Optimization Techniques

Laboratory 6

Bayesian Optimization

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Bayesian Optimization

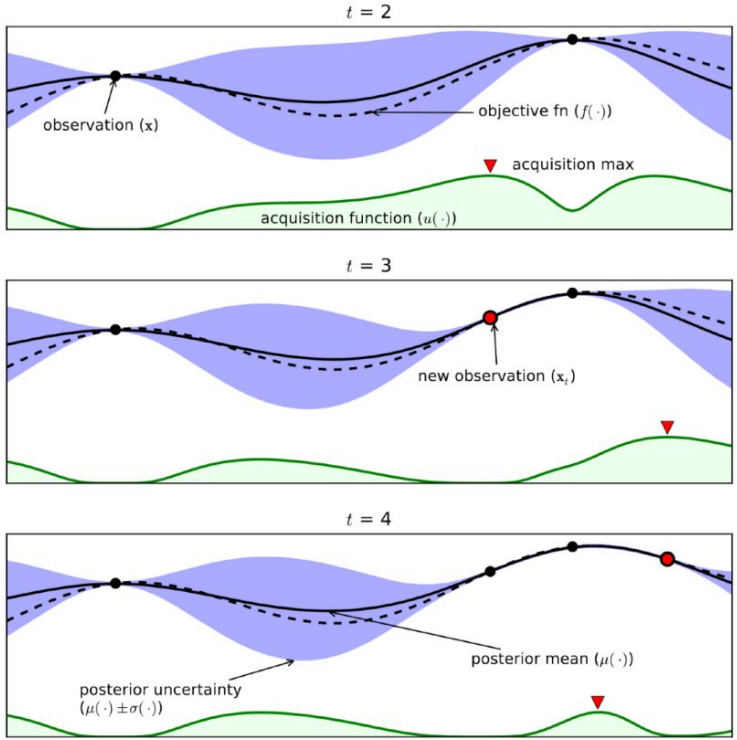
Optimize *f*

- where *f* is black-box and expensive to evaluate

Find optimum while minimizing the number of evaluations

We want to:

transfer the problem into a series of sampling and cheap acquisition optimization



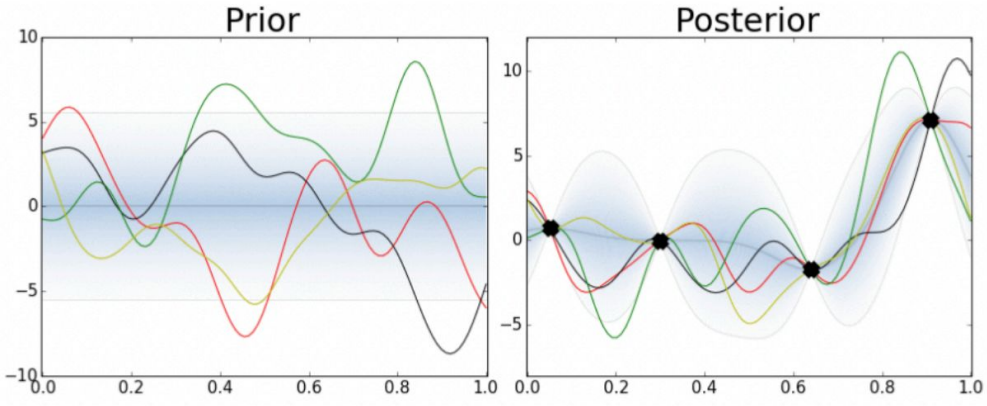
Bayesian Optimization

Surrogate Function

Bayesian approximation of the objective function that can be sampled efficiently

Acquisition Function

Technique by which the posterior is used to select the next sample from the search space



Bayesian Optimization

1. Select a Sample by Optimizing the Acquisition Function.

2. Evaluate the Sample With the Objective Function.

3. Update the Data and, in turn, the Surrogate Function.

4. Go To 1.