

Dimension Reduction via cross-validation metric learning

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Abstract: We propose a cross-validation metric learning approach to learn a distance metric for dimension reduction in the multiple-index model. We minimize a leave-one-out cross-validation-type loss function, where the unknown link function is approximated by a metric-based kernel-smoothing function. In contrast to existing methods, the new method requires very weak assumption on the design of predictors and is relatively easy-to-implement numerically.