Kernelized goodness-of-fit tests for discrete variables

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In this talk, we review goodness-of-fit tests for discrete distributions and propose an alternative family of tests based on a *kernelized Stein discrepancy*. This measure is an expectation based on Stein's operator associated to the target distribution. It has some useful theoretical and asymptotic properties and, furthermore, it can be empirically estimated. A key ingredient for this procedure is the choice of an adequate kernel which may be related to the target distribution.

In order to illustrate the efficiency of these tests, we resort to empirical analysis by simulations based on the Binomial case and "close" distributions with respect to the total variation distance.

This is joint work with Yvik Swan, University of Liège, Belgium.