R software for ROC analysis

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Abstract

Receiver Operating Characteristic (ROC) curve analysis is a fundamental tool for evaluating the performance of classification models in fields such as medical diagnostics and machine learning. R provides useful libraries to generate, compare, and visualize ROC curves, allowing users to compute metrics such as sensitivity, specificity, and the area under the curve. These libraries often include methods to handle complex scenarios such as censored data, multivariate settings, and comparison of multiple curves using advanced statistical techniques.

These tools allow researchers and practitioners to evaluate classifiers under a variety of conditions, highlighting the adaptability of R for these statistical analysis. In this talk, we will review the libraries available in the Comprehensive R Archive Network (CRAN) for ROC analysis, showing their main functionality. In particular, we will focus on the libraries nsROC, which includes non-standard analyses, and movieROC, which provides several visualisations.