

Statistical inverse learning and regularization by projections

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Abstract: In this work I blend statistical inverse learning theory with the classical regularization strategy of applying projections.

The key finding is that coupling the number of random point evaluations with the choice of projection dimension, one can derive probabilistic convergence rates for the reconstruction error of the maximum likelihood (ML) estimator. Convergence rates in expectation are derived with a ML estimator complemented with a norm-based cut-off operation. Moreover, I prove that the obtained rates are minimax optimal.