ME384Q.3 / ORI 390R.3: Time-Series Analysis

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Homework 2

Assigned Monday, February 9th, 2019;
Due Thursday, February 14th, 2019, in class

Problem 1: Use implicit method to find first 5 Green's function coefficients and first 5 Inverse function coefficients of the time-series model

$$X_t - 0.2X_{t-1} + 0.25X_{t-2} - 0.05X_{t-3} = a_t - a_{t-1} + a_{t-2}$$

Problem 2:

(a) Find first 3 Green's function coefficients for the model

$$X_t - X_{t-1} + X_{t-2} = a_t - 3a_{t-1}$$

Note: Use any method, but there surely is one method that will give this answer to you in the least painful way.

(b) Find explicit expression for the Green's function coefficients of the model above (ok, there is no painless way out of this one).

(c) Try to express analytically the auto-covariance function of the time-series X_t. Comment on what you see.

Problem 3.2 (i and iii only)

Problem 3.10 Just do parts ii) and iii).

Problem 3.11