

## Evaluation of Speech Detection Algorithm

Project 1b

Due February 14th



## Overview

- Experiments to evaluate performance of your Speech Detection algorithm (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
  - 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...
- 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
- Background on your algorithm
- Design of your experiments
  - details on all of above
- Analysis
- Conclusions
  - summarize findings
- Abstract
  - 1 paragraph
  - Write last, goes first



## Hints



- Gnuplot or Excel



## Hand In

- Online turnin (see Web page)
  - Send group info
- Turn in:
  - Code
  - Makefile/Project file
- Via email

