A Misspecification-Resistant Information Criterion

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Abstract

Model selection problems are usually classified into two categories according to whether the data generating process (DGP) is included among the family of candidate models. The first category assumes that the DGP belongs to the candidate family, and the objective of model selection is to identify this DGP with high probability. The second category assumes that the DGP is not one of the candidate models. In this case, choosing a model having good prediction capability becomes a major concern. However, most existing model selection criteria can only perform well in at most one category, and hence when the underlying category is unknown, the determination of selection criteria itself becomes a key point of contention. In this talk, a misspecification-resistant information criterion (MRIC) is proposed to rectify this dilemma. We also illustrate the performance of MRIC from both theoretical and practical points of view. (Joint work with Professor Ching-Kang Ing)