



Dynamic Portfolio Management with Lag-Optimised Trading Indicator using SeroFAM and Genetic Algorithm

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Motivation

Technical Analysis is a common strategy whereby an investor relies upon indicators such as **MACDH** for making trading decisions. However, there exists several challenges when using technical analysis.

- 1 **Lagging indicators** due to the use of past price data
- 2 Lack of overall strategy in **optimising portfolio construction** to maximise returns
- 3 Difficulty **optimising portfolio rebalancing** to dynamically respond to market changes

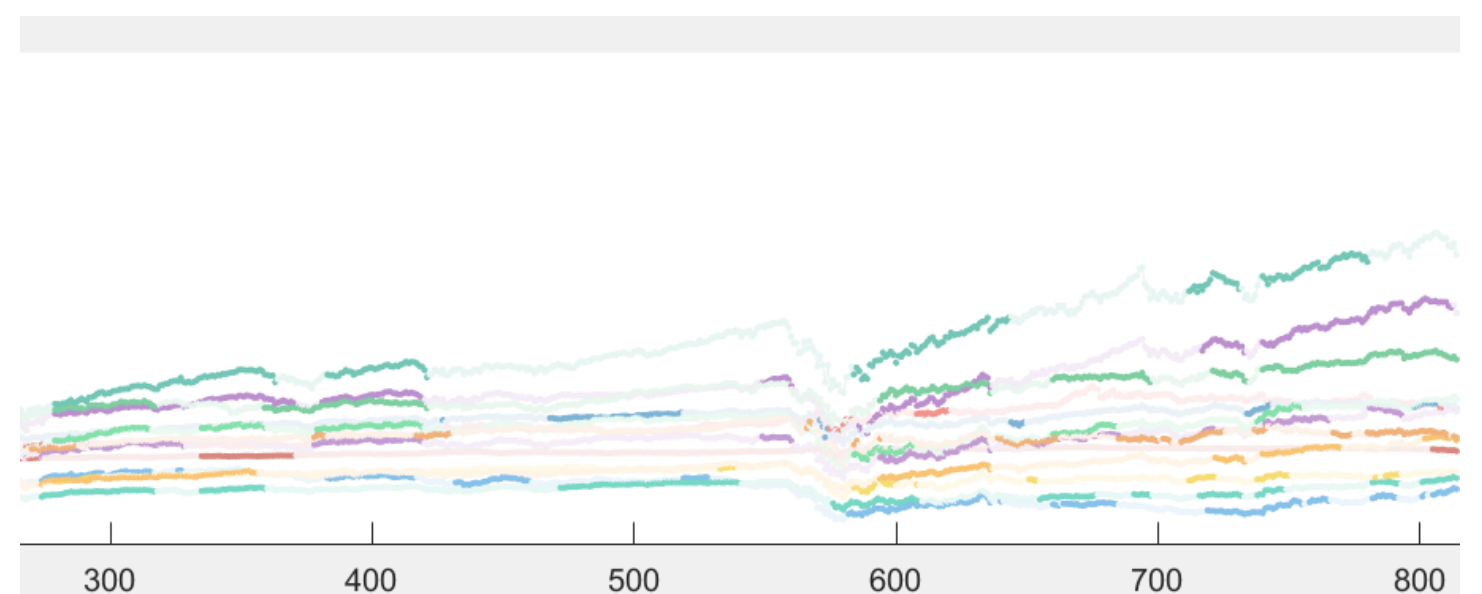
Methodology

- **Forecasted price data** is integrated into **technical analysis indicators**.
- **Genetic algorithm** is used for **fMACDH parameters tuning** to reduce **indicator lag**.

In a simple experiment, the new lag-optimised trading indicator **outperformed** Buy and Hold, Real MACDH and Vanilla MACDH in most cases, showing **promising results**.

	Buy and Hold	Real MACDH	Vanilla MACDH	Optimised fMACDH
^DJIA	\$547,423.35	\$326,745.25	\$392,602.67	\$628,649.94
^FTSE	\$289,248.49	\$220,628.07	\$206,654.54	\$451,287.65
^GSPC	\$588,971.61	\$330,992.55	\$401,033.68	\$562,633.72
^HSI	\$347,873.70	\$309,344.85	\$286,138.57	\$455,201.48
^IXIC	\$924,879.95	\$530,269.45	\$456,847.08	\$790,412.77
^N225	\$582,028.39	\$261,790.56	\$353,648.69	\$863,937.10
^STI	\$260,684.40	\$232,781.23	\$306,755.87	\$446,279.59

- **Tactical Buy and Hold** investment strategy capitalizes on trend reversal opportunities between stocks of **different levels of risk**.
- **Rule-Based Business Cycle Portfolio Rebalancing** strategy capitalizes on differences between **market sectors** at each stage of the **business cycle**



Both strategies are generally capable of **capitalizing on bullish trends** of a stock, while **selling on bearish trends** and rebalancing the portfolio. This allows the algorithm to **achieve higher returns** in the same period of time, showing **promising results**.