

Parameter Estimation of Chaotic Time Series.

Milena C. Cuéllar¹ and Leonard Smith^{1,2}

28 November 2003

Abstract

This talk is intended to present a brief overview of the work as a Research Student in the Department of Statistics since January 2002. The study is focused on several techniques of model parameter estimation from time series, in particular of time series suspected to come from deterministic systems.

We study principally two approaches, one based on non-linear time series analysis such as cost functions approach related to noise reduction techniques, [*Phys. Rev. E* **83** 21 (1999)] and the other on Bayesian inference, in particular Markov Chain Monte Carlo techniques [*Phys. Rev. E* **62** p3535 (2000)]. Both techniques are exemplify for the chaotic Logistic map, a well-known one dimensional map rich in chaotic behaviour. Some preliminary results are shown and further work is stated.

1. Centre for the Analysis of Time Series, Department of Statistics, London School of Economics and Political Science, U.K.

2. Pembroke College, Oxford Centre for Industrial and Applied Mathematics, University of Oxford, U.K.