* System Response Methods
* Frequency Response Method
* Correlation Method

1. Static System Identifications
2. Dynamic System Identification
3. Time varying static system Identification
   1. Linear Regression Model

7.1.1 Recursive Estimation

1. Model: ,
2. Measurements:

* Simple Recursive Estimator

Multiply at both sides

Then

\*We did not use the fact of .

* Kalman’s weighting
* Assume

1. Assume the estimator is unbiased

which implies

Therefore

The prediction error:

Or the residual (why prediction?)

1. Minimum variance, find the optimal gain

Since , therefore

Using variational calculus to find the minimum ,

Consequently,

Implies

1. In conclusion the minimum variance estimator is

* (7.13) is called Riccati equation.