What We’re Talking About When We’re Talking About Sound

Tanya Clement, Assistant Professor
iSchool
University of Texas at Austin
HiPSTAS

1. Introducing High Performance Sound Technologies in Access and Scholarship

2. A brief look at current sound/text technologies

3. A brief history of sound technologies and information science

4. Four use cases
Welcome to HiPSTAS

By Tanya Clement | Published: NOVEMBER 14, 2012 | Edit

The HiPSTAS application is now available!
DEADLINE EXTENDED to February 1, 2013
Please apply.

Welcome to HiPSTAS (High Performance Sound Technologies for Access and Scholarship).

http://blogs.ischool.utexas.edu/hipstas/
Recording equipment in the back of John Lomax’s car, late 1930s. (American Roots Music 60)
The 1930s PRESTO Model “K” Recorder
Acetate and aluminum PRESTO disc used by Alan Lomax
Reel-to-reel tape recorder/reproducer.
The State of Recorded Sound Preservation in the United States: A National Legacy at Risk in the Digital Age

August 2010

http://www.clir.org/pubs/abstract/reports/pub148
HiPSTAS collections

- poetry from PennSound at the University of Pennsylvania
- folklore at the Dolph the Briscoe Center for American History at UT Austin
- speeches at the Lyndon B. Johnson Library and Presidential Museum (LBJ Library) in Austin
- storytelling traditions at the Native American Projects (NAP) at the American Philosophical Society in Philadelphia
HiPSTAS is NOT about searching or analyzing sound by searching or indexing text
Closed Captioning Search

Query-Free News Search

Monika Henzinger
Google Inc.
2400 Bayside Parkway
Mountain View, CA 94043
USA
monika@google.com

Bay-Wei Chang
Google Inc.
2400 Bayside Parkway
Mountain View, CA 94043
USA
bay@google.com

Brian Milch
UC Berkeley
Computer Science Division
Berkeley, CA 94720-1776
USA
milch@cs.berkeley.edu

Sergey Brin
Google Inc.
2400 Bayside Parkway
Mountain View, CA 94043
USA
sergey@google.com

ABSTRACT

Many daily activities present information in the form of a stream of text, and often people can benefit from additional information on the topic discussed. TV broadcast news can be treated as one such stream of text; in this paper we discuss finding news articles on the web that are relevant to news currently being broadcast.

We evaluated a variety of algorithms for this problem, looking at the impact of inverse document frequency, stemming, compounds, history, and query length on the relevance and coverage of news articles returned in real time during a broadcast. We also evaluated several postprocessing techniques for improving the precision, including reranking using additional terms, reranking by document similarity, and filtering on document similarity. For the best algorithm, 835-915 of the articles found were relevant, with at least one relevant article within the top 10 retrieved.

For both of these systems, the producer of a program (or commercial) chooses relevant documents by hand. In fact, the producer often creates new documents specifically to be accessed by TV viewers. To our knowledge, there has been no previous work on automatically selecting web pages that a user might want to see while watching a TV program.

In this paper we study the problem of finding news articles on the web that are relevant to TV broadcast news. We

LBJ ORDERS SOME NEW HAGGAR PANTS

August 9, 1964 - 1:17 p.m.

In this telephone call, which has become one of the more famous exchanges LBJ recorded, the President asked a leader of the Haggar clothing company for some custom-made pants, providing specific (and sometimes graphic) instructions on how they should be customized for him.

LISTEN >>

Original tape: WH6408-16 PNO 4

DRAFT TRANSCRIPT

Presidential Recordings Program, Miller Center of Public Affairs, University of Virginia

http://whitehousetapes.net/
President Johnson: Joe, is your father the one that makes clothes?

Haggar: Yes, sir. We’re all together.

President Johnson: Uh-huh. You-all made me some real lightweight slacks that he just made up on his own, sent to me three or four months ago. It’s a kind of a light brown and a light green, rather soft green and soft brown.
President Johnson’s Television Report Following Renewed Aggression in the Gulf of Tonkin

There were no U.S. losses. The performance of commanders and crews in this engagement is in the highest tradition of the United States Navy.

But repeated acts of violence against the Armed Forces of the United States must be met not only with alert defense, but with positive reply.

Based on a history of sound machines, psychoacoustics and information theory

1. The **phonoscope**: reproducing the speaker’s voice
2. The **ear phonoautograph**: the middle ear and tympanic instruments
3. The **audiometer**: the inner ear and psychoacoustics

Jean-Pierre Rousselot’s “phonoscope” (1880s). From Richard Sieburth’s “The Sound of Pound: A Listener’s Guide” on PennSound
Alexander Bell and Clarence Blake, ear phonograph, 1874
Detail of a phonautogram made in 1859 made from Scott’s early phonaugraph
Writing tempo and volume
Carl Seashore, audiometer, 1899
In the 1940s and ‘50s, the spectrographic display at Bell Telephone Laboratories
http://www.spectrogramsforspeech.com/
Hz, a unit of frequency

Energy represented by a heat based color scheme.
- **White** – hottest, most intense
- **Yellow**
- **Red**
- **Green**
- **Blue**
- **Black** – coolest, least intense

Time
Use case #1: same content, different voices

Spectogram created with ARLO of the line “... some such thing.” (by OpenMary, Gertrude Stein, and Gregory Laynor) from Gertrude Stein's The Making of Americans
Use case #1: same content, different voices

Spectogram created with ARLO of the line “... some such thing.” (by OpenMary, Gertrude Stein, and Gregory Laynor) from Gertrude Stein's *The Making of Americans* generated by ARLO (Adaptive Recognition with Layered Optimization)
Spectogram created with ARLO of the line “... some such thing.” (by OpenMary, Gertrude Stein, and Gregory Laynor) from Gertrude Stein's *The Making of Americans*
Use case #2: same content, same voices

Pound’s Canto XLV recorded in Harvard, 1939 and DC, 1958
Pound’s Canto XLV recorded in DC, 1958 and Harvard, 1939
Use case #2: same content? Same voices

“design” vs. “delight” in Pound’s Canto XLV recorded in DC, 1958 and Harvard, 1939
Use case #3: finding similar patterns

“Forgive me” in William Carlos Williams, “This is Just to Say”, Dec., 1951, Harvard
Use case #3: finding similar patterns

Finding “Forgive Me” in ARLO
Use case #4: finding different patterns

Frost reading poems on Side B. of William A. Owens’ folklore recordings
Use case #4: finding different patterns

Frost reading poems on Side B. of William A. Owens’ folklore recordings
Use case #4: finding different patterns

Ojibwe:
The Language of Teaching,
The Language of Prayer

Larry Aitken, Tribal Historian, Leech Lake Band of Ojibwe
Courtesy of Penn Museum
Use case #4: finding different patterns

Excerpt from a 2007 interview with Larry Aitken, the tribal historian from the Leech Lake Band of Ojibwe conducted by Dr. Tim Powell when he was director of the Center for Native American studies at the University of Pennsylvania. The second image has been tagged by a user to show the different ways that English, spoken Ojibwe, drum beats, and chanting are visualized.
Use case #4: finding different patterns

Excerpt from a 2007 interview with Larry Aitken, the tribal historian from the Leech Lake Band of Ojibwe conducted by Dr. Tim Powell when he was director of the Center for Native American studies at the University of Pennsylvania. The second image has been tagged by a user to show the different ways that English, spoken Ojibwe, drum beats, and chanting are visualized.
What are we talking about when we talk about sound?

- Tempo, pitch, tone/timbre, dynamics
- Damping ratios, gain, frequencies, spectra, energy, and pitch energy
- What do humanists and archivists tag? Laughter, silence, emotions, applause, pauses, feedback, changing speakers, changing tracks, changing genres
Thank you!

Questions?

tclement@ischool.utexas.edu

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