

OPTIMIZATION REPORT

Statistical Arbitrage

04/04/2024

1 Parameter Optimization Details

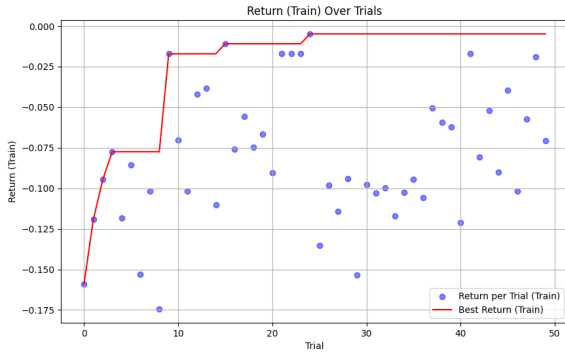
The following table summarizes the parameters used in the optimization process, including their types, ranges, step sizes, and optimal values determined from the trials.

Table 1: Parameter ranges and optimal values used in the optimization process.

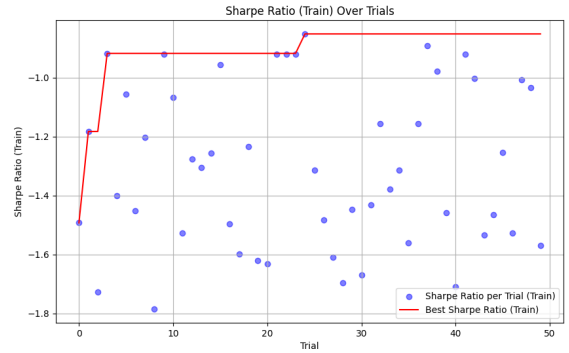
Parameter	Type	From	To	Step	Optimal
estimation_window	Integer	40	80	10	40
min_trading_days_fraction	Float	0.5	0.8	0.15	0.8
top_stocks	Integer	3	9	3	6
correlation_threshold	Float	0.3	0.6	0.3	0.6
tier	Categorical	1	4	—	1
first_allocation	Float	0.4	0.7	0.15	0.4
adding_allocation	Float	0.2	0.3	0.1	0.2
cluster	Int	8	10	2	10

2 Optimization Results

Figure 2 **Train Set**



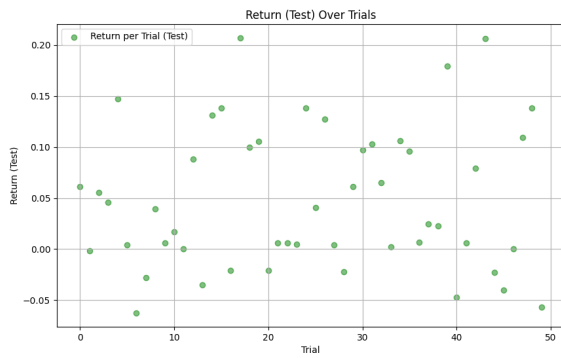
(a) Optimization history plot showing the annual return (train) value over trials.



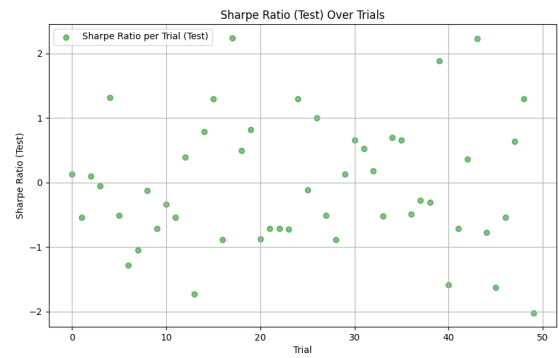
(b) Optimization history plot showing the sharpe (train) value over trials

Figure 1: Visualization of the optimization process: (a) annual return and (b) sharpe.

Figure 2 **Test Set**



(a) Optimization history plot showing the annual return (test) value over trials.



(b) Optimization history plot showing the sharpe (train) value over trials

Figure 2: Visualization of the optimization process: (a) return and (b) sharpe.