

Homework 4
Ma641 Time Series I
due by class time 6:15pm, Monday June 23, 2008

Please try to submit a hardcopy of the report in class. If you chose the elearn submission option elearn please convert the report to pdf format before submitting.

This assignment extends both the methods and the deadline for the previous assignment.

1. Search for 4 parameters $\theta_1, \dots, \theta_4$ such that the corresponding MA(4) model is invertible. Choose your own σ_a^2 value for the variance of the gaussian white noise. Generate 365 data points. Calculate ACF and PACF for the data that you generated.
2. Repeat the above for another model MA(5) using once again parameters of your choice.
3. Write a paragraph detailing the differences between the two graphs and what is the recommended order of the corresponding models based on the data.
4. Using a method of your choice and the recommended order from the previous point estimate the parameters present in the model. Benchmark the estimates with respect to the known parameter values. Pay attention to the form of the model used (standard or alternate form).
5. Finally repeat the above with a ARMA(4,4) model generated using the combination of parameters in parts 1 from this and the previous assignment.

IMPORTANT NOTE for parts 4 in this and the previous assignment.

If when you estimate the parameters you find a big discrepancy between the estimated values and the known parameters that you used it means that you did not read the documentation of the functions used properly. In such a case you will receive a very low grade for both of this assignments. This is also the reason why the deadline for both assignments 3 and 4 are extended until next week (i.e. June 23).

It is my belief that in applied work one of the most important issues for a researcher is to understand the methods and **more importantly** the software that implements the methods. For this reason I insist on this part of the assignment.