

Linear combination of biomarkers to improve diagnostic accuracy in Prostate cancer

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SUMMARY

The combination of multiple biomarkers in order to improve diagnostic accuracy is an important issue in Medicine. How to provide an optimal solution to this problem is a widely analyzed issue that has not got a global answer. In different papers, linear combinations of markers that maximize the Area under the Receiver Operating characteristic curve (ROC) have been proposed. However, none of them can be applied in all posibles scenarios. Su and Liu [1] provide an optimal solution derived under multivariate normality that is not easy to verify in medical data. On the other hand, nonparametric methods can be computationally intensives when the number of biomarkers is large[2]. In this work, we analyze the performance of two methods, a step by step algorithm [3] and the min-max combination [4] that are recently proposed, in order to improve diagnostic accuracy in prostate cancer.

Keywords: biomarkers, ROC curve, linear combinations

AMS Classification: 62P10,62J99

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