Homework 15

Due Tuesday, December 2, at class

Consider the Kalman filtering example discussed in class (Matlab code was sent to all of you). In that example, we consider the scalar Kalman filter (tracking just one parameter). Extend that example (in Matlab and simulation) to investigate the following two aspects of the problem:

1. Consider a two-dimensional problem (i.e., let the system be a two pole filter).

2. Investigate the effect of model-mismatch. That is, how does the system perform if the data are generated according to one stochastic model, but you assume a different model in your Kalman filtering equation. For example, in the scalar case we looked at in class, what if the parameter used to generate the data is different than the one we used to derive the Kalman filter.