Review

Ch.2 System response method

* System response identification
* Find or estimate of

1. How to design of

Method 1.

1.1) Input pulse

1.2)The output is

1.3)The estimator :

1.4)The input is not realizable **Evev if the matlab simulation is OK**, See Fig(2.2)

Method 2.

* 1. step Input
  2. The output is

1.3)The estimator :

1.4)If the output is corrupted by noise, the difference of noise is very large so that the estimator is not good as pulse response Even if the matlab simulation may be shown that the estimator is the same to the pulse input(try the output is corrupted by noise)

Method 3.

1.1) sine wave input

1.2)The output is

1.3)The estimator :

1.4) Since

In order to find , we need for all

Method 4. Empirical Transfer function estimator

* 1. Input is an arbitrary signal , but sampled Discrete Fourier Transform(DFT)

At the sampling time ,

* 1. The output is sampled
  2. The estimator :

* 1. Since DFT is

The maximum frequency of is limited as Nyquist sampling rate

is limited in frequency by Nyquist sampling rate.

Matlab example

Input Design

1. Ex.3.2



1. Using Random Binary Sequence (RBS)
   1. the number of sampling = 200



* 1. the number of sampling = 2000



