



**THE UNIVERSITY OF GEORGIA
DEPARTMENT OF STATISTICS**

Colloquium Series

Deborah Kunkel

Clemson University

Thursday, September 19, 2019

3:30pm in room 202, Caldwell Building

Anchored Bayesian Gaussian mixture models

We present a Bayesian framework for inference on finite Gaussian mixtures in which a few observations, called anchor points, are pre-classified to specific mixture components. This strategy addresses two fundamental challenges that arise in Bayesian mixture models: label-switching under an exchangeable prior specification and the need to specify proper priors for the component-specific parameters. We present the key properties of the anchored model and show that a small number of pre-classified points can alleviate the label-switching problem. The anchor points may be viewed as inducing a data-dependent prior on the features of the mixture components. This perspective motivates a modeling strategy wherein anchor points are used to enforce prior notions about the nature of heterogeneity in the population, bypassing the need to specify prior information about the locations and scales of the mixture components. We describe several methods for automatic selection of the anchor points founded on principles from case influence diagnostics and semi-supervised learning.

For more information, please contact us at:

Phone: 706.542.5232 E-Mail: stat@uga.edu

Parking is available in the North Campus Parking Deck.

For a UGA Campus map, please see: <http://aviary.camplan.uga.edu/CampusMap/Default.aspx>