Small Exercises 9

Gaussian Processes

These exercises are meant to prepare the inverted classroom lecture. Keep your answers short: two or three sentences, sometimes even less, should suffice.

Problem 1: Why do we often chose the mean function m of a Gaussian Process to be zero, i.e. $m(\boldsymbol{x}) = 0$?

Problem 2: Basically all calculations involving Gaussian Processes require K^{-1}, but we specify the covariance function K instead. Why?

Problem 3: Why do large datasets cause problems for traditional Gaussian Processes?

Problem 4: What is more likely to cause overfitting when using the squared exponential kernel for the covariance function in a Gaussian Process: a small or a large length scale l? Why?