

With the basic formula implemented for ICLD's, the first order of business for today's lab is to research HRTF's (head related transfer functions) and how to lookup data from the ICLD calculation with a HRTF. A good site that I am reading concerning 3D audio and HRTF's is:

http://interface.cipic.ucdavis.edu/CIL_html/CIL_HRTF_database.htm

The UC Davis CIPIC HRTF database is a public-domain database of HRIR (head related impulse responses) of 45 different subjects at 25 different azimuth angles and 50 different elevations (1250 directions). At this time, I am only interested in the azimuth angle data. According to the above site, the database includes Matlab tools so this may be a good source for HRTFs. A paper describing the database and its uses is available at:

http://interface.cipic.ucdavis.edu/data/doc/CIPIC_HRTF_Database.pdf

EarLab at Boston University provides an excellent online interface to the database that is searchable by subject, elevation ranges, and azimuth ranges. Additionally, I have downloaded the partial database and the associated Matlab tools, but I've encountered a problem when running it on Matlab 7. I will continue to debug the problem, and also overlook the 3D arrays that constitute the HRTF (or HRIR, I'm not sure yet.) to incorporate them with my code.

After downloading a few more .mat files from the same source, it appears that the files are incompatible with the version of Matlab I am using. I will attempt to open them with an earlier version, and if that succeeds, I may have to export them as CSV files or something equivalent.

After some Google searching, I found a collection of HRTF's that were created as part of the Listen Project:

<http://listen.gmd.de/index2.html>

The website for the HRIR database is:

<http://recherche.ircam.fr/equipes/salles/listen/>

Like the CIPIC database, the data is also contained in Matlab form, so this may prove to be a useful source for HRTF's.

The Matlab files from the Listen database loaded fine, and they provide both raw (uncompensated) and compensated data. For the time being, this is the data I will use to test my program functionality.

I will eventually have to choose a common format for HRTF's so different subjects can be selected when decoding the audio information. Most likely, this will simply mirror the format of an existing database for ease of data importing.