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A parametric inference approach for the length of the ROC curve

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Abstract

From the ROC curve, there have been introduced in the literature several summary indexes to measure the discrimination capacity of a continuous diagnostic test or biomarker, such as the area under the ROC curve (AUC), the Youden's index (J), or, more recently, the length of the ROC curve (LoC). In this talk we focus on the LoC index due to its good properties compared to the AUC and J indices, and we propose a point estimator and a confidence interval (CI) based on the Generalized Pivotal Quantity (GPQ) method. Our simulation results show that the new point estimator has a good performance in terms of root mean squared error, bias and standardized bias, and that our GPQ CI works well in terms of coverage probability and average width. In addition, we apply this new methodology to real biomedical data on cancer disease.

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