

Math508 Homework 10

Yu Huang

2007-04-06

Abstract

Simple Kalman Filter

1 Problem 1

X_0, V_1, W_0 distributed as $N(0, 1)$.

1.1 Part a

$N = 200, \alpha = 0.9, \epsilon = 0.3, \delta = 1$, see Figure 1 and Figure 2.

1.2 Part b

$N = 200, \alpha = 0.8, \epsilon = 0.9, \delta = 2$, see Figure 3 and Figure 4.

2 Problem 2

$X_0 = 1, P(V_1 = \pm 1) = P(W_1 = \pm 1) = \frac{1}{2}$.

$N = 200, \alpha = 0.9, \epsilon = 0.3, \delta = 1$, see Figure 5 and Figure 6.

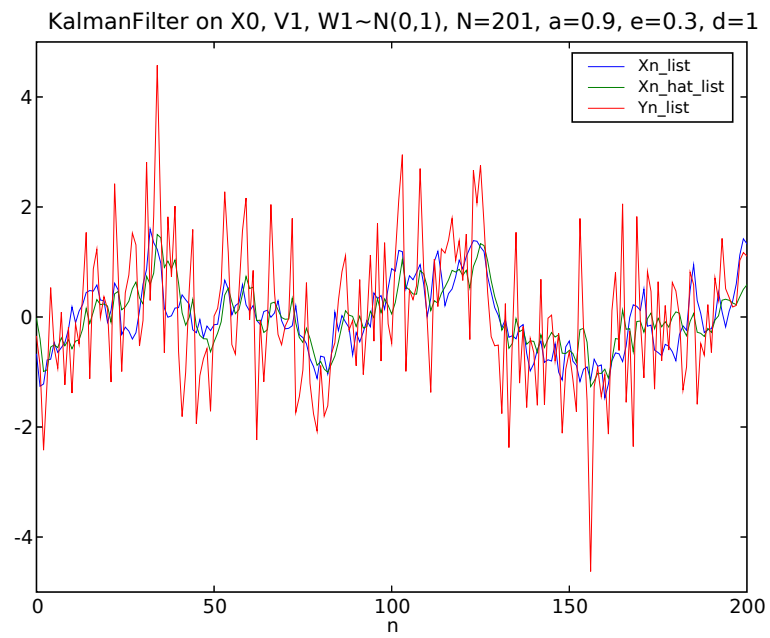


Figure 1:

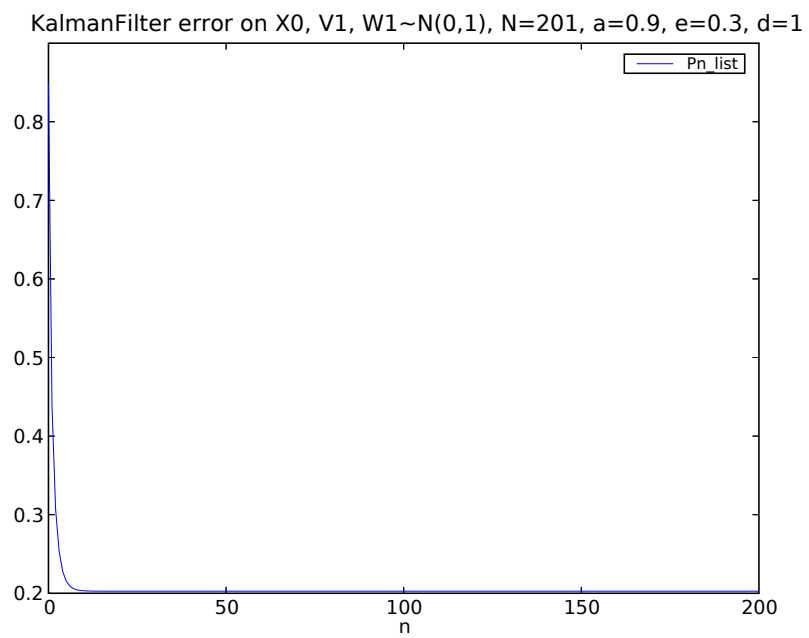


Figure 2:

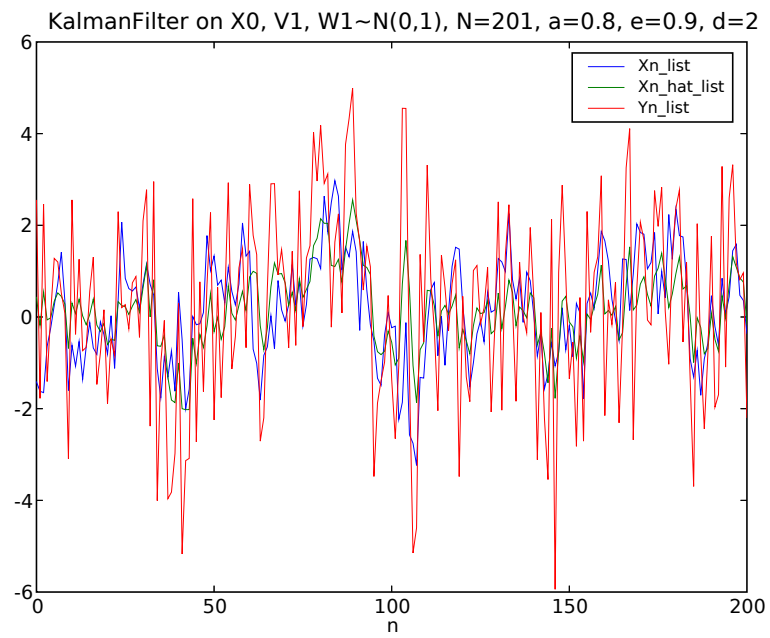


Figure 3:

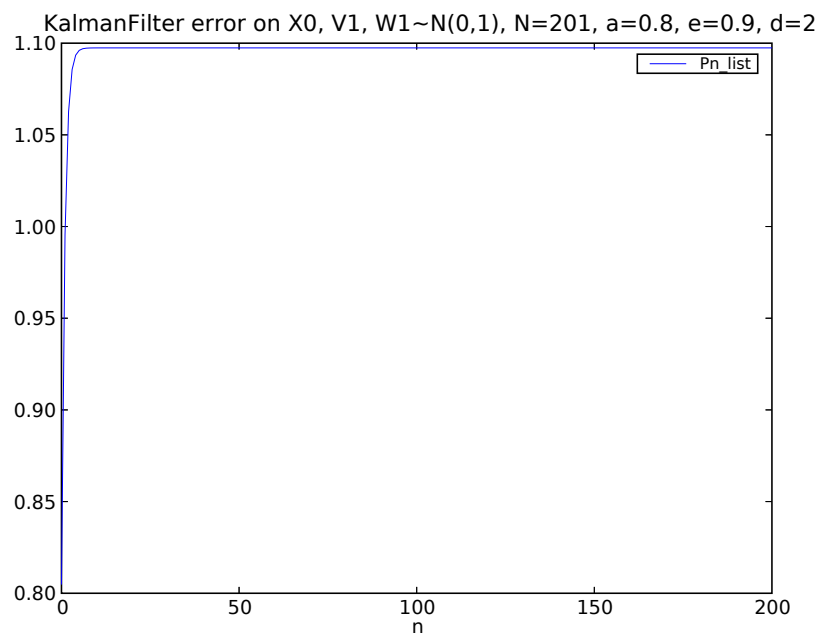


Figure 4:

KalmanFilter on $X_0=1$, $P(V_1=+-1)=P(W_1=+-1)=1/2$, $N=201$, $a=0.9$, $e=0.3$, $d=$:

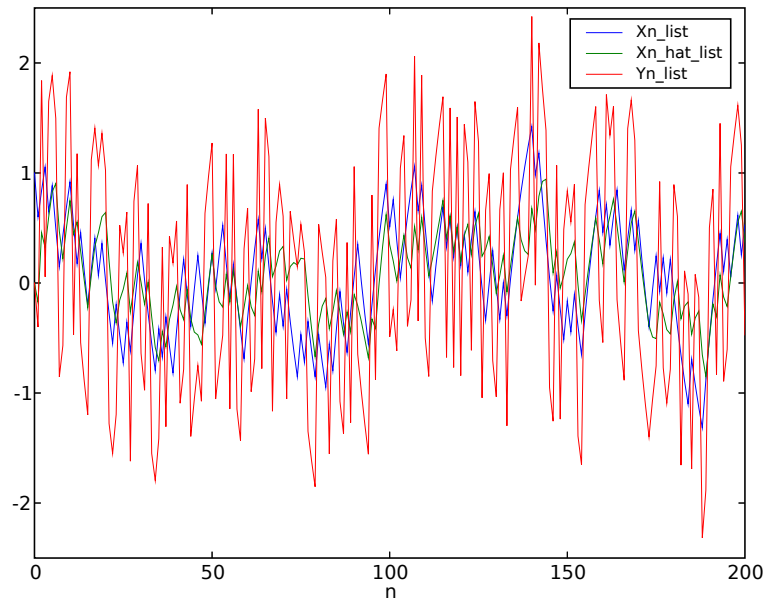


Figure 5:

KalmanFilter error on X_0 , V_1 , $W_1 \sim N(0,1)$, $N=201$, $a=0.9$, $e=0.3$, $d=1$

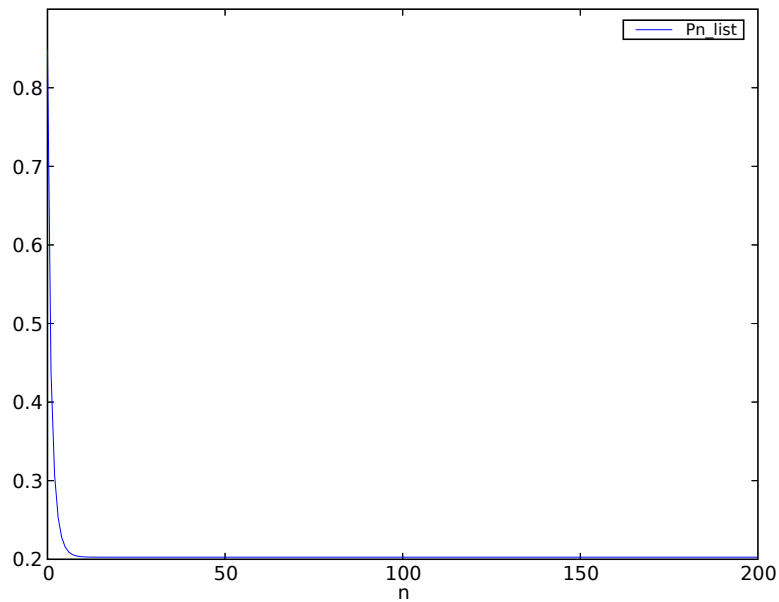


Figure 6: