**RIGACAP**

# Adaptive AI Trading Platform

An autonomous, regime-aware trading system combining ensemble signal intelligence, walk-forward validation, and AI-powered content generation to deliver institutional-grade returns and market insights.

**+289%**
5-YEAR RETURN

**1.02**
MEDIAN SHARPE RATIO

**-15.1%**
MAX DRAWDOWN

**80%**
POSITIVE YEARS

Confidential — February 2026

# Executive Summary

RigaCap is a **fully autonomous, AI-driven equity trading platform** that identifies high-conviction momentum breakouts across 6,500+ US stocks. Unlike traditional quantitative systems that rely on static rules, RigaCap continuously adapts to changing market conditions using a proprietary 7-regime market classifier and Bayesian parameter optimization.

The platform's **ensemble strategy** — combining DWAP timing, momentum quality ranking, and volume confirmation — has been validated through rigorous walk-forward testing with **zero hindsight bias**, producing a 289% cumulative return over 5 years (31% annualized).

In February 2026, RigaCap launched its **Social Intelligence Engine** — an autonomous growth flywheel that transforms real trade results into social content, distributes that proof into active market conversations, and builds community through intelligent engagement across Twitter/X, Instagram, and Threads.

> **Key Differentiator:** Every return figure cited in this document is from walk-forward validation — the system was tested on data it had never seen during optimization. This is the gold standard for trading system verification, eliminating overfitting concerns.
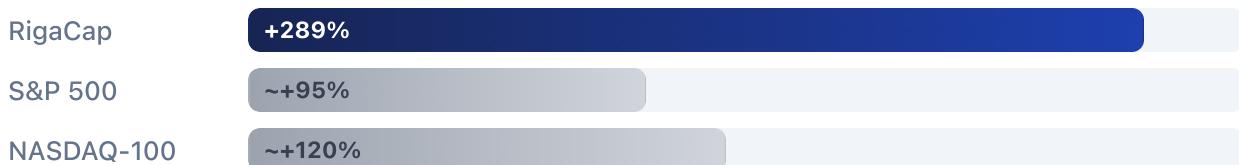
# Walk-Forward Performance (2021–2026)

Biweekly reoptimization across 5 years. Each period uses only historical data for parameter selection, then trades forward into unseen market conditions.

| PERIOD | RETURN | SHARPE | MAX DRAWDOWN | MARKET CONTEXT |
| --- | --- | --- | --- | --- |
| 2021–2022 | +62.0% | 1.21 | -14.8% | Post-COVID rally, meme mania |
| 2022–2023 | -13.2% | -1.38 | -15.1% | Fed rate hikes, tech selloff |

| PERIOD | RETURN | SHARPE | MAX DRAWDOWN | MARKET CONTEXT |
|---|---|---|---|---|
| 2023–2024 | +22.2% | 1.02 | -13.6% | AI-driven recovery |
| 2024–2025 | +20.7% | 0.89 | -13.7% | Election volatility, rate cuts |
| 2025–2026 | +87.5% | 2.32 | -8.3% | Strong bull, tariff recovery |
| 5-Year Total | +289% | 1.02 median | -15.1% | — |

## RigaCap vs. Benchmarks (5-Year Cumulative)

| | |
|---|---|
| RigaCap | +289% |
| S&P 500 | ~+95% |
| NASDAQ-100 | ~+120% |

# How It Works: The Ensemble Approach

RigaCap's production strategy requires **three independent factors** to align before entering a trade, dramatically reducing false signals:

## 1. DWAP Timing

Price must break 5% above its 200-day volume-weighted fair value — a statistically significant breakout signal refined from 127 legacy stored procedures.

## 2. Momentum Quality

Stock must rank in the top momentum tier via a composite score: short (10d) × 0.5 + long (60d) × 0.3 – volatility × 0.2.

## 3. Volume Confirmation

Requires 1.3× average volume spike and proximity to 50-day high — institutional participation confirmed.

## 4. Adaptive Exit

12% trailing stop from high water mark, adjusted by market regime (8–20%). Winners run; losers are cut quickly.

**Portfolio Construction:** Maximum 6 concentrated positions at 15% allocation each. Biweekly rebalancing. This concentration in high-conviction signals is a key driver of outperformance vs. diversified approaches.

# 7-Regime Market Intelligence

The platform classifies market conditions into 7 distinct regimes using a multi-factor model analyzing SPY trend, VIX percentile, market breadth, new highs/lows, and momentum acceleration. Strategy parameters **automatically adapt** to each regime:

| **Strong Bull** | **Weak Bull** | **Rotating Bull** | **Range-Bound** |
|---|---|---|---|
| Tight stops, max positions | Balanced approach | Diversify, sector aware | Reduce size, wait |

| **Weak Bear** | **Panic / Crash** | **Recovery** | **+ Forecasting** |
|---|---|---|---|
| Tighter stops, fewer signals | Defensive: go to cash | Gradual re-entry | 1–2 week outlook |

The regime detector also provides **transition forecasting** — computing indicator trajectories (VIX delta, breadth acceleration, trend momentum) to predict where the market is heading in the next 1–2 weeks, enabling proactive risk management rather than reactive.

# AI & Machine Learning

## Bayesian Parameter Optimization (Optuna TPE)

Every two weeks, the platform runs **Optuna's Tree-structured Parzen Estimator** (TPE) to intelligently search the continuous parameter space. Unlike brute-force grid search, TPE models the probability of improvement and focuses exploration on high-promise regions:

- **~30 trials per optimization cycle** across 6+ dimensions (stops, sizing, momentum windows, volatility penalties)
- **Regime-aware constraints:** In panic markets, trailing stops are floored at 15%+; in strong bull, as tight as 8%
- **Warm-starting:** Previous period's best parameters seed the first trial, ensuring continuity and cutting optimization time ~30%
- **Multivariate modeling:** Captures correlations between parameters (e.g., wider stops pair with smaller positions)

## Adaptive Strategy Scoring

Strategy performance is scored differently depending on the current regime. Bear markets heavily weight drawdown control; bull markets weight returns:

| METRIC | BULL WEIGHT | BEAR WEIGHT | SIDEWAYS WEIGHT |
| --- | --- | --- | --- |
| Total Return | 35% | 15% | 15% |
| Sharpe Ratio | 25% | 20% | 35% |
| Max Drawdown | 15% | 35% | 20% |
| Sortino Ratio | 15% | 20% | 20% |
| Profit Factor | 10% | 10% | 10% |

## Automatic Strategy Switching

The auto-switch service runs biweekly, evaluating all strategies against the last 60 days of market data. If the AI discovers a parameter set scoring 10+ points above the current

strategy, it switches automatically. Safeguards include a 14-day cooldown between switches and full audit trails with admin email notifications.

## Walk-Forward Validation (Anti-Overfitting)

The system divides 5 years of history into overlapping periods. At each boundary, it reoptimizes using only past data, then trades forward into unseen data. This produces an **out-of-sample equity curve** — the 289% return is on data the optimizer never saw.

> **Metrics tracked per period:** Sharpe, Sortino, Calmar, profit factor, win rate, max consecutive losses, recovery factor, Ulcer index. The system logs every parameter change and strategy switch for full investor transparency.

# Social Intelligence Engine  `NEW`

RigaCap's Social Intelligence Engine is an autonomous growth flywheel that no competitor in the retail trading signal space has replicated. It transforms real trade results into social content, distributes that proof into active market conversations, and builds community through intelligent engagement — across Twitter/X, Instagram, and Threads. The system operates with near-zero marginal cost per subscriber acquired.

### AI Content Generation

Claude generates witty, data-driven posts from real trade data. Each post type (trade result, missed opportunity, "we called it") has tailored prompts for Twitter, Instagram, and Threads.

### News-Aware Messaging

Integrates real-time news headlines via yfinance, connecting profitable exits to breaking news with a "we saw that coming" angle — without hype or financial advice.

### Branded Chart Cards

1080×1350 (4:5 ratio) Instagram-ready chart cards with price charts, entry/exit markers, return badges, and gold-accented branding — generated server-side via matplotlib.

### Admin Approval Pipeline

24-hour and 1-hour pre-publish notifications with one-click cancel links. JWT-signed email buttons let admins kill posts without logging in.
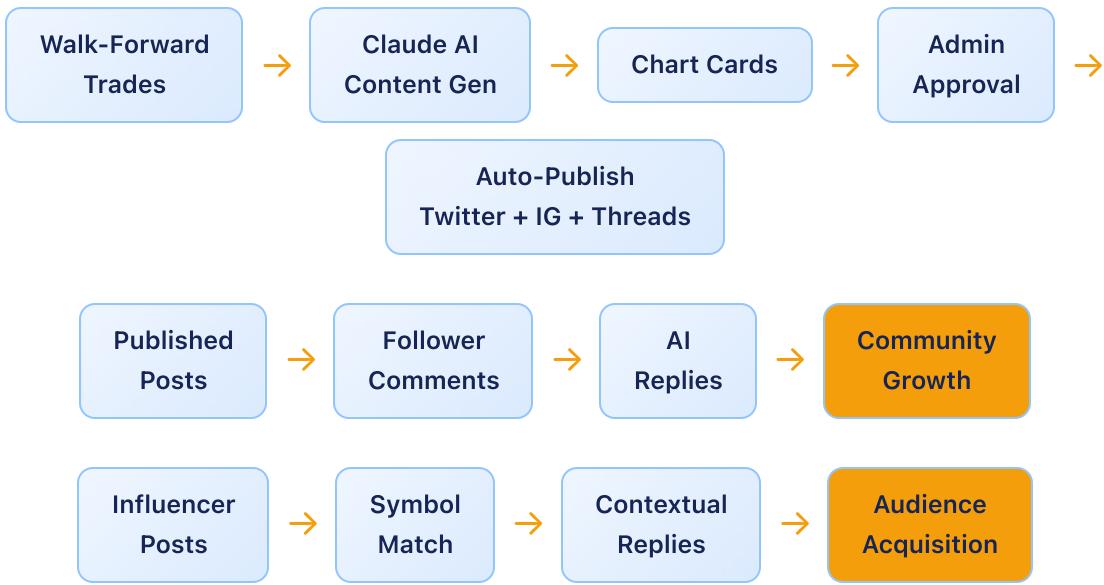
### Contextual Reply Engine

Scans 25+ influential fintwit accounts for stock mentions, matches to our proven trades, and generates Claude-powered replies that insert RigaCap into active market conversations. Runs across Twitter/X and Threads.

### Community Engagement

AI-powered comment replies on Instagram posts. When followers engage, the system generates warm, on-brand responses that build community and encourage subscription.

## Three-Leg Flywheel

```
┌──────────────┐     ┌──────────────┐     ┌──────────────┐     ┌──────────────┐
│ Walk-Forward │  →  │  Claude AI   │  →  │ Chart Cards  │  →  │    Admin     │  →
│    Trades    │     │ Content Gen  │     │              │     │   Approval   │
└──────────────┘     └──────────────┘     └──────────────┘     └──────────────┘
                     ┌────────────────────┐
                     │    Auto-Publish    │
                     │ Twitter + IG + Threads │
                     └────────────────────┘
```

```
┌──────────────┐     ┌──────────────┐     ┌──────────────┐     ┌──────────────┐
│  Published   │  →  │   Follower   │  →  │     AI       │  →  │  Community   │
│    Posts     │     │  Comments    │     │   Replies    │     │    Growth    │
└──────────────┘     └──────────────┘     └──────────────┘     └──────────────┘

┌──────────────┐     ┌──────────────┐     ┌──────────────┐     ┌──────────────┐
│  Influencer  │  →  │   Symbol     │  →  │  Contextual  │  →  │   Audience   │
│    Posts     │     │   Match      │     │   Replies    │     │ Acquisition  │
└──────────────┘     └──────────────┘     └──────────────┘     └──────────────┘
```

## Post Types

| TYPE | PURPOSE | TIMING |
|------|---------|--------|
| **Trade Result** | Celebrate a winning trade with entry/exit details and return percentage | 1–2 days after exit |
| **Missed Opportunity** | FOMO-angle post showing the return non-subscribers missed | 2–3 days after exit |
| **"We Called It"** | Connects trade result to breaking news — proves the signal anticipated the move | When matching news breaks |
| **Contextual Reply** | Responds to influencer posts about stocks we traded — inserts RigaCap into active conversations | Within 4 hours |
| **Comment Reply** | Engages with followers commenting on our posts — builds community | Within 4 hours |

**Signal-to-Social Flywheel:** Most trading signal services post screenshots of their best weeks. RigaCap's Social Intelligence Engine automatically generates content from every walk-forward trade, proactively engages in market conversations with proven results, and builds community across three platforms — all AI-powered, all from real data, all admin-approved. More trades → more content → more engagement → more subscribers → more credibility.

**Real Example (Jan 2026):** SLV delivered +17.3% in 11 days. Our signal fired Jan 5 at $69.08, exit Jan 16 at $81.02. The engine connected this to the precious metals rally and generated platform-specific posts for Twitter (186 chars), Instagram (591 chars), and Threads (350 chars) with branded chart cards.

## Recent AI-Generated Trade Results (Jan 2026)

| SYMBOL | ENTRY | EXIT | RETURN | DAYS |
|--------|-------|------|--------|------|
| **SLV** (iShares Silver) | $69.08 | $81.02 | +17.3% | 11 |
| **MU** (Micron Tech) | $312.15 | $362.75 | +16.2% | 11 |
| **RKT** (Rocket Mortgage) | $21.10 | $23.24 | +10.1% | 11 |

# Deep Intelligence Suite  `NEW`

Beyond signal generation, RigaCap provides institutional-grade trade intelligence that continuously improves system performance and subscriber confidence.

## AI Trade Autopsies

Every closed trade receives a Claude-powered forensic post-mortem analyzing entry timing, exit execution, and market regime impact. Each autopsy includes a verdict, score (1–10), and actionable lesson for system improvement.

## Ghost Portfolios

Three parallel universes run alongside our model portfolio with different parameters (aggressive, conservative, top-3 concentrated). We prove in real-time that our chosen configuration outperforms alternatives.
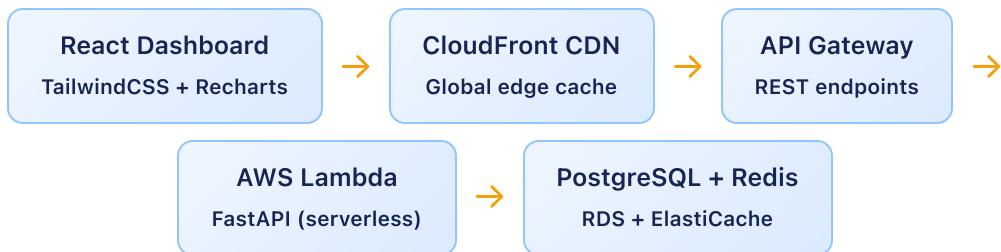
## Regime Shift Forecast

Our 7-regime market intelligence doesn't just detect—it predicts. Daily probability forecasts with historical accuracy tracking give subscribers early warning of market regime shifts.

## Personalized Impact Calculator

Every subscriber sees exactly what following our signals would have earned them, calculated from their signup date, compared against the S&P 500. Shareable results drive organic word-of-mouth growth.

# Platform Architecture

React Dashboard
TailwindCSS + Recharts
→
CloudFront CDN
Global edge cache
→
API Gateway
REST endpoints
→

AWS Lambda
FastAPI (serverless)
→
PostgreSQL + Redis
RDS + ElastiCache

## Data Pipeline

- **6,500+ US equities** scanned daily
- **20+ years** of historical OHLCV data
- Split/dividend-adjusted prices
- S3-cached universe with 7-day TTL
- 45+ technical indicators per stock
- Pre-computed dashboard JSON on CDN

## Operational Cadence

- **Daily 4 PM ET:** Full market scan
- **Daily 5 PM ET:** Breakout alert check
- **Daily 6 PM ET:** Subscriber email digest
- **Daily 8 PM ET:** Walk-forward + social posts
- **Every 15 min:** Auto-publish scheduled posts
- **Biweekly:** AI reoptimization

## Subscriber Experience

### Buy Signals

Ensemble-validated picks with momentum rank, DWAP strength, and confidence score. Fresh signals marked "BUY NOW" with pulsing indicator.

### Market Regime

Current regime classification with color-coded severity, SPY level, VIX reading, and 1–2 week directional forecast.

### Portfolio Guidance

Position-level sell signals, trailing stop distances, and regime-based exit recommendations for open positions.

### Missed Opportunities

Stocks that triggered signals but weren't purchased, showing the return left on the table — a powerful conversion tool.

# Risk Management Summary

| **6** | **15%** | **12%** | **7** |
|:---:|:---:|:---:|:---:|
| MAX POSITIONS | PER-POSITION SIZE | TRAILING STOP | REGIME STATES |

**Downside Protection:** During the 2022–2023 bear market (S&P 500 down ~20%), RigaCap's regime detector triggered defensive positioning, limiting the drawdown to -15.1%. The system recovered and was profitable again within 12 months.

# Growth Engine & Roadmap

RigaCap is positioned for rapid subscriber growth through a combination of social proof, automated content, and conversion-optimized funnels.

## Current Capabilities (Launched)

| 95+ | 18 | 22+ |
|:---:|:---:|:---:|
| API ENDPOINTS | DATABASE TABLES | BACKEND SERVICES |

## Revenue Model

| PLAN | PRICE | FEATURES |
|------|-------|----------|
| **Monthly** | $20/month | Daily signals, email alerts, portfolio guidance, market regime |
| **Annual** | $200/year | Same features, 2 months free (save $40) |
| **Trial** | 7 days free | Full access, credit card required (Stripe-managed) |

## Roadmap to 5,000 Subscribers

🟠 **Phase 1: Social Intelligence Engine (Live)**
AI-generated social content from real trades across Twitter/X, Instagram, and Threads. Contextual reply engine scans influencer accounts. Instagram comment auto-replies build community. All admin-approved.

🔵 **Phase 2: Organic Growth**
Public track record page, referral program ("give a month, get a month"), onboarding email drip (5-7 day sequence)

🟢 **Phase 3: Retention & Engagement**
User performance dashboard (personal ROI tracking), cancel survey + win-back emails, usage-based retention alerts

⚫ **Phase 4: Scale**

SEO/content strategy (blog, market commentary), paid acquisition (Google Ads, social ads), institutional tier

# Authentication & Security

## User Authentication

- Google OAuth + Apple Sign In
- Email/password with bcrypt hashing
- JWT tokens (15-min access, 7-day refresh)
- Cloudflare Turnstile bot protection
- Secure password reset via email

## Infrastructure Security

- CORS whitelist (rigacap.com only)
- Private S3 buckets (no public signal data)
- Admin-only routes with email allowlist
- HTTPS everywhere (ACM certificates)
- Stripe-managed payment security (PCI DSS)

**RigaCap**

Adaptive AI Trading Platform — rigacap.com