
When Shape Constraints Meet Kernel Machines*

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Abstract

Shape constraints enable one to incorporate prior knowledge into predictive models in a principled way with various successful applications. Including this side information in a hard fashion (e.g, at every point of an interval) for rich function classes however is a quite challenging task. I am going to present a convex optimization framework to encode hard affine constraints on function values and derivatives in the flexible family of kernel machines. The efficiency of the approach is illustrated in joint quantile regression (analysis of aircraft departures).

Papers: real-valued output, vector-valued output.

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