

L²F – Spoken Language Systems Laboratory Project LECTRA



Producing automatic transcriptions of classroom lectures may be important for both e-learning and einclusion purposes.

The greatest research challenge is the recognition of spontaneous speech (error rate much higher than for read speech). Even human produced transcriptions would be very difficult to understand because of the absence of punctuation and the presence of disfluencies (filled pauses, repetitions, hesitations, false starts, etc.). Hence, one has to enrich the speech transcription by adding information about sentence boundaries and speech disfluencies.

The goal of the national project LECTRA - Rich Transcription of Lectures for E-Learning Applications - is the production of multimedia lecture contents for e-learning applications. We shall take as a pilot study courses for which the didactic material (e.g. text book, problems, viewgraphs) is already electronically available and in Portuguese. This is an increasingly more frequent situation, namely in technical courses. Our contribution to these contents will be to add, for each lecture in the course, the recorded video signal and the synchronized lecture transcription. We believe that this synchronized transcription may be especially important for hearing-impaired students.

The project will encompass 5 main tasks. In the first one we shall collect the training and test material (in terms of recorded audio-video signals and textual data) related to this course. In the second task we shall use this training data to adapt the acoustic, lexical and language models of our large vocabulary continuous speech recognizer to the course domain. The third task has as a goal to "enrich" this transcription with punctuation and structural metadata (e.g. marking sentence boundaries, disfluencies) that would render it more intelligible. The fourth task deals with integrating the recorded audio-video and corresponding transcription with the other multimedia contents and synchronize them according to topic, so that a student may browse through the contents, seeing a viewgraph, the corresponding part in the text book, and the audio-video with the corresponding lecture transcription as caption. The final task is user evaluation for which we intend to use a panel of both normal hearing and hearing impaired students.