DEFLATED ALPHA

683 tickers. 18 years.
Every failed alpha public.

0.71 PIT-corrected Sharpe on live paper.
7 strategies retracted publicly.
$0.68 monthly infrastructure cost.
0 synthetic data artifacts.
99% of retail quant trading is selection-biased theater.
1 project operates as the audited counterexample.

SOURCE: §0, §12

[THE LIVE BOOK]

84 days since inception. Losing surfaces losing numbers.

-13.22%

alpha versus the S&P 500.

DEFLATED ALPHA (LIVE PAPER)		S&P 500 BASELINE	
$95,802.32	current equity	$100,000.00	baseline

- 84 days traded.
- 27 round-trip marketable-limit fills.
- 1 paper account is underperforming the index. 1 platform policy mandates rendering this negative alpha immediately above the fold.
- 100% downside transparency is the core objective.

THE PROBLEM WITH RETAIL QUANT

$2B/year selection-biased theater lacking rigorous benchmarks.

[THE 4 RETAIL SINS]

1. Relies on survivorship bias
2. Single-seed Sharpe inflation
3. Hidden losing months
4. 0 synthetic data exists in this production path

```
// CI GUARD ACTIVE: 2026-05
grep -E '(mock|fake|dummy|synthetic)' apps/api/src/
if [ $? -eq 0 ]; then
  echo 'Merge blocked: Synthetic artifacts detected'
  exit 1
fi
```

99% of retail algorithm content relies on survivorship bias, single-seed Sharpe inflation, and hidden losing months. 1 CI guard strictly blocks “mock” and “fake” literals. 100% of metrics trace to 1 signed commit and 1 dated data pull.

[THE HONEST GATE]

4-stage statistical barrier prior to live capital routing.

STAGE	TEST SPECIFICATION	REQUIRED EXIT
1	Hansen (2005) Superior Predictive Ability. 2,000 stationary block bootstrap samples ($p < 0.05$).	Exit 0 = PROMOTABLE
2	Deflated Sharpe Ratio against 212 historical trials.	Exit 0 = PROMOTABLE
3	Stationary block-bootstrap CI on Sharpe.	lower bound > 0
4	Paired multi-seed t-test across 3 seeds.	Exit 1 = RETRACT or Exit 0 = PROMOTABLE

0 bypasses allowed. 4 tests required for promotion.

PUBLIC RETRACTIONS

7 challengers killed before or during live deployment.

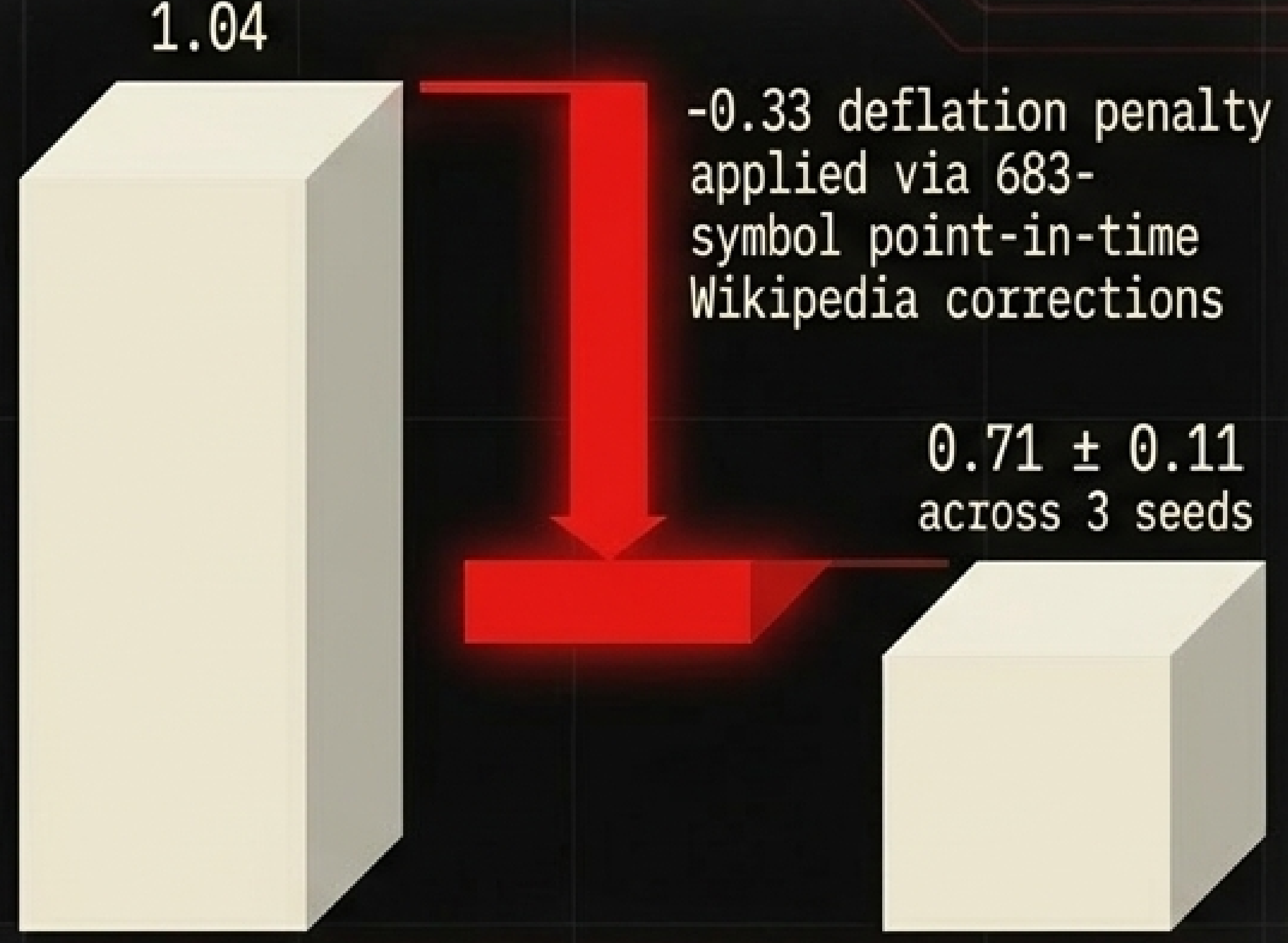
STRATEGY	COMMIT SHA	POOLED P	REASON	STATUS
V2 LightGBM	e3d85fc	V2 lost 0/3	Failed out-of-sample tuning	RETRACTED
FRED macro	1137696	p=0.81	Died to single-window bias	RETRACTED
Sector momentum	2026-06-30	p=1.0000	Lacked cross-sectional dispersion	RETRACTED
PEAD	2026-06-25	p=0.9999	Decayed post-2010	RETRACTED
Insider cluster	2026-06-25	p=0.9395	Fired too rarely	RETRACTED
Storm shield	1284ee0	p=0.9935	Dragged Sharpe	RETRACTED
LLM 8-K nowcasting	gate_pending	p=TBD	Expects arbitrage failure	RETRACTED

7 strategies halted. Every kill traces to a signed commit.

THE SURVIVOR: MOMENTUM-126

0.71 PIT-corrected Sharpe after -0.33 survivorship deflation.

NAIVE CURRENT-ONLY SHARPE	~~1.04~~
DEFLATION PENALTY	-0.33 ↓
SURVIVORSHIP-CORRECTED SHARPE	0.71



0.0000 pooled p-value confirms bias / 14% max drawdown / 180% annualized turnover / 0.35 Sharpe annualized cost drag at 10 bps round-trip

FAMA-FRENCH DECOMPOSITION

6-factor attribution via HAC Newey-West standard errors.

FACTOR	β ESTIMATE	95% CI WHISKERS (β ± 1.96·SE)	UI PILL LOGIC
Mkt-RF	0.85		|t|>2
Alpha (α)	-0.02		not distinguishable from zero (|t|<1)

15,833 daily factor rows ingested from Dartmouth. 6-factor Fama-French regression executes via statsmodels OLS with a 5-lag HAC Newey-West structure. 2 threshold rules dictate UI pills: |t|>2 triggers green; |t|<1 forcs red pill.

30-day minimum observation floor prevents premature attribution.

SYSTEM ARCHITECTURE

10 providers. 668 lines of core model code. 1 live broker.

10 stateless httpx adapters ingest market data. 668 LOC trainer code operates strictly under Karpathy's 900 LOC discipline ceiling. 3 GitHub Actions cron triggers plus 1 Vercel trigger eliminate silently dropped schedules. 15% peak-to-trough kill switch auto-flattens the entire book.

EXECUTION & TCA

-86.34 bps favorable one-way slippage post Sprint 0.

[TRANSACTION COST ANALYSIS · LIVE]

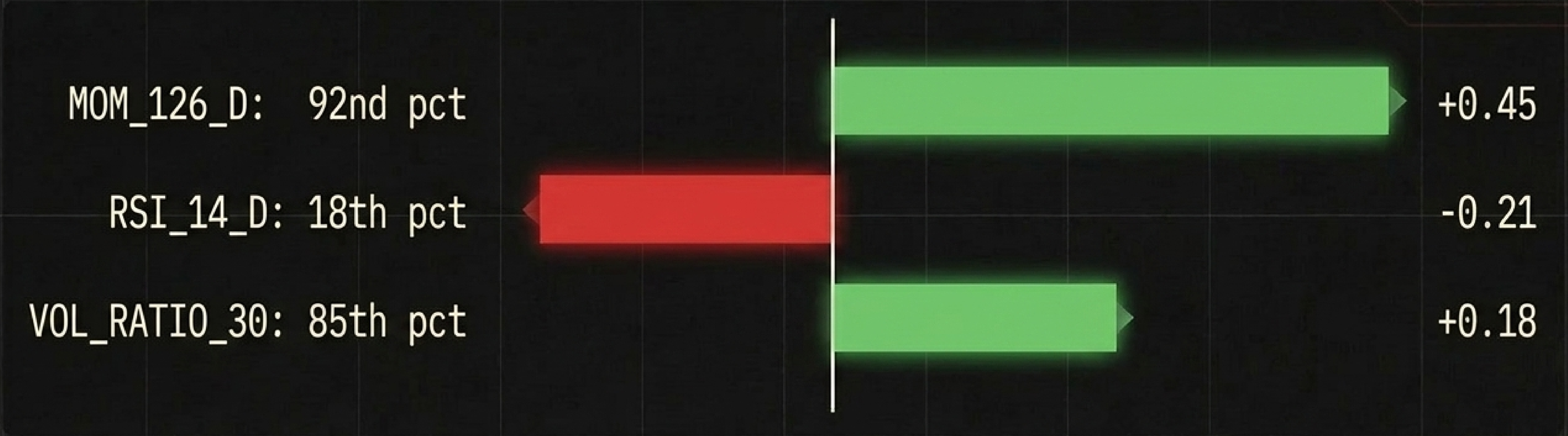
-86.34 bps

median one-way slippage.
86 bps better than limit price.

- 27 extended-hours marketable-limit fills logged.
- 34.7 bps prior drag erased by shifting to NBBO mid ± 50 bps side-aware limits.
- 1 client_order_id hashes date, symbol, side, and quantity via SHA-256 to guarantee server-side deduplication.

INTERPRETABILITY

Feature contributions via bit-identical SHAP waterfalls.



26 OHLCV-derived features evaluated daily. 1 base value maps to top-5 positive and top-3 negative contributors via LightGBM natively. 30-day rolling percentiles flank feature values to verify extreme states. 85% twin-model agreement against Prior Labs TabPFN v2 is required for baseline green status.

ENGINEERING RIGOR

489 tests. 134 files mypy strict. 0 vulnerabilities.

TEST COVERAGE

489 passing tests. 134 source files pass mypy strict with 0 type-ignore comments.

SECURITY VULNERABILITIES

0 open Dependabot alerts.
0 npm audit vulnerabilities.
0 secrets have ever hit HEAD, enforced by GitGuardian.

CONFORMAL PREDICTION

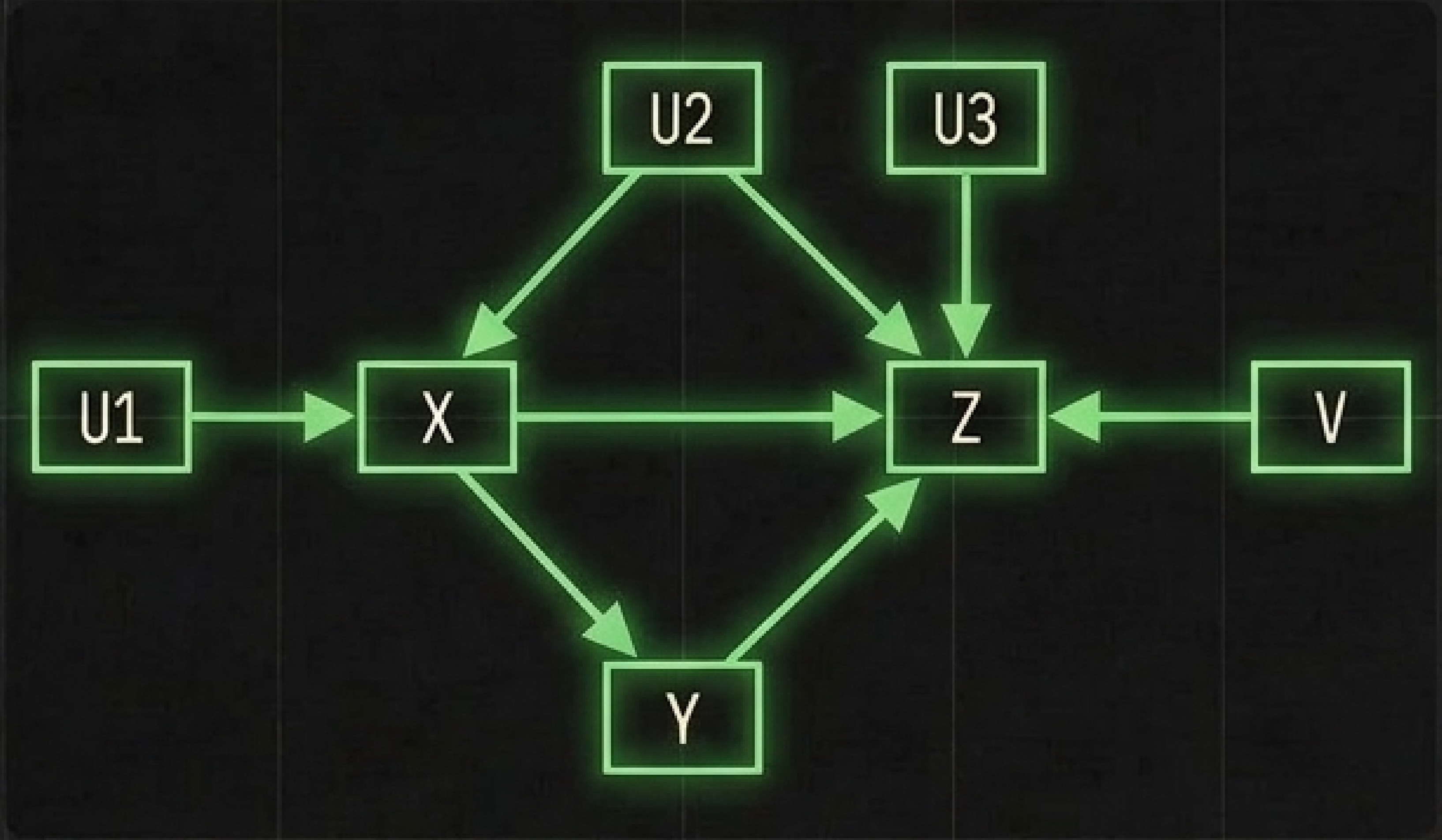
90% conformal prediction target maps class sets, abstaining if set size exceeds 1.

KARPATHY DISCIPLINE CEILINGS

trainer.py: 668 / 900 LOC
predict.py: 334 / 600 LOC
eval.py: 342 / 1000 LOC

CAUSAL INFERENCE

Back-door adjustment vs associational OLS.



ESTIMATOR COMPARISON

Causal β (Back-door / Front-door)	Associational OLS β
0.45	0.62
-0.21	-0.08
0.18	0.35

7-node factor DAG modeled directly via López de Prado CFA 2023-24 framework. 2 distinct estimators calculate causal β against associational OLS β.

[SYNTHETIC PANEL] pill forced if real factor panels fail to load, blocking silent fallback to uncontrolled regressions.

DISCLOSURE & BOUNDARIES

Not licensed. Not registered. Paper capital only.

0 public funds accepted.
0 signals sold.
0 real dollars custodied.
0 PII or PCI exposure.
1 platform is neither a licensed broker-dealer nor a registered investment adviser.
0.71 Sharpe remains the maximum baseline claim.
13.22% underperformance across 84 live days proves the system acknowledges short-term loss.

THE ASK

Inspect the full repository and live paper account.

1 audit required. 100% of the live order book, Fama-French loadings, and raw codebase remain strictly public.

github.com/ShAuRyA-Noodle/DeflatedAlpha
web-zeta-topaz-10.vercel.app