

Comparing binary classification methods using covariate information

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Abstract

The Receiver Operating Characteristic (ROC) curve is a statistical tool that evaluates how well a binary classification method can distinguish between two categories – for example, in diagnostic problems. When multiple classification methods are available, comparing their corresponding ROC curves is a standard approach to assess their performance.

When additional covariate information is available, it should be incorporated into the ROC curve comparison since covariates can affect the discriminatory capability of the diagnostic methods. This incorporation can be achieved through either covariate-specific or covariate-adjusted ROC curves. Our work first addresses which curve type is most appropriate for the different situations that may arise. Based on these findings, we then propose several tests for comparing these curves in both paired and independent data scenarios.

References

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