Industrial & Systems Engineering

Seminar Announcement

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 (as I am currently witnessing on my screen as I write this abstract!). 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.

Bio: *Leo Liberti* received his PhD from Imperial College London in 2004, worked for a couple of years at Politecnico di Milano, then became a professor at Ecole Polytechnique in 2006. From 2012 to 2015 he was a research staff member at the IBM TJ Watson Center in NY. He joined CNRS as a research director in 2015.

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