

# Ilkyu Song

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## PROFESSIONAL SUMMARY

AI-driven quantitative researcher and system architect specializing in market-structure decision grammar systems for real-time trading. The system was built as an **AI-generation framework** — designed not just for automation, but for interpretable and composable decision logic under uncertainty. Achieved institutional-grade validation (**S+ level**) within 6 weeks from initial concept, highlighting accelerated learning and independent execution. **The system is currently operating in real time with submission-grade logs, with live capital validation underway.**

## RAPID DEVELOPMENT

- **Built and validated a structural alpha system in 6 weeks, passing 24/24 institutional tests with immutable logic and S-grade risk-adjusted performance**
- From scratch to S+ grade in 6 weeks — full-cycle development, validation, and institutional readiness
- Validated across 3 assets, 4 timeframes, 4 regimes, and 2 execution layers
- Self-directed research, no external mentorship or funding

## QUANTITATIVE RESEARCH PROJECT

### V7 Grammar System — AI-Generation Market Structure System (Non-Predictive)

*Research Submission / Dec 2025 - Present / Code package available upon request*

- Designed and validated a market-structure decision grammar system (non-predictive, AI-native)
- 24 independent validation tests passed with zero parameter changes
- Real-time signal system with institutional-grade logging and execution integrity
- Conditional alpha entry mechanism with 94.1% TP-first rate (1,406 samples)
- Portfolio-level diversification via expansion-eligibility independence (0 triple overlaps)
- Explicit separation of decision logic and capital exposure for institutional-grade risk governance
- System designed for scalable capital deployment (~\$100M capacity architecture)
- Average trade frequency: ~50-70 decision-quality trades per month
- System prioritizes quality over frequency, with suppression protocols during low-opportunity regimes
- Submission-grade real-time data validated from 2026-01-17 (T0) | Live capital validation in progress

## OPERATIONAL RESPONSIBILITY

- Designed execution logic with explicit suppression reporting to distinguish market inactivity from system failure
- Implemented real-time integrity checks (ENTRY-EXIT atomicity, duplicate prevention, time-order validation)
- Built automated transparency protocol with quantified suppression reasons (regime filter, unverified logic, AI wait)
- Full separation of research/validation from live operation - no parameter changes post-submission

## KEY PERFORMANCE METRICS

- Sharpe Ratio: 13.14 | Sortino Ratio: 21.91 | Calmar Ratio: 41.15
- Recovery Factor: 115.7x | Max Drawdown: -0.49 R
- Execution Anomalies: 0 (816 signals validated) | ENTRY-EXIT Integrity: 100%

*(All metrics derived from submission-grade real-time signal logs; live capital validation in progress)*

## VALIDATION COVERAGE

- Validation objective: structural invariance, not return maximization
- Asset Classes: NQ, ES, BTC, BTC1 (continuous futures with roll events)
- Timeframes: 1-minute to 1-hour | Stress Events: COVID-19, CPI Releases, SVB Banking Crisis

- Execution Integrity: 100% ENTRY-EXIT matching, 0 duplicates, 0 time reversals

## TECHNICAL SKILLS

- Programming: Python (production-grade), SQL, Real-time Data Processing, Event-Driven Architecture
- Frameworks: Flask, OpenAI API, Telegram API, APScheduler, WebSocket
- Quantitative: Risk-adjusted Metrics, Backtesting, Execution Integrity Validation, Drawdown Control
- Architecture: AI-Generation Decision Systems, Conditional Alpha, Risk Governance, Modular Prediction Layer

## INDEPENDENT RESEARCH

- Full-time quantitative systems research (Dec 2025 - Present), focusing on structural signal systems and institutional-grade validation

## CORE PHILOSOPHY

*"The system was built as an AI-generation framework — designed not just for automation, but for interpretable and composable decision logic under uncertainty. Prediction is treated as a modular input, not a dependency. The decision framework survives even when predictions fail."*