

STANFORD UNIVERSITY
DEPARTMENT OF STATISTICS
DEPARTMENTAL SEMINAR

4:15 p.m., Tuesday, November 19, 2002
Sequoia Hall Room 200
(Cookies at 3:45 in 1st Floor Lounge)

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Image segmentation with hidden Markov models

Image segmentation, partitioning an input image to several homogeneous regions, is a crucial preliminary phase for many practical applications. Good segmentation requires smooth class boundaries, unlikely for most general classification algorithms. A popular remedy is to force smooth boundaries by considering models with spatial interactions, whereby simultaneously classifying and segmenting each given image. Among these, the Hidden Markov Model (HMM) is one of the most useful. I will describe a novel image classification method using non-causal hidden Markov Gauss mixture model (HMGMM) and a noise robust classifier using a binary hidden Markov model. I will also solve the identifiability problem and explain its relevance in the latter context.

Part of this talk is based on a joint work with K.S. Pyun, C.S. Won, and R.M. Gray.