

UNIVERSITY OF GEORGIA
DEPARTMENTS OF STATISTICS and
EPIDEMIOLOGY & BIostatISTICS

Joint Colloquium

Maximum likelihood estimation of a multidimensional log-concave density

**Richard Samworth
Cambridge University**

If X_1, \dots, X_n are a random sample from a density f in \mathbb{R}^d , then with probability one there exists a unique log-concave maximum likelihood estimator \hat{f}_n of f . The use of this estimator is attractive because, unlike kernel density estimation, the estimator is fully automatic, with no smoothing parameters to choose. We exhibit an iterative algorithm for computing the estimator and show how the method can be combined with the EM algorithm to fit finite mixtures of log-concave densities. Applications to classification, clustering and regression problems will be discussed, as well as recent theoretical results on the performance of the estimator. The talk will be illustrated with pictures from the R package LogConcDEAD.

Co-authors: Yining Chen, Madeleine Cule, Lutz Duembgen (Bern), Robert Gramacy (Cambridge), Dominic Schuhmacher (Bern) and Michael Stewart (Sydney).

Tuesday, November 16, 2010

3:30 P.M., Room 306
Statistics Building
University of Georgia
Athens, GA 30602

Refreshments following the talk at 4:30 P.M. in room 230 (The Cohen Room)