Manav Madan
Stefan Möhrle
Vanshaj Taxali

Exercise 4

AutoML
May 23, 2019

Exercise 1

(b)

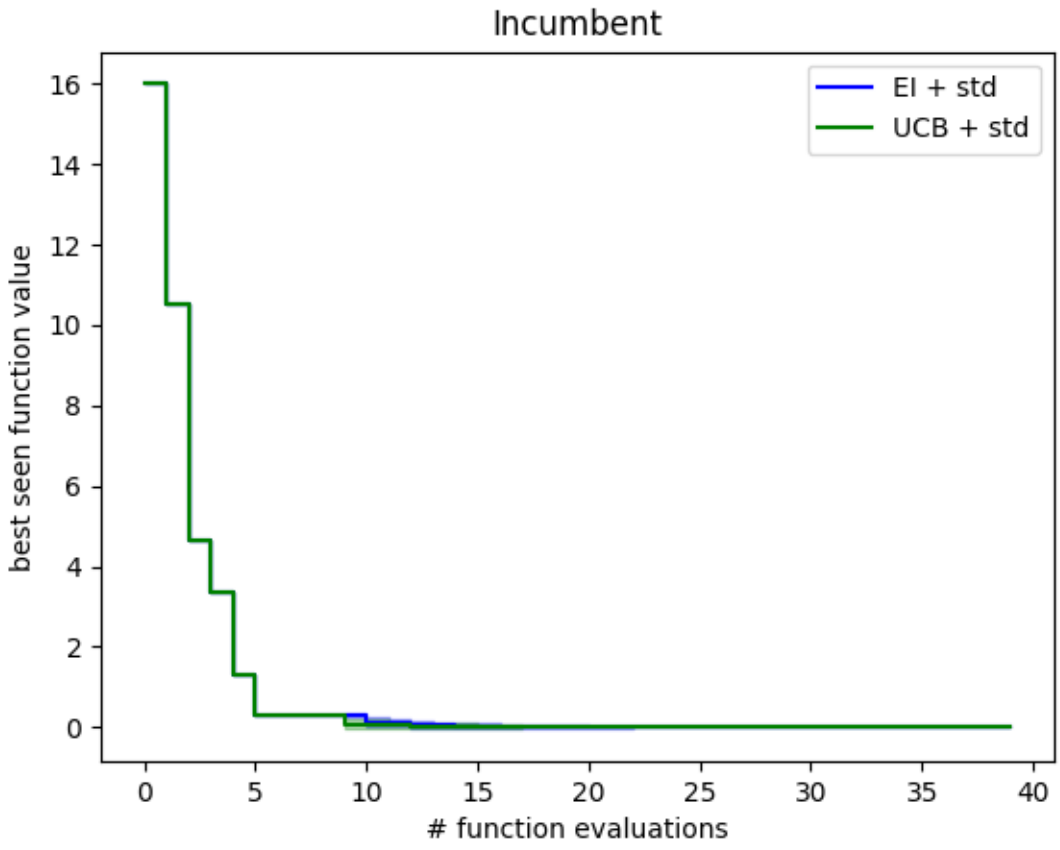

Figure 1: The incumbent aggregated over 25 repetitions with 40 function evaluations each

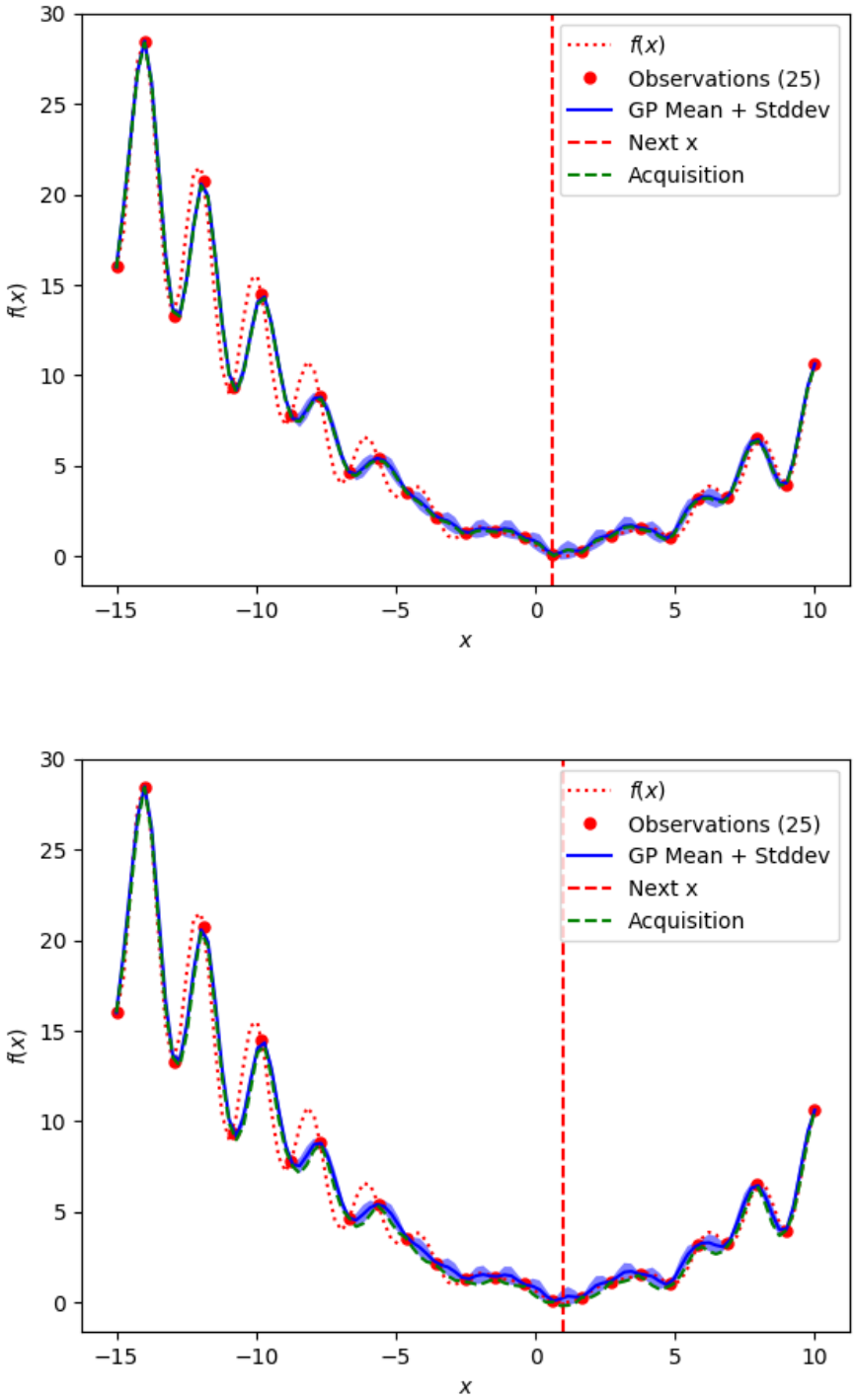

Figure 2: GP model and acquisition function (top: EI, bottom: LCB) after the 25 initial function evaluations

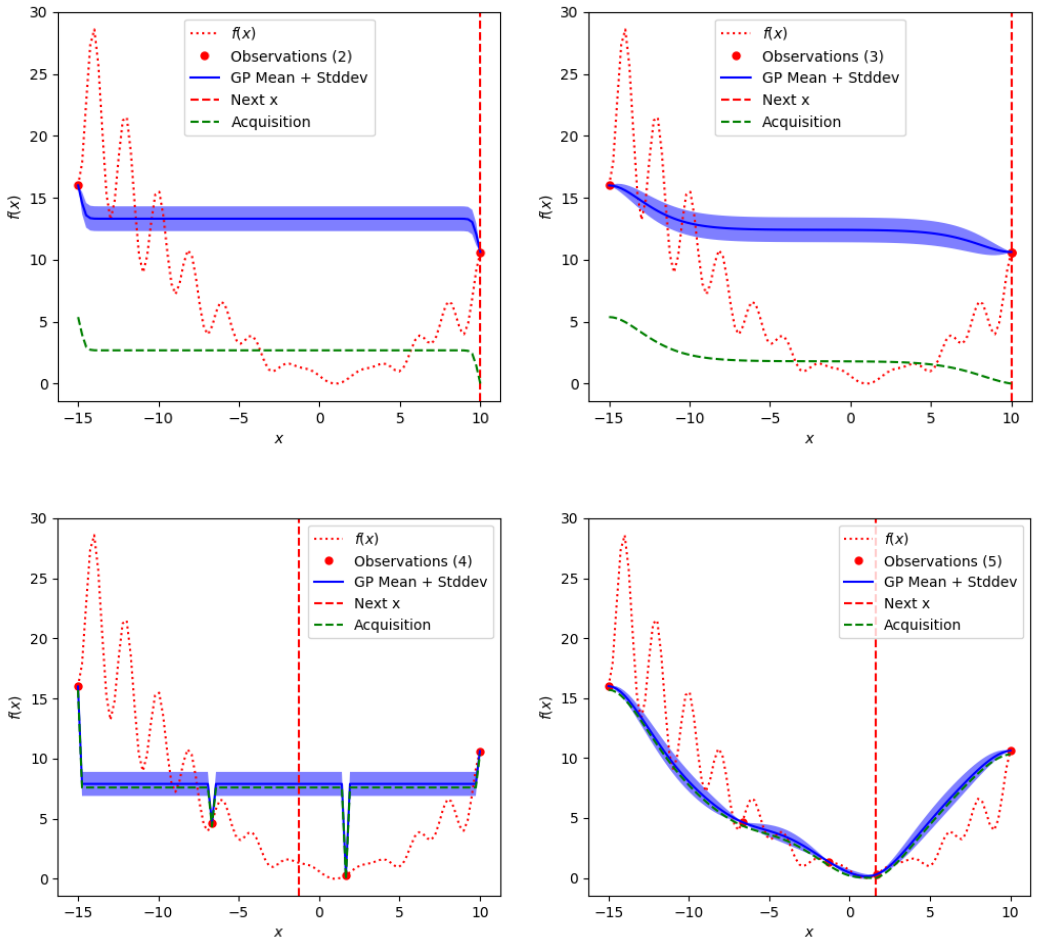

Figure 3: On the left are plots showing the first GP after the initial observations. On the right after adding the next observation. The top has two and the bottom has four initial observations. Why does the first GP look broken independent of the number of initial observations?

(d)

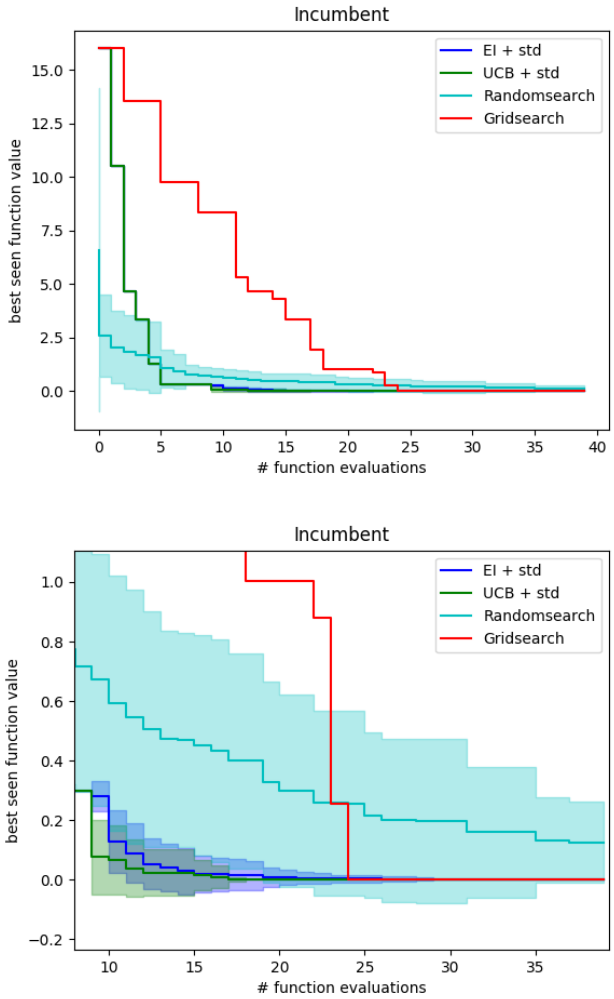

Figure 4: The incumbent aggregated over 25 repetitions with 40 function evaluations each. Gridsearch has only 1 repetition since there is no random element. Randomsearch is better in the first 5 function evaluation because there the BO methods are still in the pre phase where they perform a sparse grid search.

Feedback

The exercise took three day. It was a lot to grasp from one lecture and it was also a sudden increase in workload.

Exercise 4

Playing around with the GP and the visualization, we learned that the trade-off between exploration and exploitation is important. Even in this small example it was possible to get stuck in non optimal places.