Learning with Consistency between Inductive Functions and Kernels (W41)

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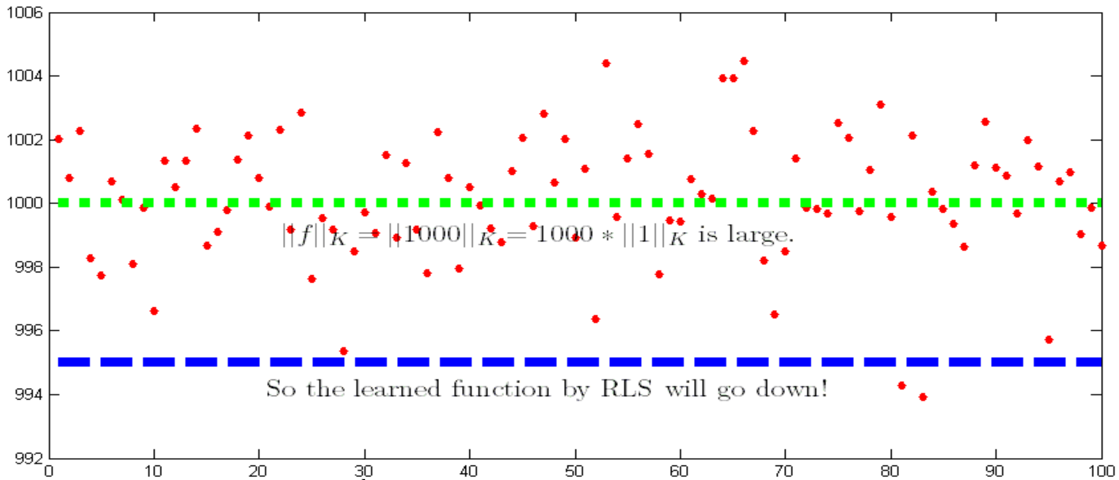
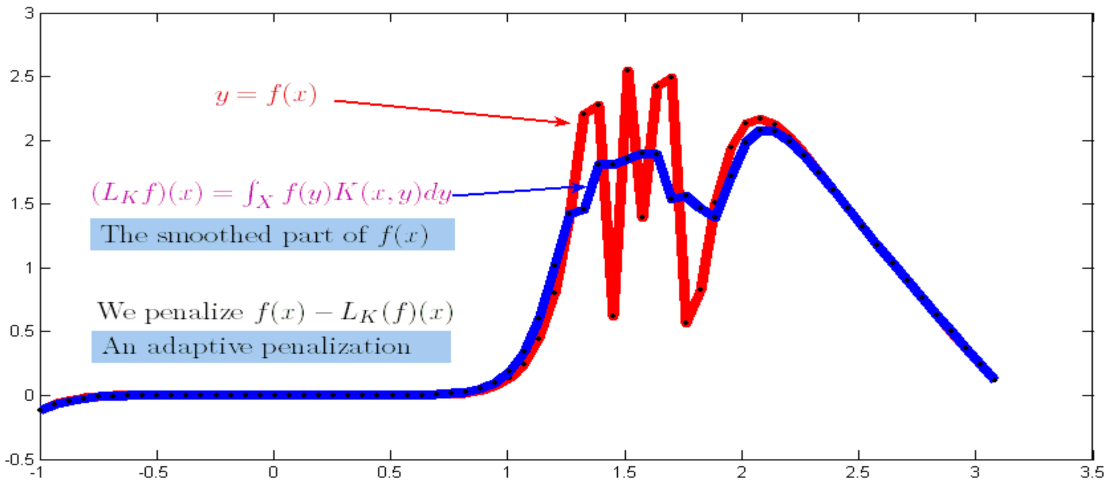
Regularized Least Squares (RLS): $\min_{f(x)} \frac{1}{l}\sum_{i=1}^{l}(f(x_i)-y_i)^2+\lambda\| f(x)\|_K$



The data are generated by 1000+2*N(0,1), where the ideal learned function should be y=1000. But…

Problem: f(x) is over-penalized in RLS.

Our solution: $\min_{f(x)} \frac{1}{l}\sum_{i=1}^{l}(f(x_i)-y_i)^2+\lambda\| f(x)-L_K(f)(x)\|_K$



See the paper or visit us if you want to know:

→ What is the minimizer?

→ What is the consistency between inductive functions and kernels?

→ Are constant functions not penalized in any case?

→ Should linear functions be penalized?

→ How are heat kernels interesting?

→ How is the solution generalized to Semi-supervised Learning or Manifold Learning?

→ Over-unpenalized?