Project 1: Estimation Techniques of Formant Trajectories

EE 516
University of Washington
Spring Quarter 2009

- This is one of a set of software-related projects designed for the class aimed to practice the class material and to develop the skills in implementing the algorithms discussed in the class. Each student can select one or two projects and each project will consist of a team of students.
- Project 1 outlined here aims to practice the formant tracking techniques and examine the relationship of transitional formant movement patterns to their phonetic content. The secondary objective is to enhance the understanding of the spectrogram reading material. The third objective (optional) is to expand the formant database.
- The ideal team size is 4 to 5 students. They are expected to work collaboratively.
- Due date of the project report and presentation: first week of June, 2009.

- Project outline: Write programs in Matlab (or choose another tool) to implement 3 to 5 different formant tracking algorithms taught and discussed in the class. Perform visual examination of the quality of the programs’ outputs by overlaying the outputs on the spectrogram display of the input speech sentences (you may use the GUI tool as the .m files under the directory IPAM05-MSR-project-gui, or write your own tool).

- Recommended speech material: dr8 portion of the TIMIT database in the training set.

- Optional software tools: a set of .m files under the directory IPAM05-MSR-project-gui mainly for the following optional component of the project.

- Optional part of the project: Use the tool above, especially with user interface and data input/output calls, to correct the errors due to the imperfection of the tracking algorithms (not due to programming errors) exploiting extensively the knowledge learned in the speech analysis and spectrogram reading classes.

- Project presentation will be scheduled sometime in June, 2009 during the final week of the quarter. The project report will be collected about the same time.