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Abstract

Every student in mathematics has at some point a statistical course (that will end up to be his favourite topic in math), where he'll learn about Principal Component Analysis. That procedure is widely used among others to reduce the dimension of the data by using eigenvalues and eigenvectors of the covariance structure. But since that structure is generally unknown in practice, inference on eigenvectors is far from being neglectable. Trivially, this is a subject that has already be studied in the past. What our work adds to the literature is that we took into account weak identifiability. What is weak identifiability? Why is it interesting to look at it? And what does weak identifiability imply on existing testing procedures? Those are the main questions we'll approach during this talk (again, in some contexts of testing for directions).

Keywords: Testing for directions, Weak identifiability, Le Cam, LAN, PCA