

11-20-96

Minimal progress has been made with our project:

After researching the issues involved in speech recognition, we decided to begin with vowel recognition. This is because many components of speech contain sharp, discontinuous components (like the s in components). Therefore, we will resolve vowel recognition and continue from there.

For vowel recognition we recorded a 1 second sample of each member in our group saying a, e, o and u. We "normalized" the samples to remove any DC components and also choose the sample vector length in matlab to be a power of 2 (allowing the wavelet transform to be fully complete an integer number of levels). Our plan was to take the vocal samples, perform a wavelet transform and compare any test vocal sounds to the "training" data to determine who the speaker is. When we proceeded to do these tests, the data produced by the wavelet transform didn't correspond to what we had predicted. Feeding sample signals like an impulse and chirp into the "dwt" (discrete wavelet transform) command produced obviously WRONG results. Likewise, our audio signals which clearly showed low frequency components in the fft spectrum showed HIGH frequency components in the Wavelet domain.

After a lengthy discussion with Jan Odegard on Thursday 10-21, we determined that the matlab code was malfunctioning for owlnet users. On Monday 11-25, I acquired an account on the ece machine Jazz. I immediately tested the matlab toolbox and it appears to work correctly. Our gang plans on conducting all future experiments on Jazz.