Work Trial Tasks

November 27, 2024

1 Task: Paper Replication (3-5 Days)

Please read the paper: Efficient Trading with Price Impact and use the attached data to finish the following challenges (Recommended Programming Language: Python / R / MATLAB) :

1. Construct and code the linear OW model and nonlinear AFS model, and visualize the distribution of price impact based on the given data. (33 pt)

2. Implement and code the optimal strategy with Linear Impact and visualize the Sharpe Ratio plots in Section 6.2. (33 pt)

3. Implement and code the Deep Learning Algorithm in for discrete setting in Appendix C.2 and visualize the training loss for different network structures in Appendix C.2. (33 pt)

2 Data Illustration

The table merged_data.csv is merged table of processed MBO data and MBP-1 data. The illustration of MBO and MBP-1 data could be found on Databento.

- Bid fill: size of filled bid orders;
- Ask fill: size of filled ask orders;
- Signed volume: difference of bid fill and ask fill;
- Best bid: largest bid price;
- Best Aks: smallest ask price;

The data would be helpful for the above tasks.