

Math 399 Lab II - Spring 2018

Free Field HRTF Measurements

Please submit all lab report parts on the Moodle page for MAT399.

Time-stamp determines the submit time, due by midnight on the due-date.

Due: Tuesday, February 20

This lab follows the same measurements as in lab1 but now we are using the binaural mics set up in a similar arrangement to the dummy head. We can either use a documented interaural mic distance, or simply our textbook default for the head radius $a = 8.75$ cm to model the separation of the two microphones in the dummy head.

In the lab, follow the calibration and settings outlined by Professor Dixon during Monday's lab class.

You will use chirp signals which are constructed from the chirp signal generator that you wrote for project one, using linear chirp interpolation.

Use these settings to set up the recording system, and record chirp responses to the following chirp signals, with sample rate 44.1 kHz, each going from 20 Hz to 20 kHz:

1. duration 256 samples
2. duration 512 samples
3. duration 1024 samples
4. duration 2048 samples
5. duration 100 milliseconds
6. duration 500 milliseconds
7. duration 1000 milliseconds
8. duration 2000 milliseconds

Arrange the binaural microphones on the same plane as the midpoint between the top and bottom drivers on the speaker. Record the chirp signals once for each azimuth angle going from -90 to 90 degrees (coordinate system A in the text) using increments of 30 degrees.

For this lab, write up a report and submit to Moodle with your wave files all in one folder. The report should describe any particular apparatus that you used to set up the measurements.