



A method for generating realistic correlation matrices

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Simulating sample correlation matrices is important in many areas of statistics. Approaches such as generating Gaussian data and finding their sample correlation matrix or generating random uniform $[-1, 1]$ deviates as pairwise correlations both have drawbacks. We develop an algorithm for adding noise, in a highly controlled manner, to general correlation matrices. In many instances, our method yields results which are superior to those obtained by simply simulating Gaussian data. Moreover, we demonstrate how our general algorithm can be tailored to a number of different correlation models. Using our results with a few different applications, we show that simulating correlation matrices can help assess statistical methodology.

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