Kernels

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I. Part 1

In this section we implemented the kernelized ridge regression and support vector regression. Next to the basic Linear kernel we also implemented the Polynomial kernel defined as:

$$K(\mathbf{x}, \mathbf{x}') = (\mathbf{x}^\top \mathbf{x}' + c)^M$$

where M is the degree of the polynomial, and c is a constant which was set to 1. We also implemented the RBF kernel defined as:

$$K(\mathbf{x}, \mathbf{x}') = \exp\left(-\frac{\|\mathbf{x} - \mathbf{x}'\|^2}{2\sigma^2}\right)$$

A. *Kernelized ridge regression implementation*

B. *Support vector regression implementation*

C. *Fitting both methods to the 1-dimensional sine data*

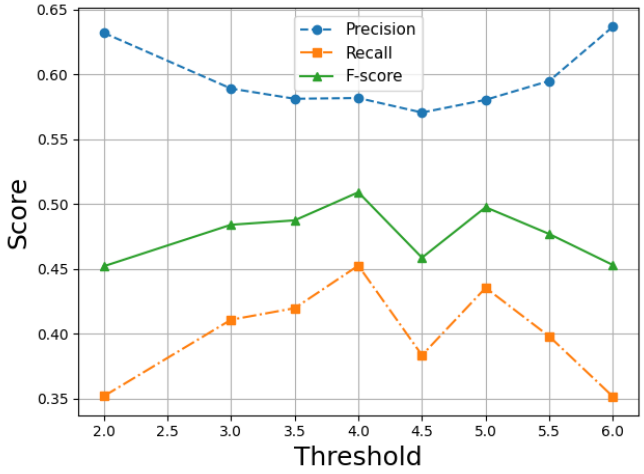

Figure 1. Comparison of performance at different thresholds