



SUMMONS

2011-04-20

LUND UNIVERSITY

School of Economics and Management

Department of Statistics

SEMINAR

Wednesday 27 April 2011 at 13.15 in room **EC2-109**.

Jimmy Olsson, Mathematical statistics

Smoothing in general hidden Markov models using sequential Monte Carlo methods

A recurring problem when operating on general hidden Markov models is approximation of the smoothing distribution, that is, the conditional distribution of one or more states given past, present, and future observations. The aim of this talk is to show how sequential Monte Carlo methods (particle filters) can be used for approximating conveniently such distributions; for example, I present a particle-based algorithm that approximates efficiently, by avoiding the well-known degeneracy of the genealogical particle tree, the smoothing distribution at a computational cost that grows only linearly with the number of particles. I will also describe how to establish the convergence, in terms of novel exponential deviation inequalities and central limit theorems, of the schemes under consideration.

Welcome!