

Prediction

$f(x)$ is a Gaussian Process with stationary prior, $m(x) = 0$

$$\begin{aligned} p(f(x)|f(x_1), \dots, f(x_n)) &= \frac{p(f(x), f(x_1), \dots, f(x_n))}{p(f(x_1), \dots, f(x_n))} \\ &= \frac{\mathcal{N}(f(x), f(x_1), \dots, f(x_n)|0, \tilde{C})}{\mathcal{N}(f(x_1), \dots, f(x_n)|0, C)} \\ &= \mathcal{N}(f(x)|\mu, \sigma^2) \end{aligned}$$

$$\mu = k^T C^{-1} f$$

$$\sigma^2 = K(0) - k^T C^{-1} k$$

$$\begin{pmatrix} f(x_1) \\ f(x_2) \\ \vdots \\ f(x_n) \end{pmatrix}$$

