
Joint Statistics Seminar

The Hong Kong University of Science and Technology

Predictive Likelihood for Bayesian Model Selection and Averaging

by

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Time: 4:00 p.m. – 5:00 p.m.

Venue: Room 4480 (Lift 25/26)

Abstract

This paper investigates the performance of predictive distributions of Bayesian models. To overcome the difficulty in evaluating predictive likelihood, we introduce a concept of expected log-predictive likelihood for Bayesian models and propose an estimator of the expected log-predictive likelihood. The estimator is derived by correcting the asymptotic bias of the log-likelihood of the predictive distribution as an estimate of its expected value. We investigate the relationship between the proposed criteria and the traditional information criteria and show that the proposed criteria are natural extensions of the traditional ones. A new model selection criterion and a new model averaging method are then developed with weights for individual models dependent on their expected log-predictive likelihoods. We examine the performance of the proposed method using Monte Carlo experiments and a real example, which concerns the prediction of quarterly growth rates of real gross domestic product of the G7 countries. Out-of-sample forecasts show that the proposed methodology outperforms other methods available in the literature.

Key words and phrases: Model averaging, Model selection, Predictive likelihood

❖ *All interested are welcome!* ❖

For details, please contact ISOM Department.