Deconvolution for the Wasserstein distance

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We consider the problem of estimating a probability measure on $\mathbb{R}^d$ from data observed with an additive noise. We are interested in rates of convergence for the Wasserstein metric of order $p \geq 1$. The distribution of the errors is assumed to be known and to belong to a class of supersmooth or ordinary smooth distributions. We shall first recall the estimator constructed in [1]. Next, we show that this procedure can be improved in the one dimensional case, which leads to minimax rates of convergences for ordinary smooth distributions and the distance W_1 (see the paper [2]). To conclude, we recall a recent inequality by Founier and Guillin [3], that could possibly be applied in the d-dimensional case to obtain minimax rates of convergence.

Références

[1] Caillerie, Chazal, Dedecker, Michel, *Deconvolution for the Wasserstein metric and geometric inference*, Electronic journal of statistics 5 (2011).

[2] Dedecker, Fisher, Michel, *Improved bounds for Wasserstein deconvolution with ordinary smooth error in dimension 1*, Electronic Journal of Statistics 9 (2015).

[3] Fournier, Guillin, *On the rate of convergence in Wasserstein distance of the empirical measure*, Probability theory and related fields 162 (2015).

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