THE UNIVERSITY OF CHICAGO | DEPARTMENT OF STATISTICS

Master's Thesis Presentation

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"Conformal Prediction for Bayesian Posterior"

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Abstract

Conformal Bayes aims to apply the techniques of conformal prediction to Bayesian inference. Due to potential complexities of posterior estimation, importance sampling and MCMC algorithms are often an integral part of Bayesian inference. We review existing methods for conformal Bayes inference and their challenges, and propose a new scheme based on leave-one-out cross-conformal. It is demonstrated that this scheme has both theoretical and finite-sample coverage guarantees. We also constructed an adaptation of this scheme based on rejection sampling with more desirable computational efficiency, as well as a K-fold cross-conformal analogy. The proposed algorithms are implemented on synthetic data and compared against the benchmark.
