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Title:

New applications of the probability integral transform in diagnostics and resampling.

Abstract:

The probability integral transform is a classical statistical tool that has long been used in random number generation. In this talk we will develop some new applications of the tool, including residual plots for various regression applications and a new residual resampling approach for non-normal data. These methods exploit the key property that the probability integral transform maps data from any distribution onto the standard uniform – hence transforming to a pivotal quantity. These new methods are illustrated on multivariate abundance data arising in ecology, where the goal is to study ecological communities and their response to environmental variables or impacts.