

LMS sender

Document, LMSsender.mdd, generates a single sinusoid at a normalized frequency of $f_0=0.2$ to which the additive white Gaussian noise is added. The relationship between the amplitude of the sinusoid and the standard deviation of the noise is defined by the Signal and Noise Ratio (SNR). LMSsender.mdd creates two TCP/IP channels, the first for sending the noisy signal, and the second for sending the pure sinusoid as the desired signal. The simulation is ran using 1000 samples per second and SNR set at 10dB. All the processing is done using the function, send().

```
send( )
```

```
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```
{
  1 c1 := channel create("d_sig" , "write")
  2 c2 := channel create("u_sig" , "write")
  3 ct := 0
  4 n := 1000
  5 ts := 1/n
  6 f0 := 25
  7 SNR := 10
  8 sigma := sqrt(1/(10^(SNR/10)))
  while(true)
  {
    1 dat := col2vec(curve2d(x , ct , ct+(n-1) * ts , n) , 0)
    2 dat1 := sin(2 * pi * f0 * dat)
    3 dat2 := dat1 + normrandvec(0 , sigma^2 , n)
    4 ct += (n * ts)
    5
    9 6 w1 := channel write(c1 , dat1)
    7 print("channel 1 sending " + to string(size(w1)) + " data")
    8 w2 := channel write(c2 , dat2)
    9 print("channel 2 sending " + to string(size(w2)) + " data")
    10 sleep(1000)
  }
  10 channel close(c1)
  11 channel close(c2)
}
```