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A Data Science Pipeline for Algorithmic Trading: A Comparative Study in Applications to Finance and Cryptoeconomics

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Abstract : Recent advances in AI have made algorithmic trading a central role in finance. However, current research and applications are disconnected information islands. We propose a generally applicable pipeline for designing, programming, and evaluating algorithmic trading of stock and crypto tokens. Moreover, we provide comparative case studies for four conventional algorithms, including moving average crossover, volume-weighted average price, sentiment analysis, and statistical arbitrage. Our study offers a systematic way to program and compare different trading strategies. Moreover, we implement our algorithms by object-oriented programming in Python3, which serves as open-source software for future academic research and applications.

Keywords : algorithmic trading, AI for finance, fintech, machine learning, moving average crossover, volume weighted average price, sentiment analysis, statistical arbitrage, pair trading, object-oriented programming, python3
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