September 12, 2021

MATLAB exercise program for Gargi.

1. Generate a set of sinewaves based on the following specifications.

where *i*=1,2,3,…, 100; *ai* is a uniformly distributed random number between 30 to 90; *ωi* is a uniformly distributed random number with values between 2π/600 to 2π/400; *θi* is a uniformly distributed random number between π/8 to π/3; and *n=*[0:0.1:30].

1. Using the 100 sinewaves generated in step a above, plot all the waveforms on one set of axes where the horizonal axis is n and vertical axis shows *xi(n)*’s.
2. Generate a sample-by-sample average of the 100 sinewaves generated in part a and plot the resulting average waveform together with the 100 sinewaves on one set of axes. Please see figure 2 below as an example
3. Repeat part a through c above 5 times. Make sure that for each of the 5 times, the random values for *ai , ωi* and *θi* are distinct. Hence, you will get 10 plots: repeating a through c five times.

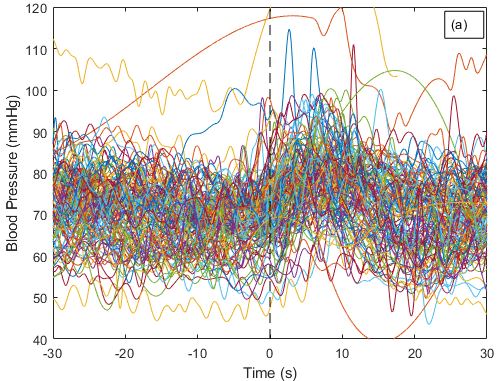


Figure : Plot of various blood pressure waveforms. This resembles what we are simulating and plotting in part b above

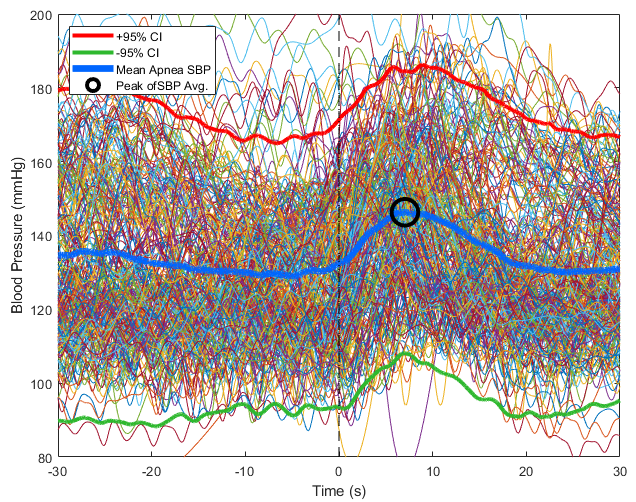


Figure : The blue line above resembles what we are simulating in part c above