2022년 제 17회 통계세미나

고려대학교 통계연구소와 BK21 통계학교육연구팀, 그리고 DS+가 다음과 같이 공동으로 세미나를 개최하오니 많은 참여 바랍니다.

일시 : 2022년 11월 25일(금) 오전 11시
장소 : 고려대학교 정경관 509A 호
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Adaptive variational Bayes

<Abstract>

In this talk, we consider adaptive inference based on variational Bayes. Although several studies have been conducted to analyze the contraction properties of variational posteriors, there is still a lack of a general and computationally tractable variational Bayes method that performs adaptive inference. To fill this gap, we propose a novel adaptive variational Bayes framework, which can operate on a collection of models. The proposed framework first computes a variational posterior over each individual model separately and then combines them with certain weights to produce a variational posterior over the entire model. It turns out that this combined variational posterior is the closest member to the posterior over the entire model in a predefined family of approximating distributions. We show that the adaptive variational Bayes attains optimal contraction rates adaptively under very general conditions. In addition, we provide a methodology to maintain the tractability and adaptive optimality of the adaptive variational Bayes even in the presence of an enormous number of individual models, such as sparse models. We illustrate the general results with several examples and derive new and adaptive inference results.

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