

EDGES 2010 Proposal: Speech Made Visible

Abstract

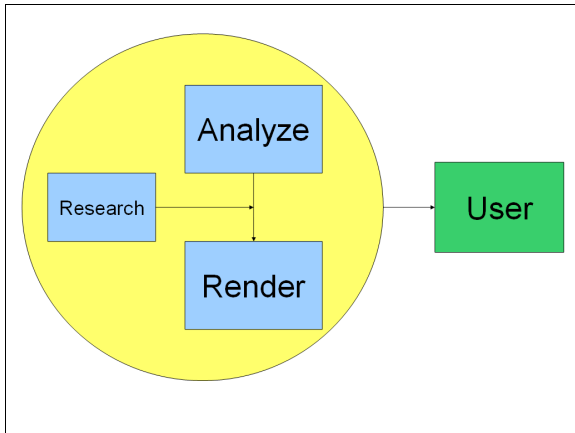
We are proposing a modified, interactive poster session demonstrating our "Speech Made Visible" (SMV) project. SMV is an experiment in conveying some of the prosodic attributes of spoken language (pitch, intensity, and speed) in written text. Our aim is to create an application that non-experts can use to create text with visual features corresponding to the audible ones of a recording of the same words spoken aloud. The presentation would cover our theory and research, our prototype application, and the history and future of the project.

In its current state, the SMV prototype takes a recording of speech and a transcript, finds word boundaries and prosodic metrics, and renders text in a variety of styles.

Our display would include a poster and two or three computers (we can supply laptops). The poster, designed to be easily read by several people standing around the display, would explain the purpose of the project with short pieces of text and illustrations. One computer would be running a presentation explaining the SMV project in loop/kiosk mode. The second computer would have our web-based application open so attendees could experiment with it themselves. The third, optional computer would be running a short documentary about the project (we'd include a set or two of headphones for people watching the documentary).

This project arose in the intersection of classical, visual, and digital rhetorics, but also draws from speech research, computational sound analysis, visual design, software development, and other fields.

Presentation / Poster Images



understanding the shape of speech

Prosody

volume
stress
pitch
rhythm
intonation

value @ time + syllable @ time

= value @ syllable

COLOR
(more specifically, hue)

spacing

How can we represent these?

font **weight**

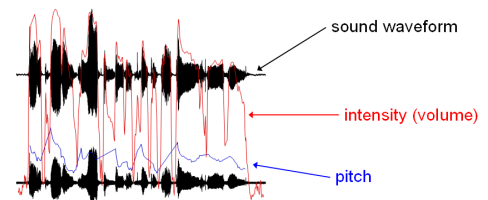
CONTRAST

(a.k.a. brightness)

Vision:

Create a system for making written text that encodes the emotional content of speech

Anatomy of a Spoken Phrase



"and a quarter dropped from your pocket stands on end" 📢

Web Application Screenshots

Speech Made Visible Annotating text with the qualities of speech

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Speech Made Visible is an application for showing some of the qualities of speech in printed text. It analyzes a recording for attributes like pitch, intensity (loudness), and speed; then it styles the words in a transcript with color, size, and position to suggest those characteristics.

Speech Made Visible

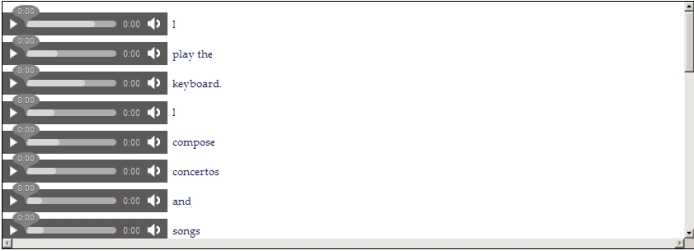
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Edit transcript for Sarah-poem-clip

Analysis found 27 word-sounds in your audio file, and your transcript contains 25 words (or phrases connected with underscores). Use this page to listen to the individual word sounds and edit your transcript so it matches up with the audio clips. Play each clip and see if the transcript words next to it are the right ones.

If an audio clip contains multiple words, edit the transcript below and connect the words with underscores (eg "and a" becomes "and_a"). If an audio clip is just part of a word, add an underscore by itself to that place in the transcript to let the renderer know to put the next word with a later sound.

I play_the keyboard.
I compose concertos and songs on blank pages.
Fingers gliding_words I_am finding,
The_sounds_of_each letter forming notes,
Guiding_my hopes, success_for_won'ting ego to_gloat.



Sarah-poem-clip

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I play the keyboard. I compose concertos and **songs** on blank pages. Fingers gliding, words I am finding,
The sounds of each letter forming notes, Guiding my **hopes**, **success** for won'ting ego to

0:00 0:12

Switch stylesheet

... or, choose a specific display mode (intensity is the same as volume):

| Switch | Intensity | Pitch | Velocity | Background |
|-----------------------|----------------------|-----------------------------|----------------|------------|
| click | font weight | color | letter spacing | white |
| click | font size | vertical position | word spacing | white |
| click | font weight | vertical position | word spacing | white |
| click | font weight and size | color and vertical position | word spacing | black |

Choose a base text size:

- 14 pixels
- 16 pixels
- 18 pixels
- 24 pixels
- 36 pixels
- 48 pixels