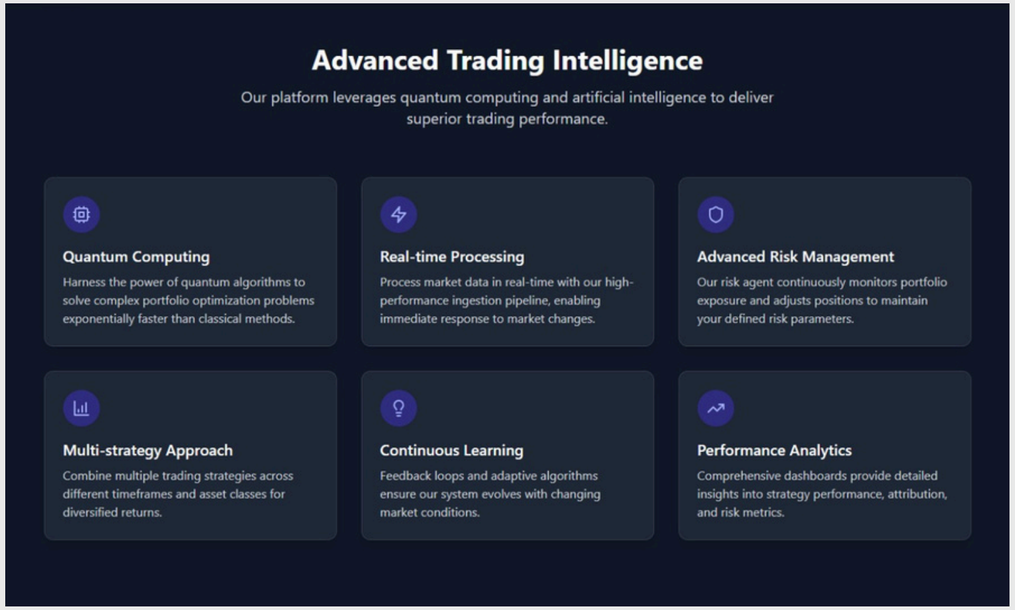
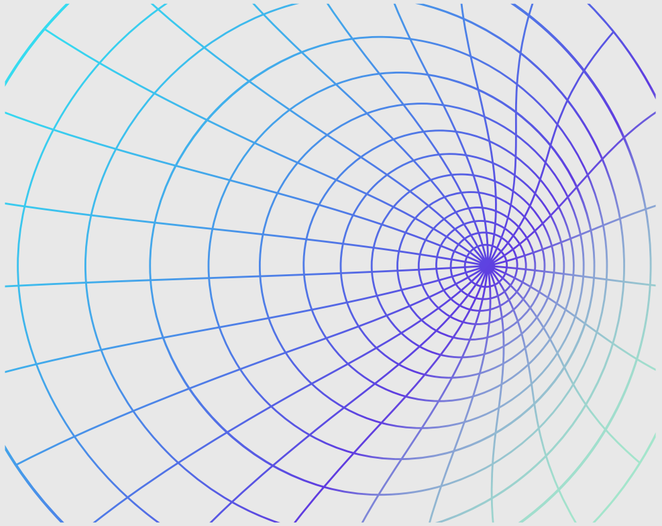
Quantum-Powered
Trading Platform
Harness the power of quantum computing to optimize your trading strategies and achieve superior returns.
Explore Technology →
View Performance
quantum_terminal
$ initialize quantum_optimization
Processing market data...
Generating features...
Optimizing portfolio weights...
✓ Optimization complete
$ generate_trade_signals
Analyzing patterns...
✓ Signals generated
$ execute_trades


Quantum-Enhanced Performance
Our quantum-powered strategies have consistently outperformed traditional algorithms and market benchmarks in backtesting and live trading environments.
Annual Return
+32.4%
Sharpe Ratio
1.92
Max Drawdown
-7.3%
Win Rate
68.5%
View detailed performance metrics →
12-Month Performance Comparison
Quantum Strategy vs Traditional Strategy vs Market Benchmark
Quantum Strategy
Traditional Strategy
Market Benchmark
1,700
1,600
1,500
1,400
1,300
1,200
1,100
1,000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Total Return
+64.0%
Sharpe Ratio
1.92
Max Drawdown
-7.3%


Advanced Trading Intelligence
Our platform leverages quantum computing and artificial intelligence to deliver superior trading performance.
Quantum Computing
Harness the power of quantum algorithms to solve complex portfolio optimization problems exponentially faster than classical methods.
Real-time Processing
Process market data in real-time with our high-performance ingestion pipeline, enabling immediate response to market changes.
Advanced Risk Management
Our risk agent continuously monitors portfolio exposure and adjusts positions to maintain your defined risk parameters.
Multi-strategy Approach
Combine multiple trading strategies across different timeframes and asset classes for diversified returns.
Continuous Learning
Feedback loops and adaptive algorithms ensure our system evolves with changing market conditions.
Performance Analytics
Comprehensive dashboards provide detailed insights into strategy performance, attribution, and risk metrics.

Future Prospoects

- Integration of quantum-secure APIs for brokerage
- Expansion to multi-asset (bonds, crypto, derivatives)
- Federated learning for decentralized financial insights
- Edge deployment with PQC for secure transactions



Meet Our Team

Ritisha Katiyar

Shashanka Shekhar Sharma

Chaitanya Singh Negi

Hrishikesh Sarma

Thank you!