Abstract

We consider interpolation in regression and classification. Basis Pursuit estimates the vector of regression coefficients by choosing the interpolator of the data that has the smallest $\ell_1$-norm. For the case of i.i.d. Gaussian design independent of the noise, Wang et al. [2021] show the intriguing result that noisy Basis Pursuit is consistent. By cleverly exploiting the Gordon Min-Max Theorem, they derive tight bounds. We will address the question whether consistency can be established in a more direct way using geometric insights and standard empirical process theory. For the classification problem, we compare error bounds for interpolation and various other estimation methods.

References