Dimensional independent unfolding with D-optimal system identification

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Abstract

A procedure for unfolding the true distribution from experimental data is presented. The stability of the result is achieved at the expense of choice of binning and using information on the shape of the distribution to be measured for the system identification. Application of methods of optimisation design of experiment decrease essentially statistical errors of an unfolded distribution. New selection criteria introduced for distributions used for system identification permit a decrease in the bias of unfolded distribution. The unfolding procedure may be applied for detectors with linear or nonlinear distortions. The dimensionality of the solved problem can be arbitrary.