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Moulinath Banerjee*, moulib@umich.edu, MI. *Recent Developments in the Study of Single-Index Type Models.*

Single-index type models are popular in statistics, biostatistics and economics as they alleviate the curse of dimensionality to a considerable extent while allowing for broad classes of models through the dependence on an unknown link function. Various classes of single index models are known: in regular models under a fixed dimension setting, the regression parameter is \sqrt{n} estimable; under current status censoring of the response variable in a linear regression model – which leads to the binary choice model – one gets a ‘generalized’ single-index model where the rate of estimation is at most $n^{1/3}$. Single index structures with a discontinuous link function arise in models involving change-planes in multidimensional space – hyperplanes that separate two (or more) response or survival regimes – and are relevant to applications in personalized medicine and dynamic treatment regimes. Here, rates of estimation can easily exceed \sqrt{n} in the finite dimensional case.

I will talk about some of my recent work in the above class of models in growing and high dimensional settings focusing on how growing dimensions introduce significantly new challenges at both theoretical and computational levels. (Received August 25, 2019)