Options Pro

AI-Powered Market Intelligence Dashboard

Real-Time NSE Insights Powered by Microservices + Generative AI

The Problem

Market Data Challenges

Retail traders face significant barriers accessing institutional-grade analytics. Market data remains fragmented across platforms, often delayed or hidden behind expensive paywalls, limiting informed decision-making.

Critical Gaps

- Unreliable real-time option chain data
- Complex interpretation of OI, IV, PCR, and Max Pain metrics
- Lack of institutional-grade analytics tools
- No unified platform combining raw data with AI-driven insights

Our Solution

Options Pro delivers a full-stack, AI-driven analytics suite purpose-built for modern traders who demand institutional-quality insights without institutional-level complexity.

Real–Time Engine

Live option chain scraping with sub-second latency

AI–Generated Insights

Google Gemini-powered market sentiment analysis

Advanced Analytics

Volatility, OI metrics, and Max Pain calculations

Secure Platform

Enterprise-grade authentication and data protection

Built for speed, accuracy, and professional-grade insights that empower confident trading decisions.

Key Features Overview

Real-Time Scraping Engine

Playwright-powered data collection delivering live option chain updates with institutional-grade reliability and accuracy.

Max Pain Calculator

Precise computation of strike prices where maximum option decay occurs, guiding strategic position planning.

OI Buildup Analytics

Detect long buildups, short covering, and smart money positioning through open interest pattern recognition.

News Intelligence

NLP-filtered market news and social sentiment aggregation delivering high-impact updates automatically.

Google Gemini AI Sentiment

Natural language market interpretation converting complex metrics into actionable trading insights instantly.

IV vs RV Spread Analysis

Identify mispriced options by comparing implied versus realized volatility across all strikes and expiries.
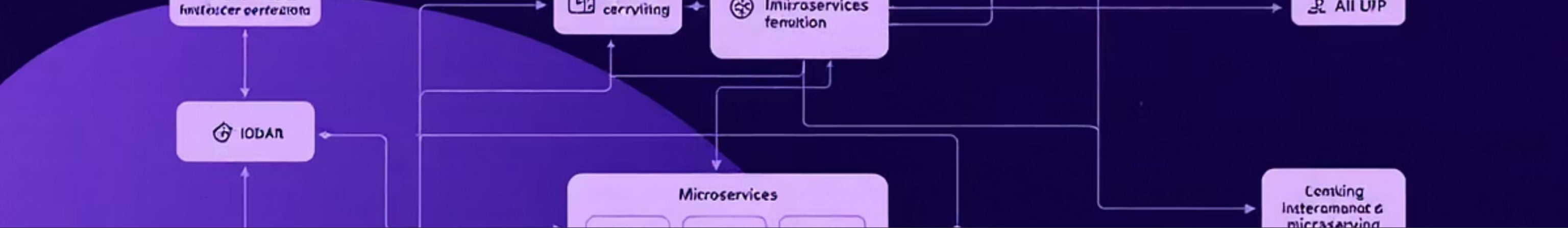
TradingView Live Charts

Seamlessly integrated professional charting tools with real-time price action and technical indicators.

Full Authentication System

JWT-based secure access with role-based permissions ensuring data privacy and controlled platform usage.

Microservice Architecture

A robust three-service architecture designed for scalability, reliability, and independent deployment of critical system components.

Frontend Service

React + Vite delivering responsive UI, interactive charts, and real-time dashboards with optimised performance.

Backend Core

FastAPI powering the scraping engine, data processing pipeline, and advanced analytics computations.

Auth Service

Node.js managing authentication, JWT tokens, user roles, and secure API access control.

Data Layer

- **TimescaleDB:** Time-series storage for historical market data
- **MongoDB:** Flexible document storage for user profiles and configurations

This separation enables independent scaling of compute-intensive analytics, high-frequency data ingestion, and user authentication workloads.

Data Pipeline

A sophisticated end-to-end data flow transforming raw market data into actionable intelligence through multiple processing stages.

Real-Time Scraping

Playwright engine captures live option chain data from NSE with sub-second latency and fault tolerance.

Time-Series Storage

TimescaleDB efficiently stores and indexes historical data enabling rapid analytical queries and pattern detection.

Analytics Engine

Python-based computation layer calculates Max Pain, IV-RV spreads, OI buildups, and momentum signals.

AI Interpretation

Google Gemini 1.5 Flash processes metrics and generates natural language insights and trading recommendations.

Frontend Visualisation

React components render interactive charts, dynamic tables, and real-time dashboards for seamless user experience.

Advanced Market Analytics

Max Pain Computation

Calculates the strike price causing maximum financial pain to option holders at expiry, revealing potential price gravitational zones where market makers may defend positions.

IV-RV Spread Analysis

Identifies cheap versus expensive options by comparing implied volatility against realized volatility, exposing mispricing opportunities and potential mean-reversion trades.

Smart Money Detection

Tracks highest open interest clusters to identify institutional positioning, revealing where sophisticated traders are placing significant capital and conviction.

Momentum Signals

Generates directional indicators by analysing volume patterns, price velocity, and option activity changes to capture trending market movements early.

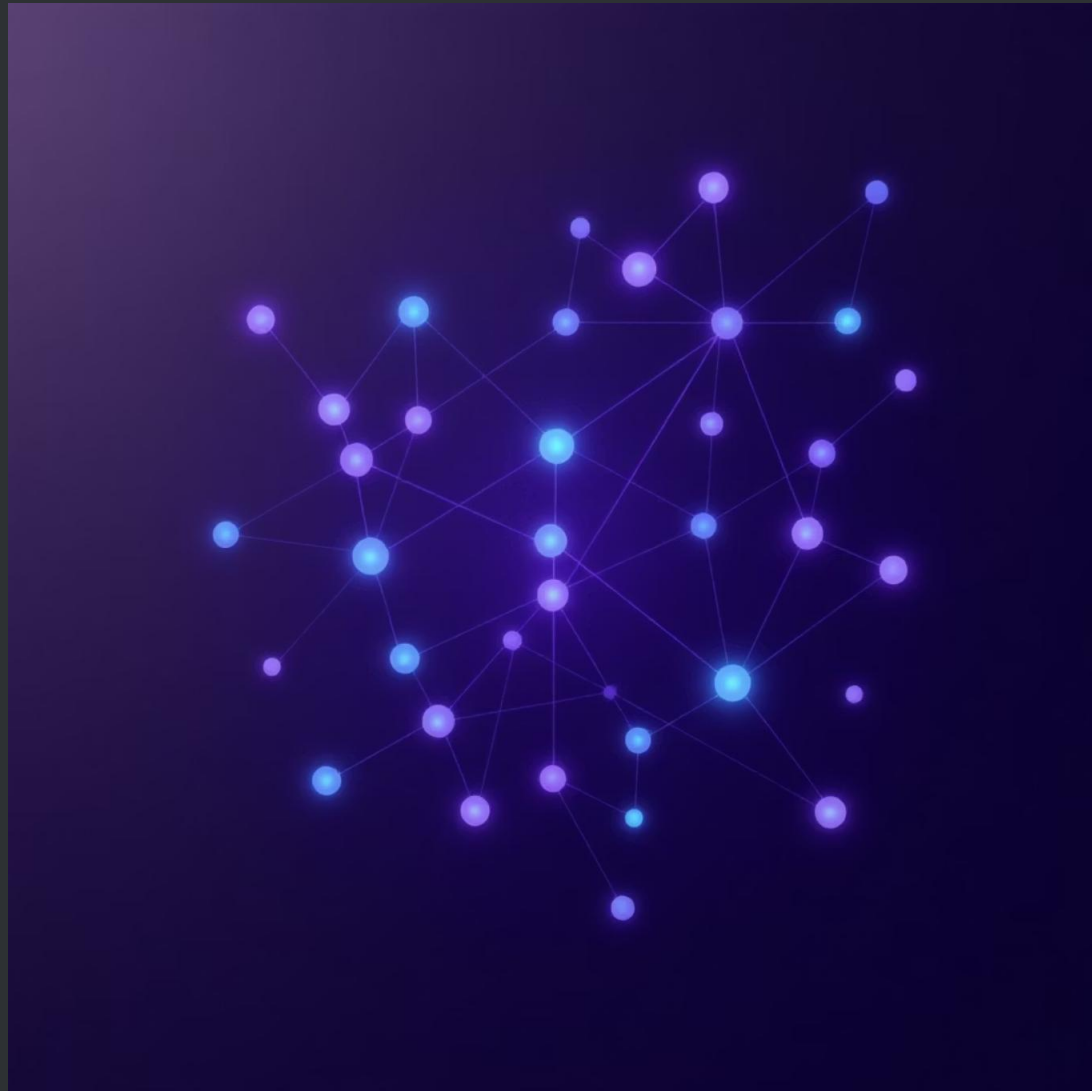**Support/Resistance Auto-Detection**

Automatically identifies key price levels using OI concentrations, historical pivot points, and statistical clustering algorithms for tactical entry planning.

OI Buildup Analysis

Distinguishes between long buildups, short buildups, long unwinding, and short covering to decode the true nature of market positioning shifts.

AI Insights Engine

Powered by Google Gemini 1.5 Flash

Our AI engine transforms raw open interest, PCR, and volume data into clear, natural-language insights that traders can immediately understand and act upon.

1	Bullish Signal Detected

"Market leaning mildly bullish; rising Put OI at 21500 suggests strong support formation. Call writers defending 21800 strike aggressively."

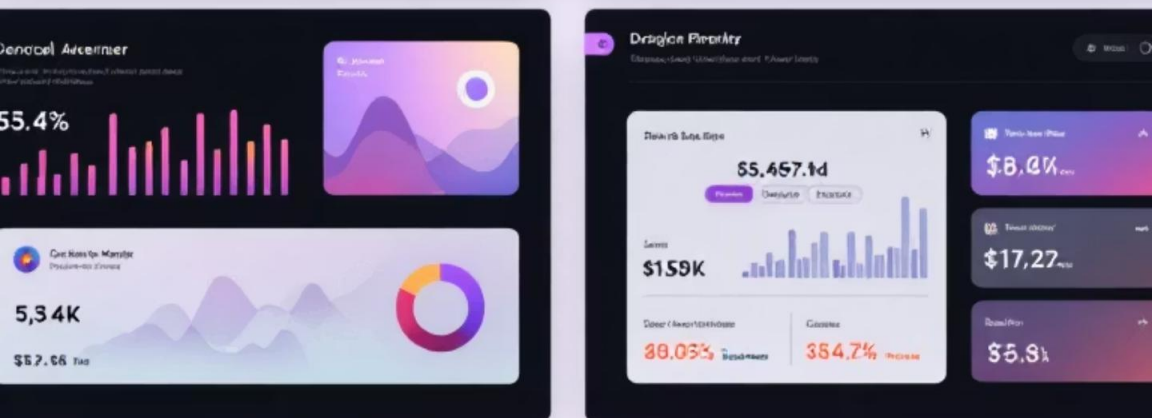| 2	Short Buildup Alert

"Short buildup observed at 21800 calls with increasing OI and declining premium. Potential resistance zone forming ahead of weekly expiry."

3	Volatility Expansion

"IV spiking across near-term puts whilst realized volatility remains subdued. Premium sellers may find favourable risk-environment."

Live Visualisation System

1 Custom Recharts Graphs

Bespoke visualisations optimised for option chain data, including volume-weighted strike distributions and time-decay curves.

2 3D OI Representation

Multi-dimensional plots visualising volume, strike price, and open interest relationships revealing hidden market structures.

3 TradingView Integration

Professional charting tools embedded seamlessly within the platform, offering technical analysis alongside options analytics.

4 Dynamic Tables

Interactive data tables with embedded bar charts, colour-coded indicators, and sortable columns for rapid analysis.

News & Social Intelligence

- NLP-based news filtering removing noise and highlighting market-moving events

- Viral stock trend detection tracking social media momentum and retail interest

- Social sentiment aggregation from market chatter and trading communities

- Configurable alerts for high-impact news and unusual activity patterns

Security, Reliability & Team

Enterprise-Grade Infrastructure

1 Authentication & Authorisation

JWT-based login system with role-based API key authentication ensuring secure access control and data privacy.

2 Intelligent Caching

Redis and in-memory caching layers reducing latency and database load whilst maintaining data freshness.

3 Auto-Fallback System

Redundant data sources with automatic failover: primary API → scraper → cached data ensuring uninterrupted service.

4 Independent Scaling

Microservices architecture enabling horizontal scaling of frontend and backend components based on demand patterns.

The Team Behind Options Pro

Harsh – System Architect & Backend Lead

- Architecture design & technology strategy
- Dashboard layout & user experience
- Financial mathematics engine (Max Pain, IV-RV, RV)
- Unified data provider & server logic
- Institutional OI analytics implementation
- Playwright scraping engine development
- Backend optimisation, caching, ngrok deployment

Thatvik – AI Insights, Frontend Logic & Reliability

- Trend interpretation: volume, OI, PCR logic
- Market bias detection (bullish/bearish algorithms)
- News aggregation & social sentiment analysis
- Alerts & anomaly detection engine
- Advanced visualisations (Volume vs Strike vs OI)
- API authentication module & caching layer
- System reliability & fallback strategy
- Integration engineering across services

Thank you. Options Pro represents the convergence of institutional-grade analytics, modern AI capabilities, and accessible design—empowering retail traders with tools previously reserved for market professionals.