

Deployment and Monitoring Write-ups

There could be several risk factors influencing the reliability of the model. To start, market conditions or input features may evolve over time, making the data non-stationary. Structural breaks may also occur, changing the market environment. Data quality is another concern, as there may be missing values or outliers. The model may face latency issues since ML models generally take a long time to train. It could also overfit, and some features that are useful now may lose relevance in the future.

I should monitor the model's performance and input quality over time. Inputs may be subject to biases such as look-ahead bias. I should also monitor error trends using accuracy metrics (precision, recall, AUC) on rolling windows. In addition, resource usage (CPU, memory, storage) should be tracked.

A challenging part of the monitoring process is P&L attribution, because ML models are usually black boxes and hard to interpret intuitively and attribute correctly. It will take a customized benchmark to evaluate the performance of the model on an ongoing basis.

In terms of maintenance, the quant research team owns feature engineering, training, and validation. The data science team should evaluate the model and make ongoing improvements, while the portfolio manager should focus on meaningful interpretation.