**CSC 745 Advanced Multimedia Programming**

**Assignment: Calculate RMS power in an audio signal**

**Discussion**

RMS (root-mean-square) is the standard way to measure the power of a signal. The algorithm is simple: over some period of time (the window), square the sample values, sum them, divide by the number of samples, and take the square root:

sqrt(1/n \* (x[0]\*\*2 + x[1]\*\*2 + … + x[n-1]\*\*2)),

where x are sample values and n is the number of samples in the window. Repeat this process for every window in the audio waveform. Because you’re not tapering the edges of the window, as in the short-term Fourier transform, it’s not necessary to overlap the windows.

**Specifications**

Complete the program *Asn\_RMS.py* to calculate and plot the rms values, over 25 ms windows, for the test speech. You are given code to read the sound file and to plot the sound and the corresponding rms array. Your task is to write calc\_rms() – do not change any code outside that function. Example output, from a different utterance than the one you’re given, is shown below.

**Deliverables**

Submit your .py file on Blackboard. I only need your .py file. If you developed your code on Jupyter, export the python code and submit the .py file. Do not compress your file. I don’t need any sounds you experimented with. I will test your program with my sound files, which may include files other than the default provided in the assignment folder. Do your own work – your program will be compared against all others by a comparison program that is designed to work on computer code.

**Example Output**

