

Einladung
zum
7. Biometrischen Seminar im WS 2008/09
am
Freitag, den 16.01.2009 um 15.30 Uhr
im Seminarraum 04,
Erdgeschoss des Schwackhöferhauses,
Peter Jordanstraße 82, 1190 Wien.

Vortragende: Univ.Prof. DI. Dr. Sylvia Frühwirth-Schnatter
Johannes Kepler Universität Linz

**Thema: Bayesian Inference for Finite Mixtures of Skew Distributions:
To Model High-dimensional Multimodal Asymmetric Data**

Zusammenfassung:

Rarely are empirical data symmetrically distributed. Therefore, skewnormal and skew-t distributions were introduced both for univariate as well as multivariate data sets with the goal of capturing skewness and kurtosis directly without transformation or loss of unimodality of the modeled distribution. Very recently, finite mixtures of such distributions have been considered for univariate data. In the present paper, we consider such mixture models for both univariate as well as multivariate data. This allows modeling of high-dimensional multimodal and asymmetric data generated by popular biotechnological platforms such as flow cytometry.

Although the extension appears natural, the estimation of such a finite mixture model results in a complex computational problem. We develop Bayesian inference based on data augmentation and Markov chain Monte Carlo sampling.

Two biometrical applications are provided. In the first application, we model the cognitive score of patients suffering from Alzheimer's disease using univariate skewnormal and skew-t mixtures for precise classification. The second application deals with modeling high dimensional flow cytometric data using 6-variate skewnormal and skew-t mixtures to identify a cellular signature of Graft versus Host disease.

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(jointly with Saumyadipta Pyne, The Broad Institute of MIT and Harvard University, USA)

Wien, am 08.01.2009