

Reading assignment: “A tutorial on MPEG/Audio compression, D. Pan, IEEE MultiMedia, Summer 1995. This will cover some details on wideband audio coding that we covered only briefly in class. Contribute to the courseworks discussion as usual.

<http://www.ee.columbia.edu/~dpwe/e6820/papers/Pan95-mpega.pdf>

Practical assignment: This week we will use time differences between microphones to detect activity of different sources.

In the Meeting Recorder section of my Sound Examples web site, you will find the stereo sound-files pzm12a.wav and pzm34a.wav, each containing two channels of a 5 minute recording made from a set of four microphones arranged along the middle of a conference table during a meeting. The function xcorrpeak.m will take two waveform segments and return the sample index of the peak of their cross-correlation i.e. if the second signal is a delayed version of the first, the result will be the delay in samples.

- (a) Use this function to calculate the best-fitting timing skew for every half-second frame from the two waveforms, and make a scatter plot of skew(chan1 → chan2) versus skew(chan3 → chan4).
- (b) How does the scatter plot look if you make the time windows shorter? What about longer? What do you think are the issues in choosing the best time window?

Project: Be sure to keep up your steady project progress as the semester moves into its last few weeks.

Please remember to submit your comments on the midterm presentations to me (if you have not done so already) so we can collate and return them.