Department of Decision Sciences

Statistics Seminar

Leave Pima Indians alone: binary regression as a benchmark for Bayesian computation

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Abstract

Whenever a new approach to perform Bayesian computation is introduced, a common practice is to showcase this approach on a binary regression model and datasets of moderate size. This paper discusses to which extent this practice is sound. It also reviews the current state of the art of Bayesian computation, using binary regression as a running example. Both sampling-based algorithms (importance sampling, MCMC and SMC) and fast approximations (Laplace and EP) are covered. Extensive numerical results are provided, some of which might go against conventional wisdom regarding the effectiveness of certain algorithms. Implications for other problems (variable selection) and other models are also discussed.

(Joint work with James Ridgway)