

Tranzacționare evolutivă: Optimizarea și meta-optimizarea strategiilor cu medii mobile

Licență

Chișcă Șerban-Constantin

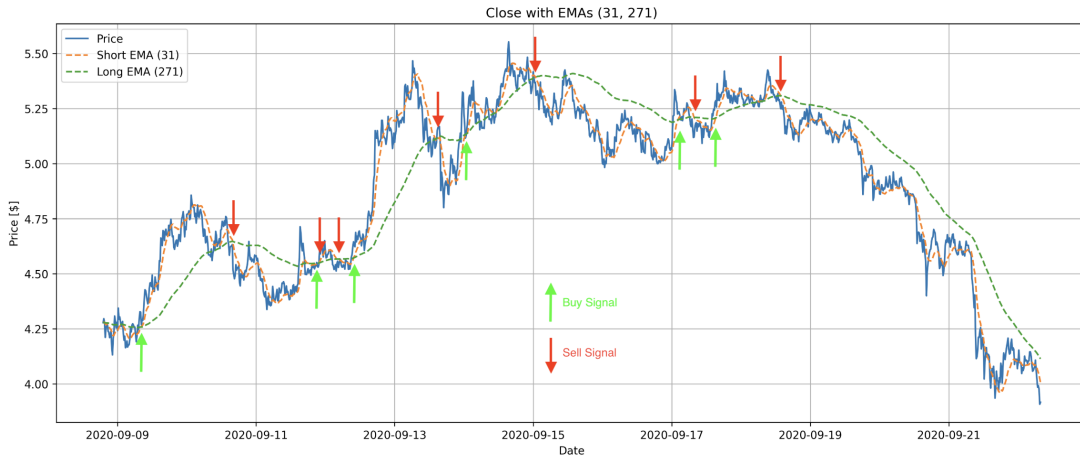
Facultatea de Informatica
Universitatea Alexandru Ioan Cuza

July 10, 2025

1. Introducere
2. Optimizarea strategiei folosind algoritmi genetici
3. Încercarea de meta optimizare

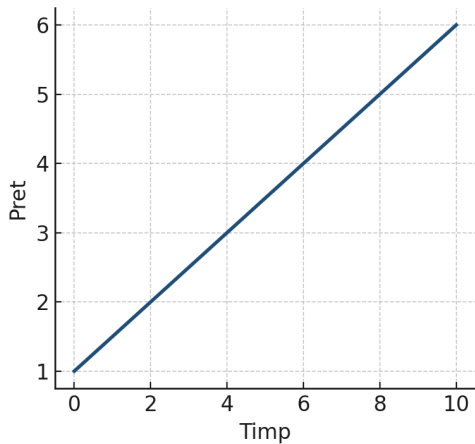
- Strategie algoritmica adaptiva pentru tranzactionare
- Evaluare robusta prin walk-forward pe regimuri multiple
- Aplicabilitate demonstrata pe Bitcoin pe intervalul 2018 - 2025

Strategia simplă cu medii mobile

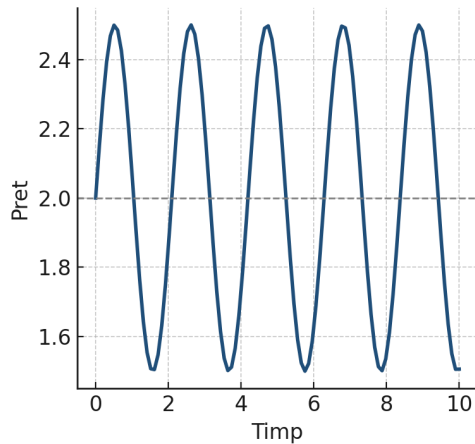


Problema de adaptare la schimbare

Directie

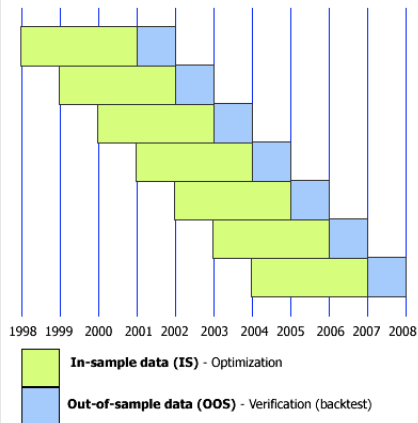


Volatilitate



Modul de antrenare si testare

Walk-Forward Test procedure

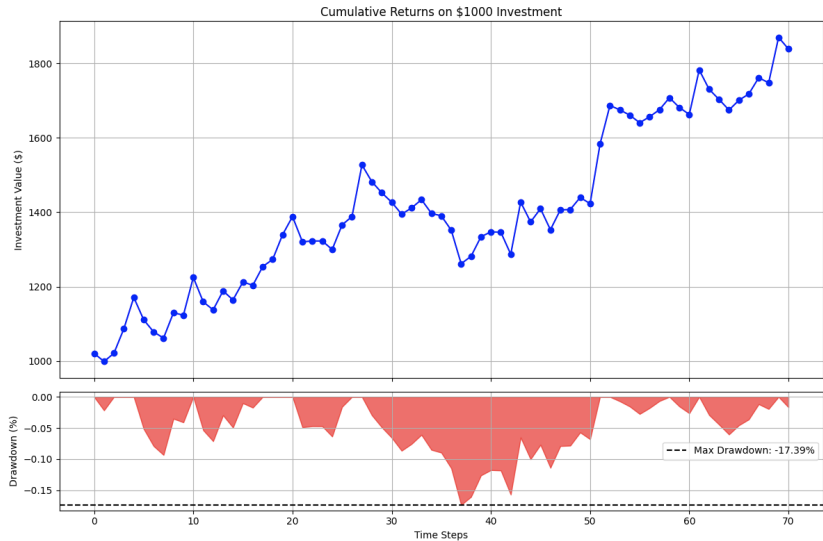


- Sharpe Ratio
- Return
- Drawdown
- $\frac{\text{Return}}{\text{Drawdown}^{0,8}}$

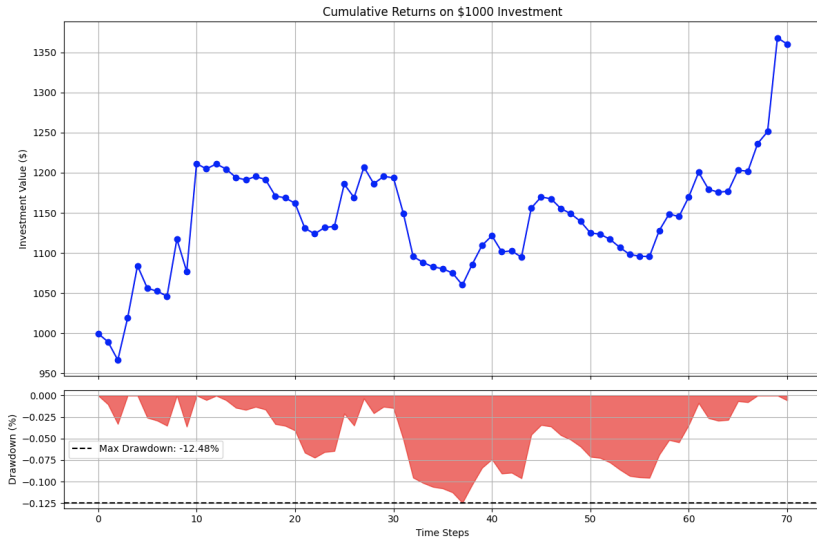
(short_ma, long_ma, stop_loss_multiplier, position_size)

e.g. (50, 200, 0.1, 1)

Rezultate - Drawdown

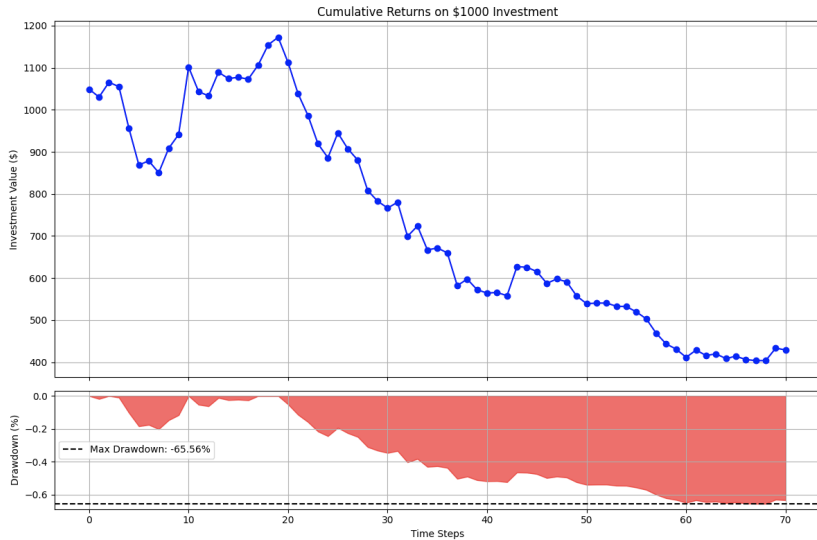


Rezultate - $\frac{\text{Return}}{\text{Drawdown}^{0.8}}$



- Antrenarea pe perioade scurte ofera flexibilitate
- Expunerea la risc favorizează câștigurile
- Optimizarea excesivă compromite robustețea





Încercarea de meta optimizare



- Încercările de optimizare excesivă NU oferă rezultate bune în practică

Rezultate comparative

	Buy & Hold	Drawdown	$\frac{\text{Return}}{\text{Drawdown}}^{0,8}$
Return	1125%	87%	35%
Max Drawdown	87%	17.39%	12.48%
Return / Max Drawdown	12.93	5.002	2.804

-  W. Chen and Z. Zhu, "Optimizing MACD Trading Strategies: A Dance of Finance, Wavelets, and Genetics," *arXiv preprint arXiv:2501.10808*, 2025.
-  J. J. Murphy, *Technical Analysis of the Financial Markets: A Comprehensive Guide to Trading Methods and Applications*, New York, NY: New York Institute of Finance, 1999.
-  A. E. Eiben and J. E. Smith, *Introduction to Evolutionary Computing*, 2nd ed., Berlin, Germany: Springer, 2015.
-  R. Kukacka, *backtesting.py - Python Backtesting Library*. [Online]. Available: <https://kernc.github.io/backtesting.py/>

Muțumesc