Bayesian Models for Free-response Receiver Operating Characteristic Analysis

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October 27, 2021

Abstract

The free-response receiver operating characteristic method developed by Chakraborty is a generalization of receiver operating characteristic analysis, but Chakraborty used a non-Bayesian approach. This paper aims to reconstruct Chakraborty's technique using a Bayesian approach and to verify that our models fit practical datasets. We also develop a Bayesian model for comparing modalities.

(Hierarchical) Bayesian modeling, Signal detection theory, Radiology, FROC analysis, individual differences, observer performance

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