

**MMI505/606**  
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**Spring 2009**

*Assignment 3: Audio Feature Extraction*

Due Thursday, February 26, by the beginning of class. Please upload a zip archive of your code and binary to the course wiki.

1. Download and play around with the MATLAB-XM toolkit. What works? What doesn't?
  
2. Write a standalone executable (e.g., OS X BSD shell tool) that can extract simple features of an input mono sound file and report the values to the console. It should report
  - a. the rms sample value (absolute and dB)
  - b. the maximum sample value (absolute and dB), and
  - c. the spectral centroid of the file in Hz.
  - d. the log attack time (in seconds)
  - e. the temporal centroid (in seconds)

The program should take as an argument the name of the sound file on which it should run. For example, typing

```
FeatureExtract mysound.wav
```

should print out the feature data on the file `mysound.wav`.

3. Run your application on the Huun Huur Tu WAV file provided with the MATLAB XM distribution. What values does your application report?
  
4. Experiment for fun with several other sound files. Does your code behave as expected? Report any problems you had along the way in developing your application.

Extra Credit:

Provide feature vectors rather than static features for the entire sound file. Allow the user to specify the hop size used, and write the output data to an ASCII text file.