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一种半参数ROC曲面估计方法

万树文

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A Semiparametric Method for ROC Surface Estimation

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全文: PDF (375 KB) HTML (1 KB) 输出: BibTeX | EndNote (RIS) 背景资料

摘要 ROC曲面是诊断医学统计学里评估有多类诊断结果的诊断测试方法准确性的一个重要工具, 也是近年来的 一个研究热点. 本文提出一种半参数的ROC曲面估计方法. 该方法可以借助于许多统计软件里的逻辑斯蒂回归程序进行 计算,所以它的实施较为方便. 相关统计模拟显示, 本文提出的方法与传统的非参数方法相比, 有效性得到了显著提高. 而与参数方法 相比, 当参数模型假设是正确时仍比参数方法有略高的有效性; 而当参数模型假设不正确时, 本文提出的半参数方法明显优于参数方法.

关键词: 密度函数比模型 经验似然 逻辑斯蒂回归模型 ROC曲线 ROC曲面

Abstract: We propose a semiparametric method of estimating ROC surfaces for continuous diagnostic tests under density ratio models. Implementation of our method is easy since the usual logistic regression procedures in many statistical softwares can be employed. Simulation results show that the proposed semiparametric ROC surface estimator is more efficient than the nonparametric counterpart and the parametric counterpart whether the normality assumption of data holds or not.

Key words: density ratio model empirical likelihood logistic regression ROC curve ROC surface

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