BIODIVERSITY INSTITUTE
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GSO Speaker, University of Florida

Information criteria have had a profound impact on modern science. They allow researchers to estimate which of a set of model is closest to the generating process. Unfortunately, information criterion comparison does not tell how good the best model is. Nor does practitioners fully test the reliability (e.g. error rates) of model selection using information criteria. In this work, we show that these two shortcomings can be resolved with a key observation: in a standard analysis it is ignored that there is an estimable divergence relationship amongst all of the models, as well as divergences rom each model to the generating process. We then show that using both sets of divergences, a model space can be constructed including an estimated location for the generating process. Thus, not only an analyst can determine which model is closest to the generating process, she/he can also determine how close to the generating process the best model is. Properties of the generating process estimate from these projections are more accurate than those estimated by model averaging. Model projection, because it more fully utilizes the information in the structure of model space, is able to estimate several very important quantities that are not estimated by model averaging. The study of the structure of model space corrects for misleading evidence (chance good results), accommodation (over-fitting), and cooking the models. Theoretically, the more models are considered the more robust the scaffolding from which to project the location of the generating process. I conclude my presentation with fully illustrated examples in ecology and evolution of how Model Projection in Model Space (MPMS) works.

Model projection in model space: Multimodel inference beyond model averaging.

Host: GSO

Thursday, 8 November, 2018, 3:45 p.m.

1005 Haworth Hall