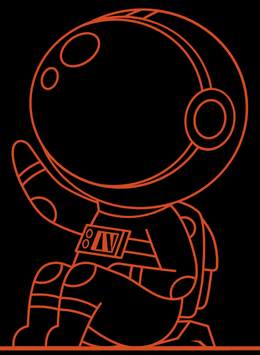
# THE ASTRO ALGO

Rejecting the Efficient-Market Hypothesis.

# MEET THE TEAM

**Aung Si**

# OVERVIEW



1.

## Risk Aversion

A risk averse strategy, reflected in investment nature and model scoring.

2.

## The Astro Algorithm

Model and sector selection over time.

3.

## Backtesting

Benchmarking strategy performance.

# BUSINESS UNDERSTANDING

1. **MALADAPTATION**

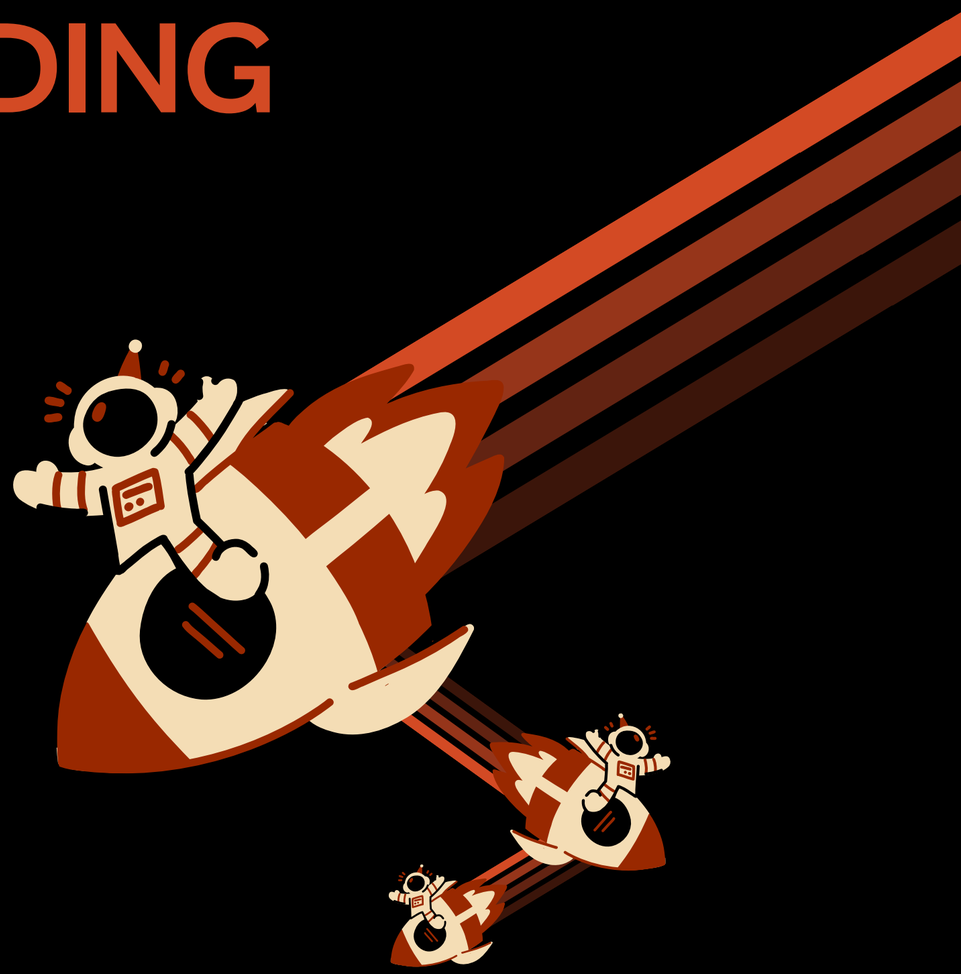
   Existing models are slow to keep up with trends.

2. **LACKLUSTER RISK MANAGEMENT**

   Often overlooked and negatively impactful.

3. **THE EFFICIENT-MARKET HYPOTHESIS**

   Inefficiencies exist within the market.



# DATA UNDERSTANDING

YAHOO! FINANCE

503 Stocks → Sector Avg. Returns

TARGETS

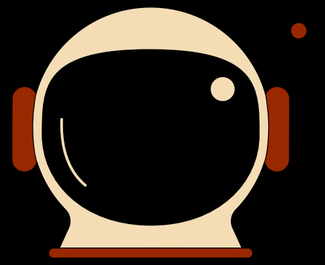
4230 entries, 17 years of data.

4 Indices
(Bonds, Stocks, Commodities, Volatility) → Lagged Features

MODEL INPUTS

# STRATEGY:
# LONG ONLY

- Buy and Hold
- Simple yet effective
- Eliminate short-selling risk
- Dividend benefits
- Lower transaction costs



# A RISK-AVERSE MODEL

## OVER-UNDER ERROR

Twice the optimism, double the fall.

# MODELS USED

- Elastic Net
- Gradient Boosting
- Support Vector Regression
- Random Forest
- XGBoost
- ARIMAX

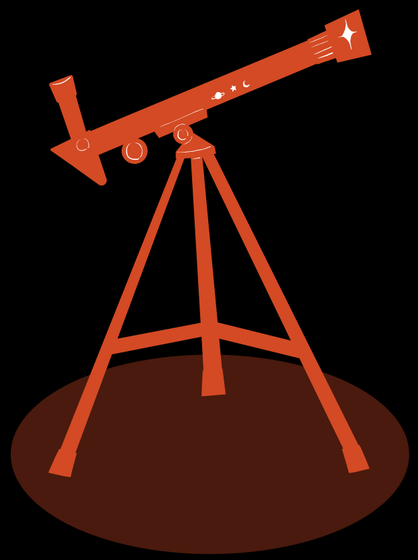
# THE ASTRO ALGORITHM

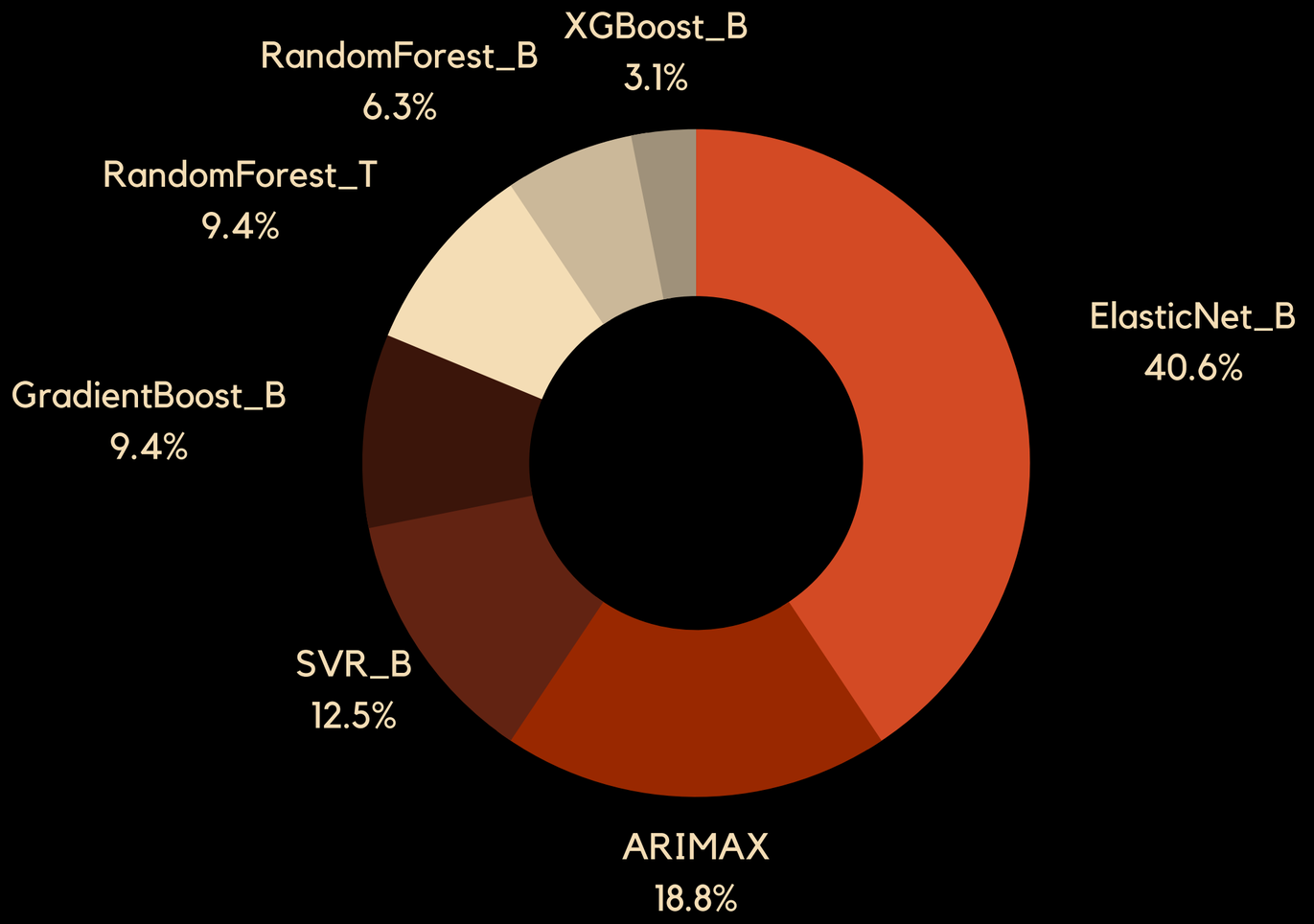
1. Train models on past half-year of data.
2. Cross-Validate models and select the best-scoring model.
3. Choose the sector with the highest forecast.
4. Optimize portfolio allocations across sector stocks.
5. Hold stocks for the next half-year.
1. Train models on past half-year of data.
2 Cross-V model an the best- mod

Oct. 2023 — Apr. 2024

# MODEL SELECTION

## FREQUENCY





# 3 PORTFOLIOS

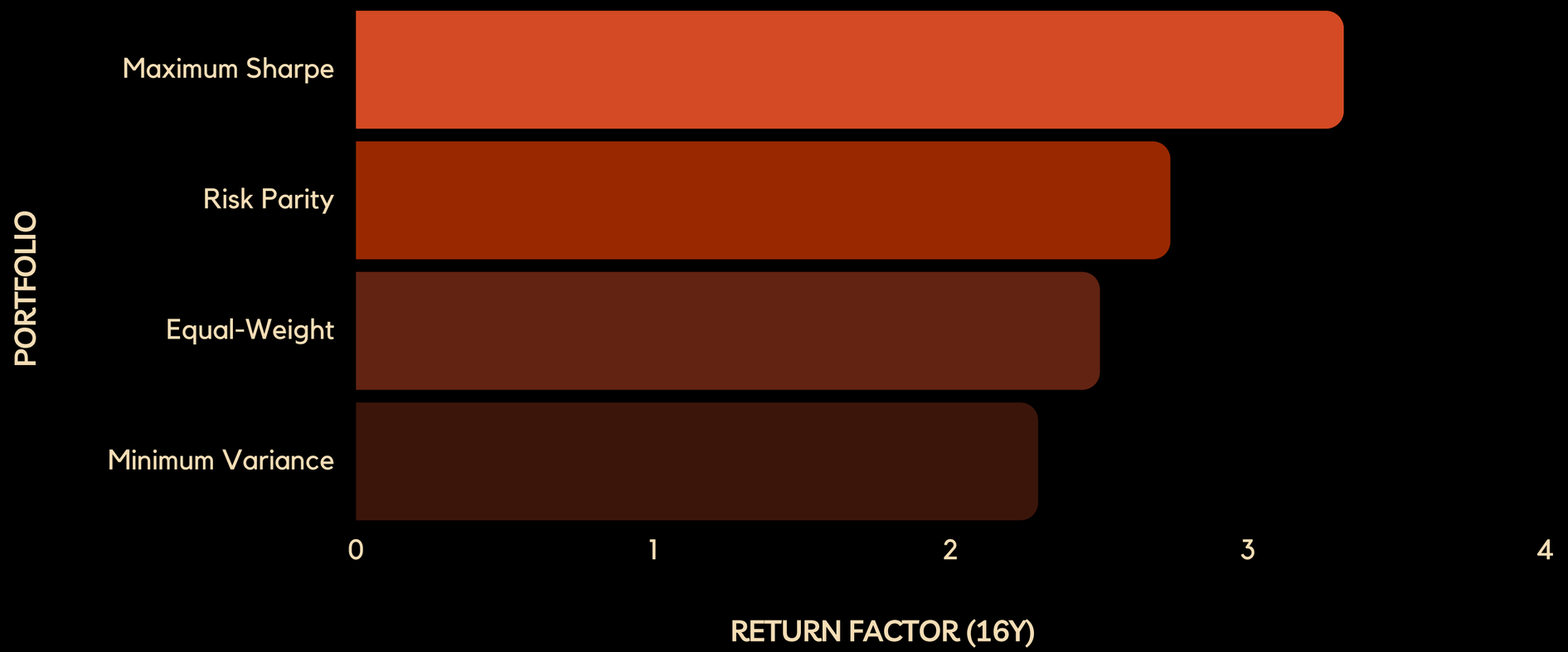
1. **Maximum Sharpe**

2. **Risk Parity**

3. **Minimum Variance**

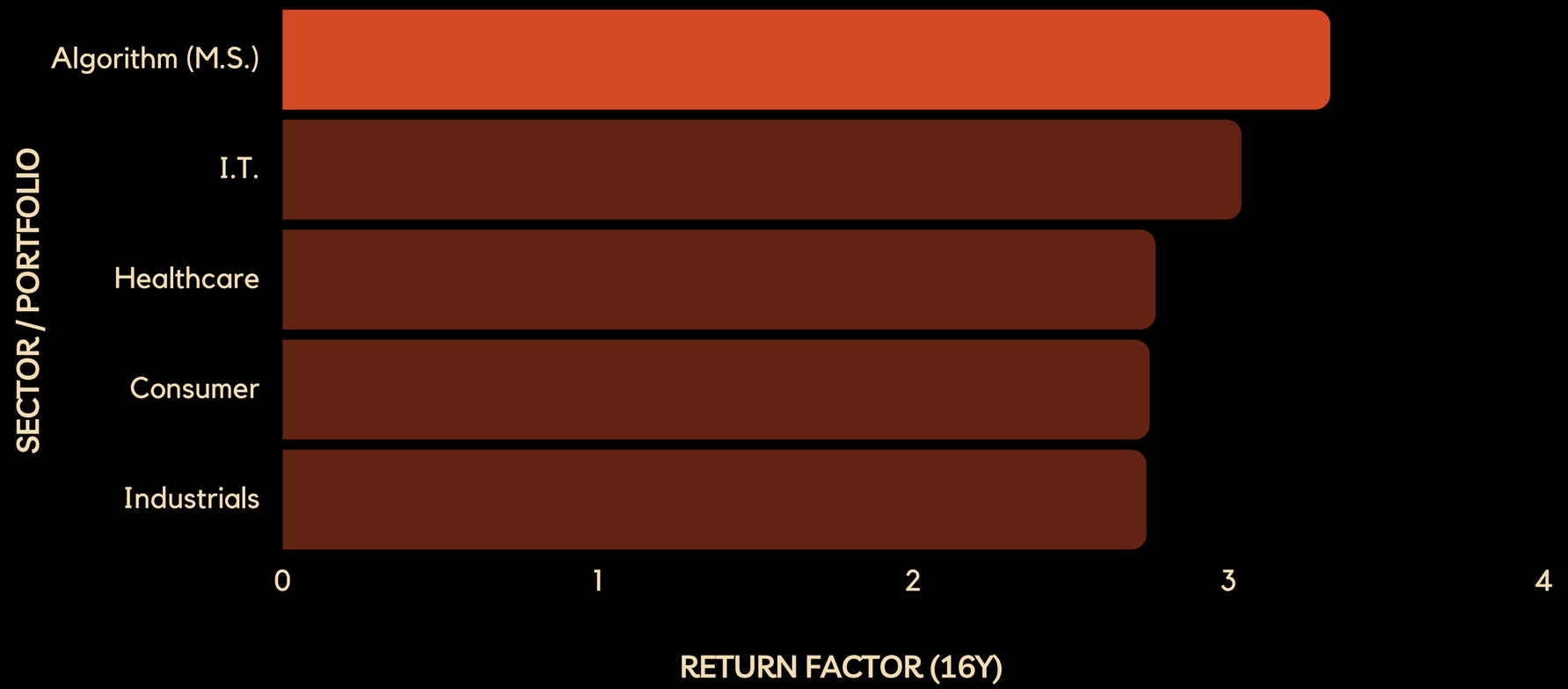
# BACKTESTING

## PORTFOLIOS



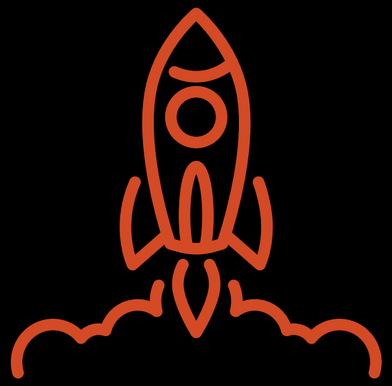
# BACKTESTING

## AGAINST SECTORS



# BACKTESTING

## AGAINST SPY

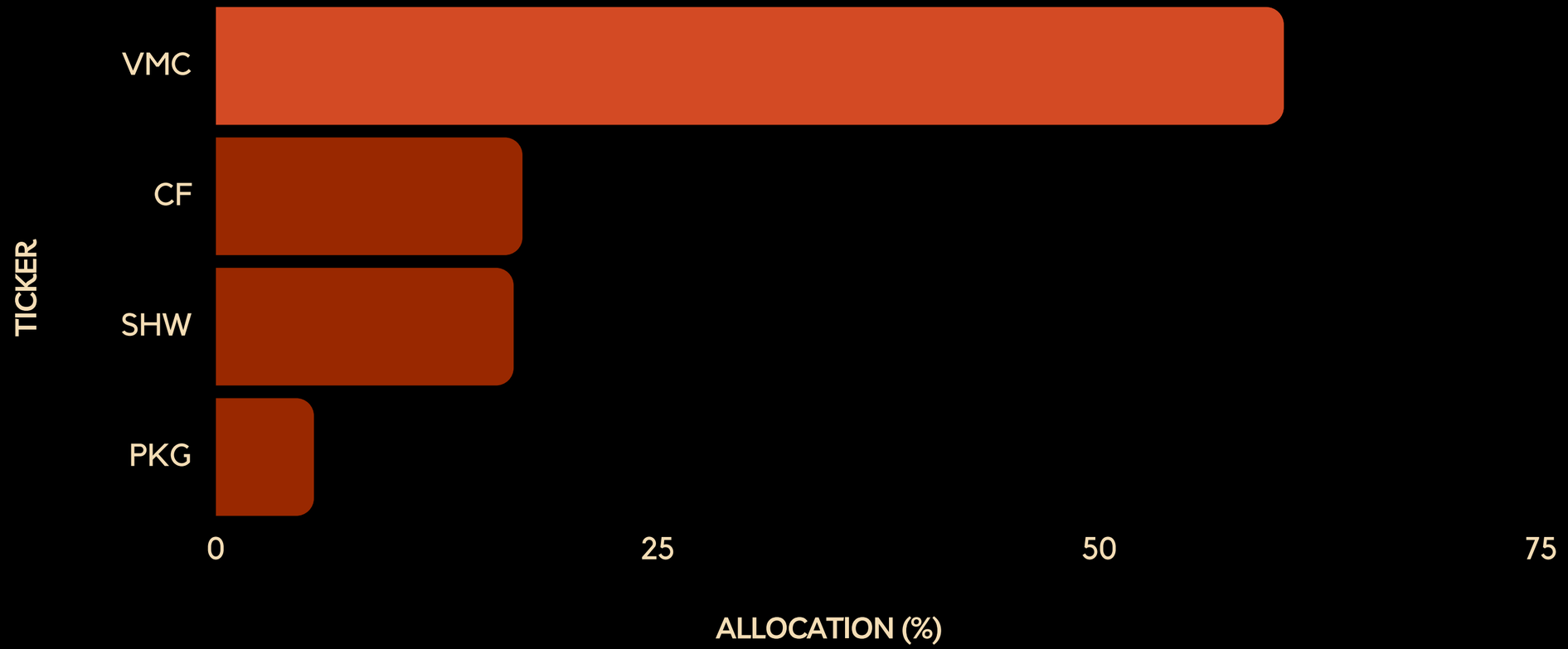


# OUTPERFORMANCE

$\alpha = 52\%$

# RECOMMENDATION

## MATERIALS



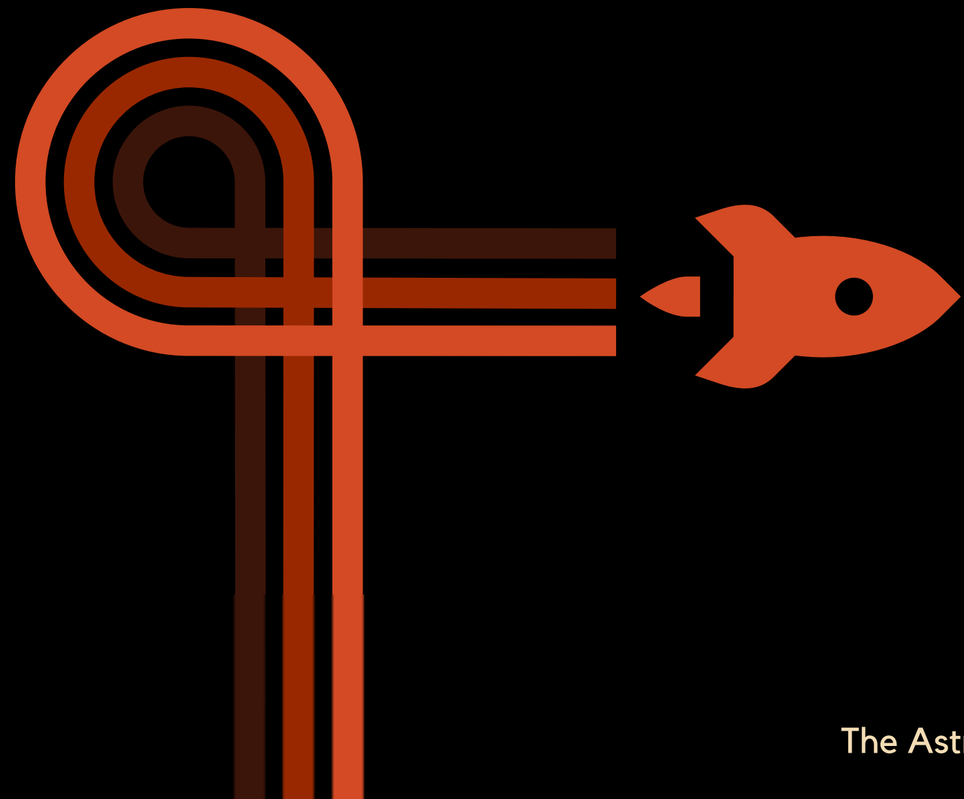
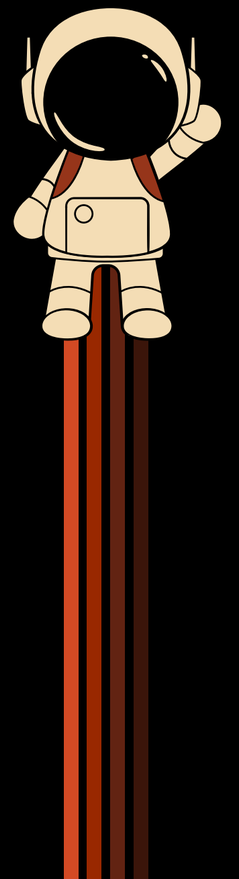
# PORTFOLIO STATS

based on the past half year

| Sharpe Ratio | Annual Return | Annual Risk |
| --- | --- | --- |
| 2.21 | 1.17x | 15.65% |

# NEXT STEPS

- Consider multi-sector portfolios
- Enlarge training window
- Explore neural networks
- Explore more optimization methodologies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