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"La mente è come un paracadute.
Funziona solo se si apre"
A. Einstein

Fast approximate quantile regression with random projections and linear programming

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Abstract

It is well known that quantile regression can be done by Linear Programming (LP). For large-scale or ill-behaved datasets, however, simply passing the LP to an off-the-shelf solver may result in very long computing times. This is due to size, poor scaling and also density of the LP matrix. We prove that sub-Gaussian random projections preserve shape and angles of affine cones, infer an approximation result for projected LPs, use LP duality to retrieve quantile regression result from the projected LP data, and show that this can help carry out quantile regression much faster.

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