

Minimum-Norm Estimation for Binormal Receiver Operating Characteristic (ROC)
Curves

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The Receiver Operating Characteristic (ROC) curve is often used to assess the usefulness of a biological marker in diagnostic tests. We present a novel method to estimate the parameters of a popular semi-parametric ROC model, called the binormal model. Our method is based on minimization of the functional distance between two estimators of an unknown transformation postulated by the model, and has a simple, closed-form solution. We study the asymptotics of our estimators, and show via simulation that they compare favourably with existing estimators.