Kernel Ridge Regression (KRR)

Features of training points

$$\mathbf{K}_{ij} = k(\mathbf{x}_i, \mathbf{x}_j) \tag{1}$$

Kernel matrix element — Kernel function

Model weights — Training labels

$$\mathbf{w} = (\mathbf{K} + \lambda \mathbf{I}_N)^{-1} \mathbf{y} \tag{2}$$

Kernel matrix ($N \times N$) — Identity matrix ($N \times N$) — Regularization

Query — Training point features

$$\hat{y}(\mathbf{x}_q) = \sum_{i=1}^{N} w_i k(\mathbf{x}_i, \mathbf{x}_q) \tag{3}$$

Prediction — Weight of i-th training point