PEER REVIEW

MScFE Capstone Project: Optimizing Technical Trading Parameters Using Particle SwarmOptimisation Algorithm

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Introducation:

The goal of the Project proposal is to create a breakout trading strategy using Particle Swarm Optimization to optimize the parameters (entry, exit etc). The set of parameters is then used to determine trading decisions, i.e. long, short etc. The model is trained and back tested on historical stock prices from the NYSE. The performance is evaluated using the return on investment using the training set. The results are then compared with buy-and-hold strategy over the same period

SWOT ANALYSIS

Strength

- This project does well to introduce the theoretical concept of the project. The presentation is so clear and the pseudo code explains the process of the Particle Swarm Optimization.
- This technique is so robust and apparently takes less computational power as compared with other types of algorithms of a similar nature like Genetic Algorithm, converges faster and altering its initial weights would not mess with the optimization process like learning rates with Deep Learning.
- It is clearly stated what would be optimised for greater profitability: the number of bars for the pivot point; number of bars for multiplication factor; take profit levels; and, stop loss levels.
- The hardware required for the algorithm was clearly stated.
- The benchmark for the evaluation was also clearly stated.
- The author cites numerous researchers and the improvements they made to the optimization method.

Weakness

- The first diagram you used did little to explain the concepts you are presenting.
- The diagram describing the breakout strategy does not describe the pivots, the trendlines nor the main reason for taking the trade. It only shows an arbitrary take profit and stop loss levels.
- The images had no labels for us to point them out in our reviews.
- The work could do well with better analogies to explain the swarm optimization using a flock of birds (or a school of fish) so it could be easily visualized by the reader who is unfamiliar with the process.

Opportunity

- Being an optimization problem, there is room to use it in tweaking the parameters of other technical indicators for trading stocks and other tradeable instruments.
- The work has potential to be tested in other markets than the one tested on here.
- If it works here it can also be tested on portfolio optimization and risk management strategies.
- This work can further be tested using the triple barrier method introduced by Marcos de Prado[1]

Threat

- The author has failed to cite any similar research carried out prior on stocks using the same particle swarm optimization methods. It is imperative to know what the findings of others are in this domain (trading) and what this research work hopes to improve upon.

Summary

The author should cite prior research in his chosen domain (trading); and present a clear trading rule.

References

[1] M. L. de Prado, *Advances in financial machine learning*. New Jersey: Wiley, 2018.