Adaptive Trading Strategies for Cryptocurrencies

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June 8, 2022

- Standard approaches do not react to market fluctuations.
- Existing solutions are often commercial and closed-source.
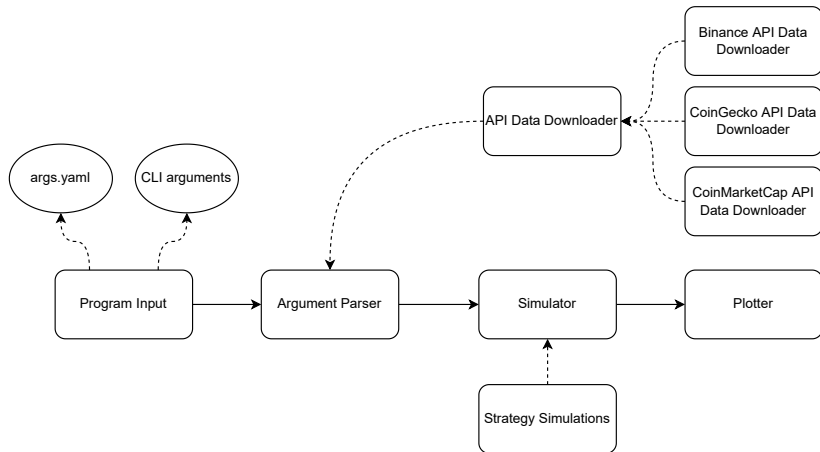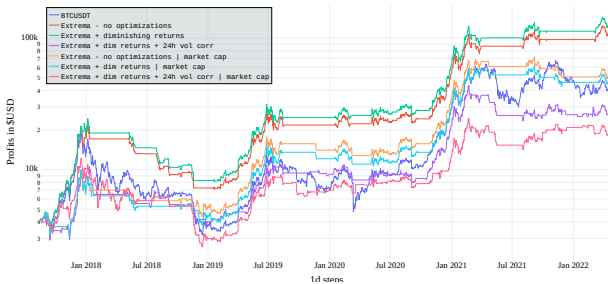
Objectives of the Thesis

- Research Existing Solutions
- Extensible Backtesting Program
- Long-Term & Short-Term Options
- Simulation And Validation

1. Research
2. Risk Metric & Evaluation Strategies Proposals
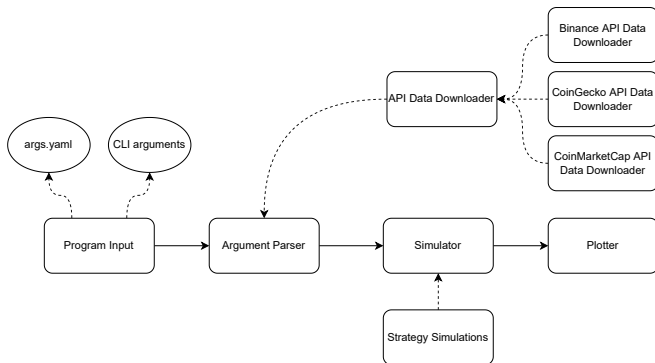3. Implementation
4. Backtesting (validation)
5. Evaluation

Evaluation Strategy	Used Risk Metric	Usd Invested	Final Value	Rate of Return	HODL Comparison
HODL	*None*	$4,285.08	$37,630.80	778.18%	1×
Risk Only	Base	$4,285.08	$41,711.99	873.42%	1.11×
RiskExtrema Combination	Base	$4,285.08	$81,581.79	1803.86%	2.17×
Real Local Extrema	*Base*	$4,285.08	$98,422.93	2196.88%	2.62×
Real Local Extrema	*Diminishing Returns*	$4,285.08	$113,919.66	2558.52%	3.03×
Ideal Local Extrema	Base	$4,285.08	$127,335.11	2871.59%	3.38×
Ideal Local Extrema	Diminishing Returns	$4,285.08	$136,930.45	3095.52%	3.64×

Evaluation Strategy	Used Risk Metric	Usd Invested	Final Value	Rate of Return	Classic DCA Comparison
Classic DCA	None	$12,875.08	$38,578.56	199.64%	1×
7to0	Base	$42,160.08	$204,379.85	384.77%	1.62×
Fibonacci	Base	$128,620.08	$655,866.26	409.93%	1.7×
Fibonacci Adjusted	*Base*	$80,530.08	$417,609.18	418.58%	1.73×
Fibonacci Adjusted	*Diminishing Returns*	$76,230.08	$400,799.70	425.78%	1.75×
Fibonacci Adjusted	*Marketcap + Dim + 24h*	$69,830.08	$376,617.66	439.33%	1.8×

Evaluation Strategy	Used Risk Metric	Usd Invested	Final Value	Rate of Return	HODL Comparison
HODL	*None*	*$4,285.08*	*$37,630.80*	**778.18%**	**1×**
Risk Only	Base	*$4,285.08*	*$41,711.99*	**873.42%**	**1.11×**
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- Original question: Aké sú najväčšie prekážky, ktoré vidíte pri používaní strojového učenia na predikciu cien? (je to problém údajov, alebo by si to vyžadovalo lepšie metódy?)
- Paraphrased question: What are the biggest obstacles when using machine learning for price prediction. Is it a data problem or are better methods needed?

- Original question: Čo by bolo potrebné urobiť, aby si niekto vyskúšal napríklad vysokofrekvenčné obchodovanie (high frequency trading) vo vašom backtestri?
- Paraphrased question: What is needed to be done in order to, for example, try out the high frequency trading in your backtester?