Independence via Cross-Covariance Operators*

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Abstract

Hilbert-Schmidt independence criterion (HSIC, also called distance covariance) is among the most popular and efficient techniques in statistics and data science to measure the dependence of random variables. The idea of HSIC is to take the Hilbert-Schmidt norm of the cross-covariance operator of 'rich' non-linear features of the random variables. Surprisingly, very little is known about when HSIC characterizes independence. We provide a complete answer to this question.

- Preprint: `http://www.cmap.polytechnique.fr/~zoltan.szabo/publications/szabo18characteristic2.pdf`, `http://jmlr.org/papers/v18/szabo18a.html` (soon).
- Code: `https://bitbucket.org/szzoli/ite-in-python/`.

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