Technical-Note-GPR.bib

Gaussian Process Regression

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Abstract

Gaussian process regression (GPR) is a widely used learning techinique in machine learning.

1 Introduction

The Gaussian process model is a probabalistic supervised machine learning techinique used in classifiacation and regression tasks.

2 Mathematical Baics

Consider set of observerd data points. We want to fit a fucntion to represent these data points and then make a prediction at new data points. This is know as the regression. For a given set of obsereved data points, there are infinite number of possible functions that fit these data points. In GPR, Gaussian process conduct the regression by defining a distribution over these infinite number of functions.

2.1 Gaussian Distribution

A random variable X is Gaussian or normally distributed with mean μ and variance σ^2 if its probability function(PDF) is [**?**];

$$P_X(x) = \frac{1}{\sqrt{2\pi}\sigma} \exp - \frac{(x-\mu)^2}{2\sigma^2} \tag{1}$$