

Evaluation of Speech Detection Algorithm

Project 1b

Due February 14th



Overview

- Experiments to evaluate performance of your Speech Detection project (proj1)
- Focus not only on how the algorithm performs, but also
 - the formulation of hypotheses
 - design, implementation and analysis of experiments to test the hypotheses
 - writeup



Measures of Performance

- *User perception*. Some possibilities are:
 - User opinion (rating) on quality
 - Understandability
 - Errors in listening ...
- *System impact*. Some possibilities are:
 - CPU load
 - Size (in bytes) of sound recorded (without silence)
 - Interrupts
 - Processing time
 - Memory use...
- Decide on how each is to be measured
 - Example: 1-10 for perception
 - Example: Time for CPU



Independent Variables

- At least two. Possibilities:
- Speaking tests: counting, vocabulary,...
- Other languages: Hindi, Chinese, Pig-Latin, ...
- Personal characteristics: Gender, Age, Shoe size ...
- Background noise: quiet, noisy, Patriot's game, ...
- Other systems: Win, Linux, Dell, Compaq, Amiga...
- Hardware: cheap microphone, sound card
- Other audio quality parameters: rate, size, ...
- ...



Algorithm Modifications

- Possibilities include:
 - Thresholds.
 - Sound chunk size.
 - Endpoint detection length.
 - Other modifications specific to your implementation.
 - ...
- Formulate hypotheses
 - About how a change in the independent variables affects your measures of performance



Results and Analysis

- Details on results and analysis
- Results are numeric measures
 - graphs, charts or tables
- Analysis manipulates data
 - understand relationships
 - interpreting the results
- Consider if data supports or rejects the hypotheses

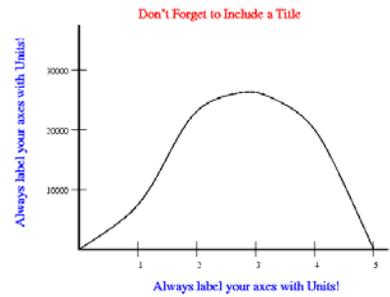


Report

- Introduction
 - hypotheses and motivation for them
 - (not on silence detection, in general)
- Background on your algorithm
- Design of your experiments
 - details on all of above
- Analysis
- Conclusions
 - summarize findings
- Abstract
 - 1 paragraph that abstracts whole report
 - Write last, goes first



Hints



- Gnuplot or Excel



Hand In

- Online turnin (see Web page)
 - Send group info
- Turn in:
 - Any testing Code/Scripts used/modified
 - Makefile/Project file
- Hardcopy

