

Slippery Rock University
Department of Mathematics and Statistics

Presents

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“Accounting for model uncertainty with Bayesian methods”

Abstract

Across various scientific domains, one will often consider a set of candidate models, each designed to capture the underlying true data generating process. A typical strategy is to rely on statistical inference through a best fitting model, which can be selected according to some pre-specified criteria. In most cases, it is understood the set of candidate models does not contain the true data generating process, hence this selection strategy ignores the underlying model uncertainty. This can ultimately lead to underestimation of uncertainty in quantities of interest such as predictions or parameters. To account for such issues, a common approach is to combine the set of candidate models in some manner. Two popular methods include Bayesian Model Averaging (BMA) and stacking, which combine models using a weighted average. In these strategies, each weight is designed to reflect the overall performance of each individual model. Another approach is Bayesian Model Mixing (BMM), which extends the averaging techniques by allowing the weights to be dependent on the input space, and thus reflect the localized performance of each model. This talk will provide an introduction to various model averaging and mixing techniques which are designed to account for the underlying uncertainty.

Friday, February 18th

3:00 p.m.

VSC 205

Students are welcome!