

COLLOQUIUM

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A New Bayesian Strength of Evidence for Testing a Point Null Hypotheses Using Divergence Measures

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3:00 p.m. - 3:50 p.m.

Refreshments: 2:40 p.m.

Abstract

The classical frequentist evidence expressed in terms of the observed level of significance, and the Bayesian measures of evidence expressed through the posterior probability and the Bayes factor, are two main statistical streams of thought for the problem of testing a point null hypothesis. However, they may give rise to different decisions in many practical situations, and thus cast serious doubt on the adequacy of the two measures of evidence for hypothesis testing. In this talk, we propose a new Bayesian strength of evidence built on divergence measures for point null hypotheses. The proposed strength of evidence enjoys many appealing features. It is shown that the new evidence is seen to be a Bayes test for specific loss functions. Additionally, it can reconcile the disagreement between frequentists and Bayesians in many classical examples in which the Jeffreys'-Lindley paradox occurs. Of particular note is that the new Bayesian evidence under the noninformative prior is often coincident with the observed level of significance. Finally, some potential applications of the proposed evidence for the point null testing problem are also discussed in this talk.

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