Homework on Speech Analysis

By Li Deng (4/9/2009)
Due date: 5/14/2009 (hardcopy in class)

Step 1: Audio File Input/Output (digitization of sound): Prepare two sound files, one speech and one music. Read in and plot the waveforms (you may use the Matlab code segment in “USER MANUAL FOR MSR-UCLA VTR-FORMANT DATABASE”)

Step 2: Speech analysis by LPC and Spectrograms: - Use the two files above. Give brief explanation of what you have done. (you may use the Matlab code segment in “USER MANUAL FOR MSR-UCLA VTR-FORMANT DATABASE” and analysis tools in Matlab and other toolboxes such as http://www.ee.ic.ac.uk/hp/staff/dmb/voicebox/voicebox.html)

Optional: Step 3: Speech analysis by formant tracking – Use the two files above. Give brief explanation of what you have done. (you may use the analysis tools in praat or wavesurfer)
Homework on Speech Spectrogram Analysis and Reading

By Li Deng (4/16/2009)
Due date: 5/21/2009 (hardcopy in class)

Step 1: Utter the following words and record them into separate files:
1. I
2. we
3. you
4. oh
5. way
6. gig
7. gag

Step 2: For each of the above utterances, compute and plot the respective spectrogram.

Step 3: For the following utterance in the form of spectrogram:

1) Segment each of the phones in the utterance;
2) Hypothesize one or more phone candidates for each of the segments identified above;
3) Hypothesize all words from these phone candidates
4) Optional: Trace F1, F2, and F3 trajectories by eye and by hand;