Lab 4 – Efficient global optimization

Short course on Statistical modelling for optimization

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The aim of this lab session is to obtain the best possible helicopter.

Q1. First of all, you should make sure you are happy with the model you have and that you have validated both the predicted mean variance. You should also make sure there is no outlier in your data. To help you, these validations are already done on data from last year in the file *lab4.py*.

Q2. Before starting the optimization procedure, there is one important thing you should do... what is it ?

Q3. A function `EI` returning the expected improvement is provided in the script. However, this function is only valid for data that is not noisy. Modify it accordingly using one of the two methods discussed during the lecture.

Q4. Find the point that maximises the expected improvement. The library `scipy.optimize` should be useful.

Q5. Print the corresponding helicopter (check first that it satisfies the constrains).

Q6. Run the experiment and update your model

Q7. Loop over Questions 3 to 5. Do not forget to indicate in your report the best parameters you obtained and the actual recorded time!