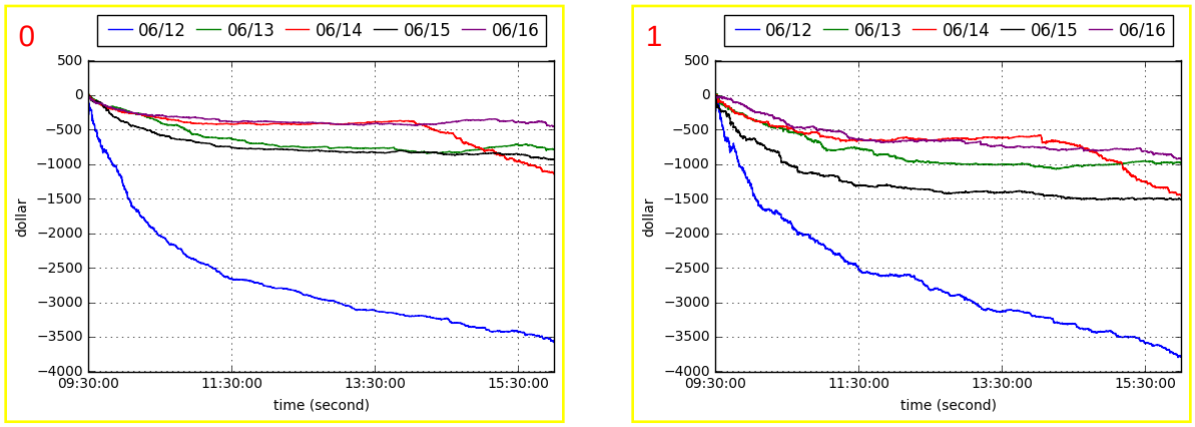
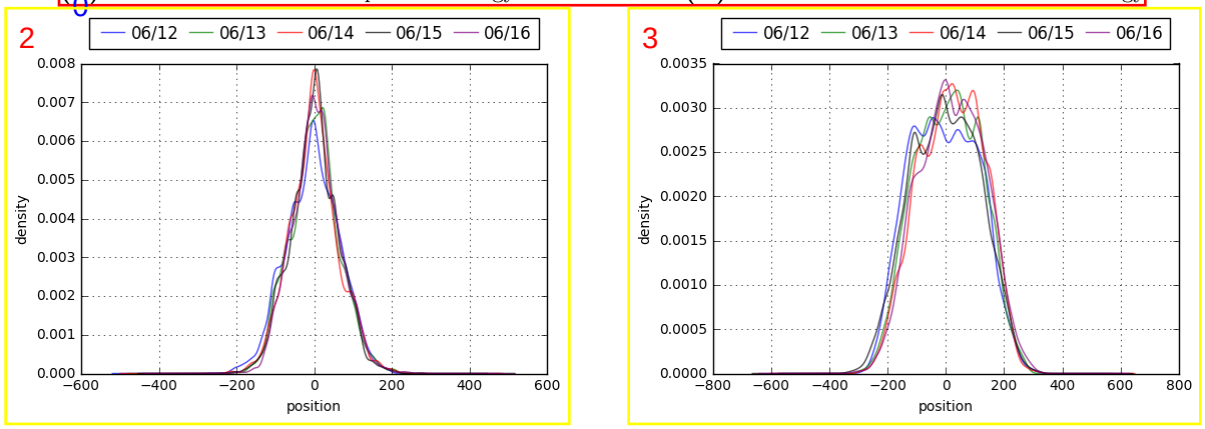


(a) Cumulative P&L in the optimal strategy (b) Cumulative P&L in the baseline strategy



(c) The density of inventory size in the optimal strategy (d) The density of inventory size in the baseline strategy

Figure 4: AAPL

Figure 4 displays P&L and inventory size for APPL on each day in both strategies. Though we observe the poorest performance overall on AAPL, we observe that the inventory size is centered around 0. For the optimal strategy, the position remains between ± 200 and the density has sharper peak than that of the baseline strategy, which suggests more control of inventory risk. In contrast to AAPL, for GE, P&L consistently increases over time. The same trend of profits is observed in the baseline strategy, but the variance of profits is lower in the optimal strategy. As is the case of AAPL, the optimal strategy outperforms the baseline strategy in terms of controlling the inventory size.

We also compute the average number of buy and sell orders executed, shares bought and sold, and quotes per day as shown in Table 4 and 5. For both strategies, the number of buy and sell orders, as well as the number of shares bought and sold are well balanced, indicating that the position stays around 0. In terms of quoting, the baseline strategy updates and posts prices more frequently than the optimal strategy. However, the optimal strategy quotes more efficiently because it has more buy (sell) orders executed per quote than the baseline strategy.