



# Welcome to the Accessible Technology Webinar Series

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# **Captioning Video for the Internet**

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Marsha Schwanke  
Burton Blatt Institute (BBI)  
Syracuse University  
March 9, 2009

# In This Session

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- A. What and Why captions?
- B. Compliance Overview
- C. Guidelines for Transcripts & Captions
- D. Captioning Tools
- E. Steps & Tips for Captioning
- F. Captioning other Formats
- G. Resources

# Let's Get Started ...

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# At a Loss for Words

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“My 13-year-old son and I have one or two TV shows we eagerly anticipate and watch with the ritual energy of sports fanatics – like Heroes. But this season ... we kept missing the shows ... [and go] to the website.”

“But a key part of this experience went missing for me .. the video player [didn’t] offer a “caption” option.

“As a person with a severe to profound hearing loss, I rely on captioning to deliver what I can’t hear. For me, access to the show was reduced to holding on to small bits of dialogue and attempting to make sense of it all. Having any kind of quality discussion with my son while watching the show just wasn’t going to be a part of this experience.”

**Excerpt:** C. Silverman. Abilities Magazine, Winter 2008-2009 (77).

# What are captions?

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- Text of the spoken word and content of media that is:
  - **equivalent**
  - **synchronized**
  - **accessible**
- Who, what, how said & expressed
- Different than “subtitles”
  - Translation
  - Hear but not know language
  - Dialogue, some onscreen text

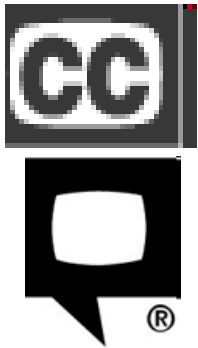


# Types of Captions

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- Open captioning (OC)
  - Always visible - “Burned-in”, “in-vision” media
  - Preferred by Deaf, HOH, ESL



- Closed captioning (CC)
  - Turn on/off – decoder needed
- Real-Time captioning
  - Live audio to text and “synched” delivery
  - Run-parallel via application or web-based clients

# Styles of Captions

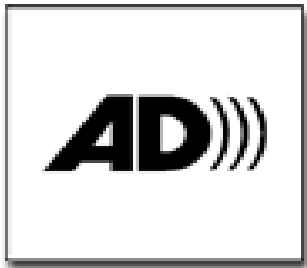
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- **Roll-up or scroll-up or scrolling:**
  - Words appear left to right, up to one line at a time  
When line filled, whole line scrolls up,  
New line appears, and previous top line is erased
  - Usually at bottom of screen, but can be placed anywhere
  - Used in live events, where sequential word-by-word captioning needed
- **Pop-on or pop-up or block:**
  - Stationary block appears anywhere on screen followed by another
  - Used for most pre-taped television and film programming
- **Paint-on:**
  - Whether single word or a line, appears on screen letter-by-letter  
from left to right, ending up as stationary block like pop-on captions
  - Rarely used; most often seen in very first captions when little time available to read caption or in "overlay" captions added to existing caption



# Audio Description

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- Concise, objective description of visual elements, commentary or narration
- Provided by trained Audio Describer
- Delivered via a Secondary Audio Program (SAP) or line in media
- Live Audio Description via headphones and a small transmitter
- Generally used in performing arts, visual arts, TV, and film

# History Highlights

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- “Silent” movies before sound arrived (1927)
- Captioned TV (1970s)
- FCC – Line 21 (1976)
- Real-time captioning (1982)
- Legal mandates (1990s)
  - TV Decoder Circuitry Act of 1990
  - Telecommunications Act of 1996
- And then the Internet ...

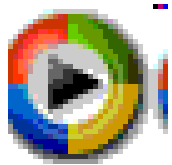
# Internet Explosion: Text to VOD

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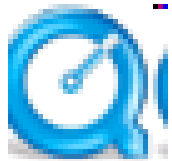
- **THEN:** plain text but want more, technology advanced
- **NOW:** Video On Demand (VOD)
  - **Anyone, anywhere** capture and share video
  - Use of every combo of prefixes *v*, *vid*, *video*, and *vod*:  
“*vlog*, *vodcast*, *vidlog*, *vidcast*, *videoblog*, *vodblog*, *video podcast*, *vcatch*, and ...”
  - Integral part of life and education:
    - (Nov 2008) 146 million Americans watched online videos; streaming total 12.6 billion clips -- double 20 months prior -- Rev Up YouTube, Feb. 28, 2009
  - Many **online courses** provided **entirely** using web multimedia

# Common Media Players

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- Microsoft Windows Media Player



- Apple QuickTime



- Real Network Real Player



- Adobe Flash
  - JW FLV Player

# Survey Says --- Barriers!

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- **(Jan. 2008) Social networking sites lock out disabled users**
  - 5 sites - Facebook, MySpace, YouTube, Yahoo, and Bebo
  - All failed miserably on real user testing for usability & accessibility issues
    - Majority can't register, or participate in on-line communities want to join-- State of the eNation Reports by AbilityNet
- **(Feb. 2009) Flash significant access issues for screen reader users**
  - 71.5% difficult vs. 14.2% easy
    - Varied little per proficiency, time using a screen reader, and disability-- Survey of Preferences of Screen Reader Users by WebAIM

**Sources:** **WebAIM** [webaim.org/projects/screenreadersurvey/](http://webaim.org/projects/screenreadersurvey/);  
**AbilityNet** [www.abilitynet.org.uk/enation85](http://www.abilitynet.org.uk/enation85)

# The Solution ... Captioning

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- **Universal Design** - maximize use by most number of people
  - Deaf and HOH
  - Improves retention and comprehension
  - Breaks through language barriers
  - Environment flexibility: noisy, quiet, shared
- **Searchable Content**
- **Compliance with State and Federal Laws**
- **The Right Thing to Do ... Good Business**

# Who Benefits from Captioning?

## Americans Using Captioning (in millions)

Deaf & hard-of-hearing _____	<b>28</b>	(8-15%)
Children & adults learning to read _____	<b>45</b>	(13-20%)
Learning 2nd language _____	<b>15</b>	(4-10%)
Patrons of public places _____	<b>50</b>	(12-30%)
Users of exercise facilities _____	<b>30</b>	(8-20%)
Total of all categories _____	<b>168</b>	
Overlap _____	<b>50</b>	(est. 30%)
Estimated caption users _____	<b>118</b>	

Source: Caption Colorado <http://captioncolorado.com/about/history.html>

# Education Supports Captioning

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- 76% Video lectures > valuable than other content types
- 54% Transcripts of lectures => valuable vs. video
- 59% Audio with synched lecture notes => valuable vs. video
- 40% English captioning + value

-- MIT OpenCourseWare 2005 Evaluation

- Captioning Improves Reading & Literacy Skills
  - Multi-sensory approach -- Hear, see, & experience the words
  - Motivates slow or reluctant readers, LD and cognitive disabilities, ESL
  - Literacy – reading skills, listening comprehension, vocab & speech patterns, word recognition

-- Research over 20 years by National Captioning Institute (NCI), et. al



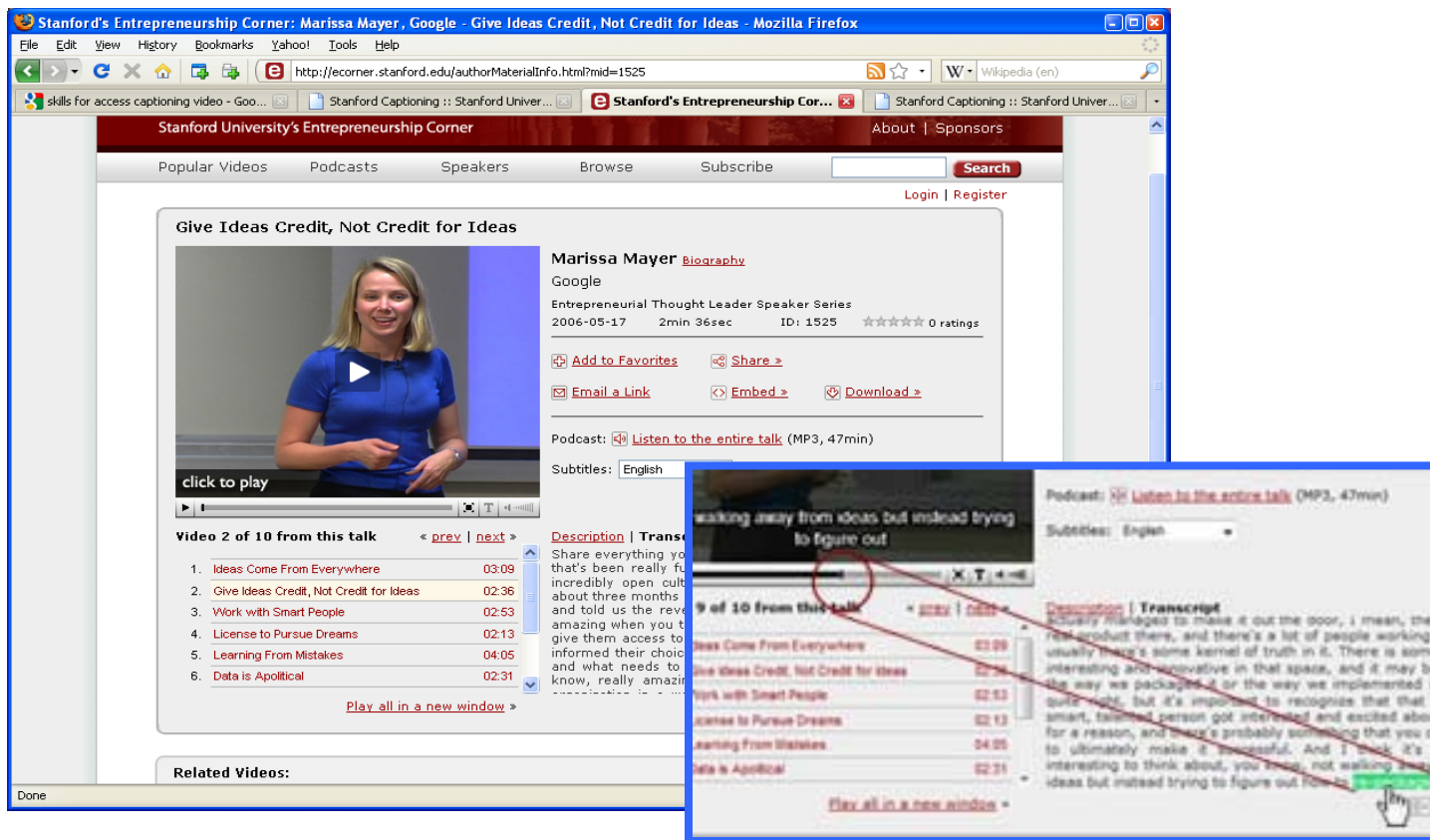
# Searchable Content

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- Reach more people through:
  - Transcript
  - Title
  - Meta data
  - Caption files (synch of text with audio & video)
  - Rapid access to content points -saves time & research
- **(Nov. 2008)** YouTube as search tool over Yahoo
  - Americans 2.8 billion searches, ~200 million > Yahoo
  - Rev Up YouTube, Feb. 28, 2009

# Searchable Example

ecorner: Stanford's Entrepreneurship Corner



# Captioning Compliance

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- ADA
  - Effective communication required for employment, private, public accommodations, government, telecommunications
- Section 508
  - Federal government agencies & contractors must make electronic materials accessible - Video/multimedia 1194.24
- Rehabilitation Act Section 503 & 504
  - Government funded must provide accessible programs and services, regardless of disability
- TV Decoder Circuitry Act of 1990
  - TV sets (screens 13"+) must have built-in decoders as of July 1993
- State Laws - some follow Section 508 or have own legislation



# Captioning: W3C Web Content Accessibility Guidelines (WCAG)

- Development History

1.0 - May 1999    508 - Dec. 2000    2.0 - Dec. 2008    508 Update ~2011

	WCAG 1.0			WCAG 2.0		
Importance of the content	A	AA	AAA	A	AA	AAA
Captions (closed)	X	X	X	X*	X	X
Audio description (closed)	X	X	X	X*	X	X
Full text alternative				X*		X
Sign language						X

\* Choose at least one of the three options

# Captioning Compliance: Standards

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- Section 508 = WCAG 1.0 (1.1)
  - Provide a **text equivalent** for every non-text element (i.e., auditory and visual content.)"
- Section 508 (b) = WCAG 1.0 (1.4)
  - **Equivalent alternatives** for any multimedia presentation shall be synchronized with the presentation
- Section 508 (m) ~ WCAG 1.0 (6.3,6.4,8.1)
  - Include **link to any applet or plug-in required** to access content on the same page as the content
    - Note: Plug-in or applet must meet more specific requirements

# Captioning Compliance: Standards – How Accomplish

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- Equivalent Alternatives
  - Captions (open, closed, real-time)
  - Audio Description
  - Transcript
- Plug-in Access
  - Link to download by content
  - Usable by keyboard, screen reader, magnifier

# Captioning Compliance: Color

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- Information cannot be conveyed by color alone
- Sufficient contrast between background and text/content
  - Brightness Difference (should be  $\geq 125$ )
  - Color Difference (should be  $\geq 500$ )
- Tools:
  - Online Color Evaluation Tool
  - Colour Contrast Analyser Firefox Extension
  - Contrast Analyser - Version 2.0

# Captioning Compliance: Standards - Evaluation

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- Ask – if I can't see or hear the media?
- Are captions and/or audio descriptions synched with action?
- Is transcript link or file near audio file?
- Is link to download plug-in near audio file?
- Can navigate to all controls via keyboard?
- Can screenreader access the controls?





# Planning for Captioning

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## 1. What You Need

- Video or audio file
- Transcript of audio portion of video
- Captioning tool or service



## 2. Develop Plan for Creating Captions

- Delivery of media
- Outline workflow
- Keep in mind: time, \$\$, resources
- Research issues, standards, tools & services

# Planning for Captioning: Delivery of Media

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- **When plan video:** Determine audience, Internet connectivity method, format
- **Issues:** Download time, storage capacity, media players use different formats
- **Types:**
  - **Streaming media (aka VOD)**
    - Live or archived content delivered almost real-time to viewer
    - Experience as download; generally not stored on viewer's system
    - Preferable: large files, can jump forward/back in content
  - **Progressive downloads**
    - Files downloaded to viewer's computer
    - Not have to be completely downloaded before viewing begins
    - Final result is copy of video exists on viewer's computer
    - Not desirable: copyright, larger videos, smaller bandwidth versions

# Planning for Captioning: Workflow and Time

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- Workflow (and Impact of Issues)
  - Staff support: Collaboration of content producers and distributors
  - Production ease and flexibility to:
    - Rapidly changing formats, playback & distribution devices
    - Popularity & availability of video sources
- Time
  - Detailed work, review for accuracy & grammar
  - Must understand non-spoken info & how to convey in captions
  - Transcription most time consuming
  - Total Time: 5-10x length of the video
    - 5 min video** – 25 min to 1 hour
    - 1 hour video** – 15-20 hours
    - 15 min video** – 1.25-2.5 hours
    - 50 videos @ 10 min** – 40-80 hrs

# Planning for Captioning: HDTV Issues with CC

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- HDMI cable cannot transmit CC signals
  - Before: Line 21 broadcaster sends CC to TV
  - Now: No equivalent in HDTV interconnects between display and "source".
- Lack standard to transmit CC between components or HD separate display
  - Only device that decodes data (a source) has access to CC
  - Source needs to overlay CC on picture prior to transmit to display over interconnect.
  - Sources unable to overlay CC, or CC overlay control extremely complicated set-up
- Lack mandate for overlaying to add CC information to a picture

Sources: [HDMI Does Not Work for Closed Captioning](#) - Banjo's World, captioned vlog, Sept 2008  
Closed Captioning#HDTV\_interoperability issues - Wikipedia

# Planning for Captioning

## Example

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- [Stanford Captioning Project](http://captioning.stanford.edu/service.php) (captioning.stanford.edu/service.php)
  - Identified Problems, Solutions, & Timeline
    - Converting various media to web-ready format that works with accessible web-based players
    - Text transcript from audio of media
    - Synch text transcript with media
  - Project:
    - Docsoft:AV Captioning Solution (<http://docsoft.com/>)
      - Tools leverage software with blend of server and desktop applications to quickly and easily produce captioning for digital audio and video content

# Steps for Captioning

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1. Video or audio file
2. Transcript
3. Caption Display: segment & timecode
4. Create caption files
5. Combine caption file with video
6. Publish & distribute captioned media

# Step 1:

## Video or Audio File - Media Players

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### Microsoft Windows Media Player

- **.wmv, .avi** Video File
- **.wma** Audio File



### Apple QuickTime and iTunes

- **.mov, .qt** Video File
- **.m4p** Audio File



### Real Network Real Player

- **.rm** Video File
- **.ra, .ram** Audio File



### Adobe Flash Player

- **.swf., .flv** Video File
- **.mp3** Audio File

### VideoLAN VLC Media Player



- **swf., .flv** Video File
- **mp3, .m4p** Audio File
- Cross-platform media player
- Only player that can display both closed captions and closed audio description
- Keyboard controls
- Screen reader:
  - Labeled buttons
  - Hidden player controls

# Step 1:

## Video or Audio File - Resources

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- **File Extensions Resources**

[www.fileinfo.net](http://www.fileinfo.net)



- **Tech Terms Computer Dictionary**

[www.techterms.com/](http://www.techterms.com/)

- **Basic Script & Production Tips for Accessibility**

- **Producing Programs and Videos for Viewers with Vision Impairment (MAG Guide #2)**

[main.wgbh.org/wgbh/pages/mag/resources/guides/](http://main.wgbh.org/wgbh/pages/mag/resources/guides/)



# Step 2: Transcript

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- Key starting point of accessible video
  - Plain text file (.txt) needed for audio or video file
  - Make link to access before or after media
  - Publish as a text file and/or webpage
- Sources of Transcript
  - Capture from production
  - Typed by hand
  - Voice recognition / speech-to-text software

# Step 2:

## Transcript - Speech Recognition

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- Requires extensive training of software
  - Not viable multiple speakers
- Depends on speaker and topic
  - 10% not fit into normal – goat or sheep
- Environments - difference in trained vs. reality
  - Background, voice fluctuations
- More time & \$\$ vs. transcribe by hand
  - Training and edit start/stop time more vs. transcriber
    - Depending dialogue amount, typing speed (2-3 min. program = 1 hr.)
  - Error rate - 85% avg. accuracy < human
    - 10% error rate = lose text, 20% error rate = lose meaning

# Step 2:

## Transcript – Content

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- Transcribe spoken words and describe other aspects that convey information onscreen and offscreen
  - Narration, dialogue, sound effects, pick-up cues
- Type contractions as spoken (I'll vs. I will)
- Follow standard capitalization & punctuation
- Do not spell out numbers
- **At End:** any captioning credits and identify “end of transcript”

# Step 2:

## Transcript – Content

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- Sentence Size
  - Depends on space for captions and font size
  - Keep in proportion and display 1-2 sentences
- Accurately represent each speaker's words, conversational quality, and speech patterns.
- Change as little as possible – keep original language
  - Word for word, except fillers (i.e. um, huh)
  - Use correct (not phonetic) spelling
  - Do not change sentence structure and grammar (even mispronounce)
  - No “water-down” or rewrite, except require for presentation rate
- Easy to read & consistent – and spellcheck

# Step 2:

## Transcript - Conventions

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- Speaker: Name followed by a colon or >>
- Titles and Reading aloud: *italics*
- Audible breath: hhh
- Unclear audio: <inaudible>, <silence>
- Singing: where possible, surround with musical note icon
  
- Line 21 scroll-up captioning:
  - '>>' = new speaker, one person talking
  - '>>>' = new story in news, two or more people are talking.
  - Capitals frequently used because:
    - Timesaver
    - Many older home caption decoder fonts had no [descenders](#) for the lowercase letters g, j, p, q, and y,.

# Step 2:

## Transcript - NSI

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- Non-sound information (NSI) in parentheses or brackets
  - (laugh, sob, horn honk)
- Types of NSI:
  - Background music if contribute to plot or mood
  - Sound effects: (1) description & (2) onomatopoeia
  - Audience reaction: if part of plot or comedy; describe laughter
  - Convey emotion if not obvious by facial expressions or actions
- Convey emotion & tone with punctuation and description
  - Loud speech – [shouting] HOORAY!

# Step 2:

## Transcript - Preferences

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- Preferences:
  - More explicit description or identify
- Not preferred:
  - Color to identify changes or information
  - Flashing
  - Paint-on captions
  - Italics (vs. explicit definition)
  - Underlining

# Step 2:

## Transcript Example

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[Bang, sound of a door slamming]

Describer: A woman runs hurriedly out of a house and toward her husband who is mowing the lawn.

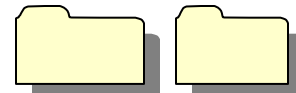
Lisa: Do you know where Scruffy is?!

Describer: Man stops mowing and looks puzzled at his wife.

Dan: I haven't seen him for twenty minutes.

[Sound of digging]

Dan: On no! Scruffy is in the flower beds.





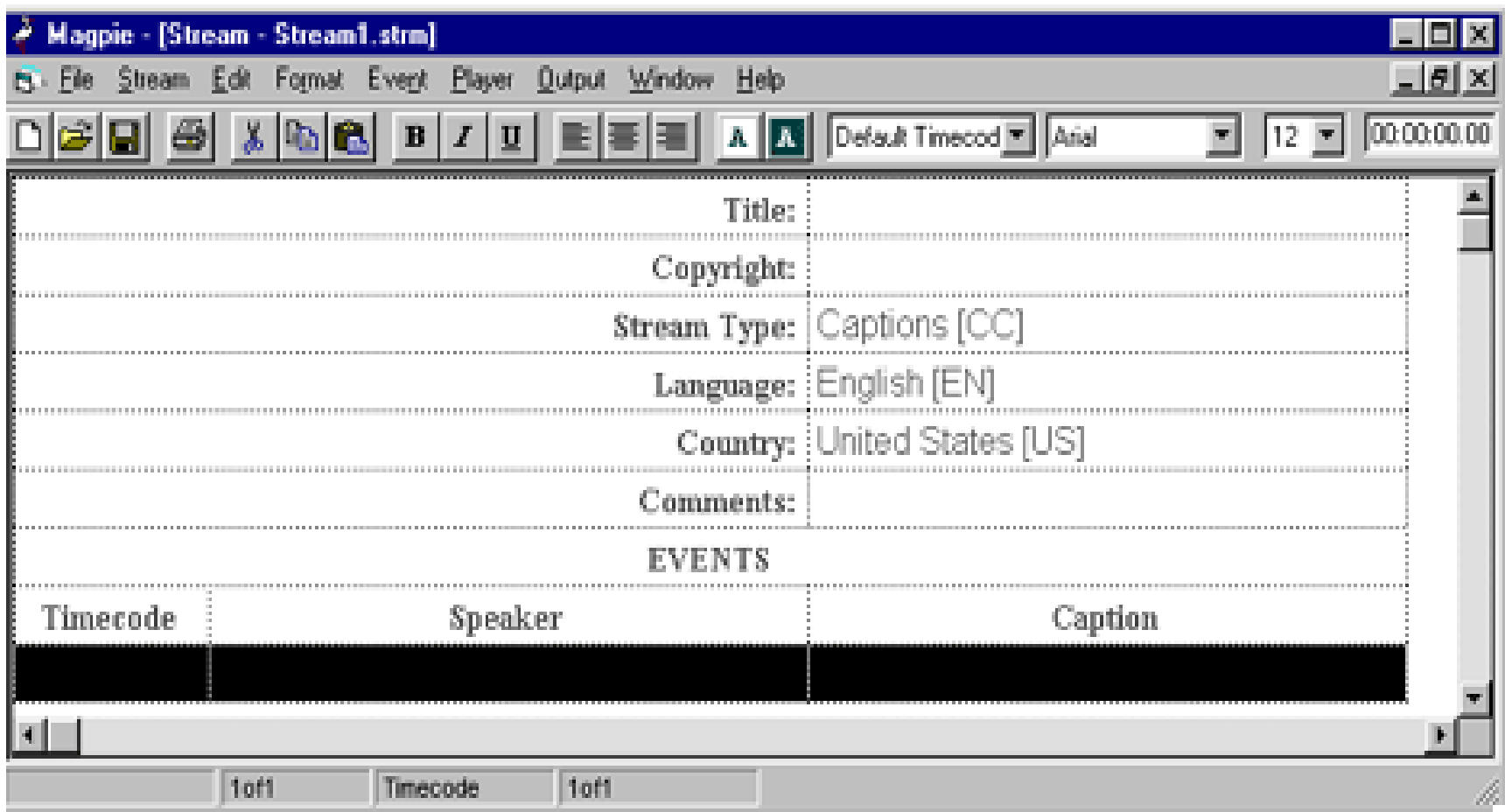
# Step 3:

## Caption Display - Preparation

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- Ensure media edited and final
- Transcript spellchecked
- Before import, reformat transcript – save as .txt file
  - Single space between each sentence
  - Double space
    - Create a new caption
    - Clearing caption / long pause
    - After last line to avoid drop last caption
- Check timecode is 0:00:00.00 and your final timecode is empty caption at end of media

# Step 3: Captions Display – Video Info



# Step 3: Captions Display: Interface

The screenshot shows the HiCaption Studio application window. The title bar reads "HiSoftware® Hi-Caption™ Studio - [ C:\Program Files\HISC\Hi-Caption\seattle.wmv ]". The menu bar includes "File", "Player", "Settings", "Tools", "Events", and "Help". The toolbar contains "Open", "Save", and various playback controls. The main video player area displays the text "Great Reasons to Visit Seattle". Below the video player is a control bar with "Show:" and "Clip: Visit Seattle", "Author: Windows Media Team", "Copyright: 1999, Microsoft Corporation", and "Buffering (0%) 00:00 / 00:34".

On the right side, the "Time and Speaker" panel is visible, showing "Time (ms)" and "Time (sec)" both set to 0, and a "Speaker" dropdown menu. Below this is a table of captioning points:

Time Start	Class	Speaker	Caption
▶ 1000	ENUSCC		Great reason to visit Seattle,
1000	escc-blanca		Una buena razón para visitar
4000	ENUSCC		So you know, there's lots of great
4000	escc-blanca		Sabes, hay montones de buenas
7000	ENUSCC		That's right, I came here because
7000	escc-blanca		Es verdad, yo vengo por el café.
9000	ENUSCC		Yah, everyone knows the coffee.
9000	escc-blanca		Sí, todo el mundo conoce el café.
12000	ENUSCC		And I heard about the drivers.
12000	escc-blanca		Y he oído hablar sobre lo
14000	ENUSCC		Well, you know, but then it
14000	escc-blanca		Bien, sabes, pero entonces
19000	ENUSCC		But the traffic in general is...

At the bottom of the captioning panel, there are buttons for "Add Current", "Step Current", "Add SYNC", "Delete", and "Help". Below these buttons is a "Captioning Points" section with "Source" and "SMIL (RealText)" options.

# Step 3:

## Caption Display – Line Breaks

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- Line breaks work differently on Macs and PC's.
  - Mac: Hit enter to start new line within a caption, works fine.
  - PC: Insert hard return in some text editors, then a line will be skipped before next line of caption begins.
- To fix problem:
  - Use a full-featured text editor (i.e. TextPad, NotePad)
  - If using Notepad, copy then paste in a special character for a line break into the PC text file - looks like a little square.
  - Paste character into your caption file will cause QuickTime to go to the next line.
  - Do not insert a hard return, except before or after timecode, unless you want an empty line to be displayed. Again, using TextPad or another text editor should solve this problem.

# Step 3:

## Caption Display - Styles

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- Contrast background & font color
  - Black/white/transparent background
  - Black/yellow letters
- Case: All caps or mixed acceptable
- Font Type: Sans-serif (Arial, Helvetica, Verdana)
- Font-Size: 12 pt
- Position: Bottom
- Alignment: Left-align or center

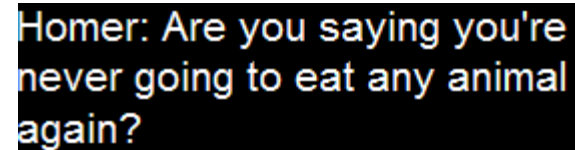
# Step 3:

## Caption Display - Speakers

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- **In-line option:**

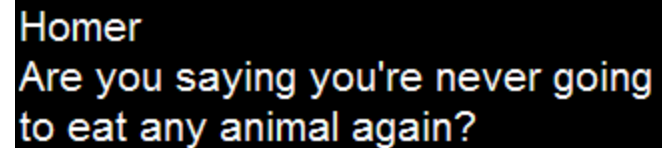
Narrator: This is example.

A black rectangular box containing white text. The text is: "Homer: Are you saying you're never going to eat any animal again?"

Homer: Are you saying you're never going to eat any animal again?

- **Next-line option:**

Narrator:  
This is example.

A black rectangular box containing white text. The text is: "Homer  
Are you saying you're never going to eat any animal again?"

Homer  
Are you saying you're never going to eat any animal again?

# Step 3:

## Caption Display - Size

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- Caption width usually same width as video
- Caption heights ~ 80 px
- Amount of words that can display in the caption area depends on size defined

## Step 3: Caption Display - Line Division

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- Modifier + word modifies      Mark pushed his black truck.
- Prepositional phrase              Mary scampered under the table.
- Conjunction+ line follows        In seconds she arrived and he ordered a Pepsi.
- Verb + word modifies              So I could have eaten a cookie



## Step 3: Caption Display: Line Placement

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- Left-align 2+lines  
Holding at thirty yards...  
Fifty yards and closing!
- If dialogue repeats,  
indent 2<sup>nd</sup> line 2 spaces  
Where are you?  
Where are you?

# Step 3:

## Caption Display - Language

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- Actual foreign words OR use a description. (man speaking French)
- Keep flavor of speaker's language and dialect as necessary to portray a character's personality, including profanity and slang.
  - a. I ain't going nowhere.
  - b. I'm gonna getcha.
  - c. Let's call em.
  - d. She's waitin'.
  - e. I just sort of held me knees in water, and pulled him
- Identify regional accent at beginning of first caption [southern accent]  
If y'all want me to.

# Step 3:

## Caption Display – Resources

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- **Captioning Key: Guidelines & Preferred Styles**
  - 33 page book issued by Captioned Media Program, The National Association of the Deaf in conjunction with National Initiatives Team, OSEP, U.S. Dept. Ed.
  - Online or download PDF file
- **NCAM Accessible Digital Media Design Guidelines**
  - Step-by-step solutions for making various electronic media accessible to users with sensory disabilities
  - Free online or CD available; e-mail [access@wgbh.org](mailto:access@wgbh.org)

# Step 4:

## Caption File – Format & Players

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- Microsoft Windows Media Player
  - SAMI: Synchronized Accessible Media Interchange



- Apple QuickTime
  - QuickTime Text Track,
  - Synchronized Multimedia Integration Language (SMIL)



- Real Network Real Player
  - RealText, SMIL



- Adobe Flash
  - Define in timeline or XML file when display

# Step 4:

## Caption File - SMIL

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- **Synchronized Multimedia Integration Language (SMIL, pronounced "smile")**
  - HTML-like language - a form of XML (Extensible Markup Language)
  - May be written using text-editor, or captioning tool like MAGpie
  - Provides support for multiple languages for audio and text tracks
- Used by QuickTime and RealPlayer
  - Controls where/how multimedia content displayed
  - Points to external file with captions and how/when display captions
    - .rt for RealPlayer and .mov or .txt for Quicktime

### Player Notes:

- **QuickTime:**
  - Not supported before Quicktime 4.1
  - Easier implement if streaming Quicktime video from Quicktime server
- **RealPlayer:** uses for media control but implemented differently

# Step 4:

## Caption File - SAMI

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- Synchronized Accessible Media Interchange (SAMI, pronounced "sam-e")
  - HTML-like language - a form of XML (Extensible Markup Language)
  - Best to use captioning tool for timecode like MAGpie, or Hi-Caption
  - Not case-sensitive and supports CSS
- Used by Windows Media Player
  - Contains captions and defines how/when captions display
  - May use ASX file or in webpage to combine SAMI with media

## Step 4: Caption File - DFXP

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- W3C [Distribution Format Exchange Profile](#) of the Timed-Text Authoring Format 1.0
  - Standard methodology for creation and delivery of captions, especially timing information
- [.srt to DFXP Converter](#)
  - Small JavaScript application that converts existing .srt (Subtitle) files to the DFXP (.xml) file  
---<http://captioning.stanford.edu/convert.php>

# Step 4:

## Caption File – Naming

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- Use consistent naming convention to identify which caption files go to video file
  - Use separate folders for different media caption files
- Both SAMI and SMIL use .smi or smil extension
  - Always save SMIL files with the .smil extension
  - Always save SAMI files with the .smi extension.



## Step 4:

# Caption File - Multiple languages

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- XML File size can impact the performance of the caption display
- Because has to load the whole file, use a single XML Captioning file for each language
- Do not use online translation tools to convert to another language, rarely 100% accurate.

# Step 5:

## Captioning - QuickTime

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- Two methods for captioning
  - QuickTime text track (caption information) as part of QT movie
    - 1 file with audio, video, captions
    - Requires Quicktime Pro
  - Create separate text file (caption) track
    - QT movie and text file put together with SMIL file for layout and combine on-the-fly when movie is viewed.
    - 3 files
- Audio Description: can toggle this track on and off, using either Mac or PC but, must first upgrade to the Pro version.
- To enable captions to work in QT:
  - Save SMIL and QTtext files in separate folders

# Step 5:

## Captioning - RealPlayer

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- Method for captioning
  - RealText file (.rt) contains captions and how/when display captions
  - SMIL file to combine media with a RealText (.rt) file
    - Pointer file contains where/how your captions and media content display.
- Use relative values for font sizes to make captions more accessible to those with visual disabilities. +1 is usually okay
- To enable captions to work in RealPlayer:
  - Save SMIL and RealText file in same folder with video file
  - Make new folder with RealPlayer caption files w/ video copy
- Should be opened with RealPlayer vs. embed due to access issues
  - Link to .RAM file with address of media files or SMIL file

# Step 5:

## Captioning - Windows Media

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- Method for captioning:
  - Use SAMI file contains captions and how/when display captions
  - Combines SAMI and media file through ASX or avoid embed in webpage
- Be careful if open SAMI files with web authoring tools, or word processors
  - Programs tend to reformat code - minor changes may render SAMI file unusable.
- Use em for font sizes to make captions more accessible to those with visual disabilities that may use larger font sizes or screen magnification
- To enable captions to work in Windows Media Player 10 or newer:
  - Saving SAMI file in same directory as your video file
  - Give SAMI file the same file name as your video file
- For captions to display, must usually be turned on manually but how/where depends on which version of Media Player
- Only one caption language can display at a time.

# Step 5:

## Captioning - ASX file

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- **Pointer file** tells Windows Media Player (WMP) files to retrieve and play.
  - Media file and your caption (SAMI) file and have them both play at the same time.
  - For security reasons, if streaming media content, always use an ASX file.
  - To view, create link to the ASX file in webpage, and when selected opens WMP
- **For accessibility, should not embed WM content into web pages**
  - Object & embed tags required but embed is not part of the XHTML standard
  - Lack of accessibility to Media Player plug-in
  - Incompatibilities in versions - WMP for Mac not support captioning
- **Tutorial:**  
[Techniques for Creating Accessible, Closed Captioned Web-Based Video](#)  
by David Klein and K. "Fritz" Thompson

[disability.law.uiowa.edu/lhpdc/publications/documents/kleinetal/kleinthompsoncsun2006.html](http://disability.law.uiowa.edu/lhpdc/publications/documents/kleinetal/kleinthompsoncsun2006.html)

# Captioning Tools & Services

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- Types: DIY, Web/software, Third party
- DIY Considerations
  - Time (5-10 hrs. of work per video hr.)
  - Training, learning curve, & support
  - How much video and room for growth
  - Staff or students and turnover
  - Cost
    - Space, equipment, training, hiring, tech support, mgmt

# Captioning Tools

## DIY- MAGpie

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- Free software developed by NCAM
  - V1 – only Windows media compatible files
  - V2 – any media
- Process: Listen, add caption, & synch by adding timecode
- Export: Multiple formats, including DFXP:
  - MS SAMI, RealText for RealPlayer, Apple QuickTime
  - SMIL, display language for captions in QT and RealPlayer
- "CC for Flash " free component from NCAM to display caption data in QuickTime and DFXP
- If create RealText files, see Instructions clean-up MAGpie
  - <http://webaim.org/techniques/captions/real/#magpie>

# Captioning Tools

## DIY – Hi-Caption

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- Add captions to media created with Flash
- Caption Data Format
  - Viewer component for displaying Hi-Caption XML format
  - Plans support DFXP which supported in Flash CS4 Professional
- Process:
  - Caption & synch while listen or watch media
  - First, caption files are SAMI for use with WMP & RealPlayer
  - Then, can convert to SMIL for RealPlayer with RealText and QT SMIL with QuickTime Text
- Developed by Hi-Software - integrates with access testing & monitoring products

[www.hisoftware.com/hmcc/index.html](http://www.hisoftware.com/hmcc/index.html)



# Captioning Tools

## DIY - Softel Swift

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- Professional captioning workstation solution used by many major caption service providers.
- Offers support for DFXP output

[www.softel-usa.com/captions/swift.php](http://www.softel-usa.com/captions/swift.php)

# Captioning Tools

## DIY - World Caption

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- Free tool to add captions to QuickTime compatible video using transcript
- Requirements: Mac OS X 10.4+
- Features:
  - Drag/drop movie & transcript into program
  - Interpolates timing then you adjust & set
  - Multi-caption tracks available
- Developed by University of Wisconsin-Madison

[helpdesk.wisc.edu/accessibility/page.php?id=6525](http://helpdesk.wisc.edu/accessibility/page.php?id=6525)

# Captioning Tools

## DIY - Subtitle-horse

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- Free online application to add captions to Flash (.flv) videos.
- Exports code in different formats, such as TimedText or SRT.
- Download available (built in Flash/AS3) and can integrate with some video CMS

[www.subtitle-horse.com](http://www.subtitle-horse.com)

# Captioning Tools

## DIY - CC for Flash

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- Free Flash component from NCAM (Version 3.0.1)
  - Use to display captions of Flash video & audio stored in external files in DFXP or QTtext format
- Customizable caption area size, background, color, font
- Two players created by NCAM ease process of providing captioned Flash video and MP3 audio files:
  - [ccPlayer](#): Allows you to embed a FLV player on your Web page
  - [ccMP3Player](#): Plays back MP3 files in web page with caption files
  - Both players:
    - Incorporate CC for Flash component
    - Accessible to screen readers, can be operated solely from keyboard.

# Captioning Tools

## DIY – Captions in Flash

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- How will captions be stored?
  - Embedded in FLV (CCforFlash) - use program like Captionate
  - External text file
  - Internal text object (CCforFlash)
- **FLVPlaybackCaptioning** component
- Support audio description
- Can detect AT –use to enable default controls, behavior
- Accessible interface controls (keyboard, screen reader, magnifier)
  - Flash CS4 Pro improves FLVPlayback video component - makes default player controls accessible automatically, without any coding required
- Skins
  - Display cue points & DFXP caption data, configurable, accessible
  - Flash CS4 Pro support keyboard and screen reader access - just insert FLVPlayback component on the stage in Flash – no configuration needed

# Captioning Tools

## DIY – Optimize Flash Access

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- Assign text equivalents
- Animation: looping elements inaccessible, user control of motion
- Use accessible components – enable Accessibility()
- Enable control over reading order
- Facilitate keyboard access to all controls
- Provide captions
- Provide accessible video controls
- Enable control over audio playback
- Expose structure
- Expose state of controls
- Use color wisely
- Validate for accessibility

# Captioning Tools

## DIY - Adobe Captivate

- Windows application embeds captioning data directly into FLV (Flash Video) files
- Author adds timed “cue points” data displayed by captioning component in Flash
- Support:
  - Jan 2009 – plug-in to export captions in SUB format for use with YouTube
  - 2007- DFXP caption support



# Captioning Tools

## DIY - CaptionKeeper

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- Software tool converts line-21 CC data used in broadcasts to web streaming formats (RP, WMP, QT, & Breeze Meeting - Live)
  - Valuable for broadband technologies, given exponential growth digital versions of TV shows
  - Migrate captions created for analog video to digital formats
- Requires certain hardware and Windows OS (NT,2000, XP)
- Developed by NCAM – contact for demo & pricing



# Audio Description Tools

## DIY

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- Inclusion of audio descriptions via SMIL file
- MagPIE2
- QuickTime Pro
- Adobe [Premiere](#) / [Audition](#)
- Apple [iMovie](#) / [GarageBand](#)

# Captioning Considerations Web/software & Third-Party

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- Research & consider: \$, service, & support
- What media formats - requires actual media in hand?
- Scope & growth to need & technology?
- Budget – balance \$ and time
- What type of caption data files
- Accuracy not perfect - still requires review
- Cut down on people time / save \$\$ – or not?
  
- Integrated systems capture & captioning
  - Echo360
  - Panoptos CourseCast
  - Adobe Acrobat Connect

# Captioning Tools

## Web/software - YouTube

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- (August 2008) - captioning support
- If Your Video File
  - Use native support for CC in YouTube
  - Need .SRT caption file
  - Max 32 characters per line (longer wraps)
  - Upload video then add caption file, id language
- If open caption your video
  - Captions always on, not dependent on YouTube caption
  - More complex production
- If not your video, then must use Overstream

# Captioning Tools

## Web/software - Overstream

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- Captioning tool for videos hosted (Google, MySpace, YouTube)
  - Not copy video but superimpose captioning stream
  - Only viewable with Overstream player
  - Or, use caption-ready Flash player (i.e. VLC Player)
- Need:
  - Overstream account ([www.overstream.net](http://www.overstream.net))
  - Link to video and/or caption file (.SRT)
- Cons:
  - Breaks if video file moved
  - Unable to adjust caption display style

# Captioning Tools

## Web/software - Google Video

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- .GV.TXT - Google Video Transcript file
  - Required to submit to make content searchable
- Videos must be reviewed and pass technical requirements and policies to become live.
  - 1/14/2009 – Soon discontinue support for upload
  - 1/20/2009 – Focus: Video search engine
    - Video Sitemaps: XML file that lists URLs for a site
      - Landing page URL, video thumbnail URL, Title & Description
      - Support Media RSS feeds
- Recommend format:
  - MPEG4 video with MP3 audio or MPEG2 with MP3

# Captioning Third Party Resources

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- Search Video Captioning Service Providers by Location, Service
  - Closed Captioning Web – [www.captions.org/services.cfm](http://www.captions.org/services.cfm)
- AST – Automatic Sync Technologies
- Caption Colorado
- WGBH Media Access Group
- WebWideVideo.com
- Winged Words Transcription Services
- Talking Type Captions
- CaptionMax
- Omega Transcripts
- VITAC
- SubPLY

# Captioning Other Formats

## Adobe Acrobat Connect

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- Flash-based application
  - Adobe Acrobat Connect / Macromedia Breeze
- Extension available for real-time captioning to live meetings
- Hire captioning services

# Captioning Other Formats

## Apple Devices

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- What You Need
  - Video file: .mov
  - Closed caption file: .mp4
- How To Accomplish
  - Specialized tools, time – only on Mac
  - Captioning Media for iTunes
    - Tutorial: [captioning.stanford.edu/itunes.php](http://captioning.stanford.edu/itunes.php)



# Captioning Other Formats

## Podcast Captioning

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Academic Technology  
Report Podcast



Disability Law Lowdown

# Captioning Other Formats

## Movie, DVS, Radio

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- **MoPix:** Making Movie Theaters Accessible
- **Descriptive Video Service (DVS)**
  - National service, WGBH Media Access Group, makes television programs, feature films, home videos, and other visual media accessible to people who are blind or visually impaired.
- **Captioned Radio: Closer to Reality**
  - (Nov. 2008) Deaf & HOH vote yes on new radio technology during live captioned broadcast of presidential election
    - WGBH Media Access Group - technology & host demo
    - Textual data live on-screen of new HD Radio receivers

# To Advance Captioning

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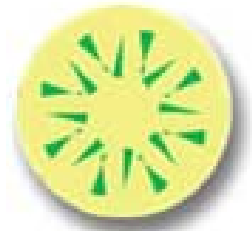
- Model policies & standards
- Develop accessibility statement
- Advocate for more captioned programs
- Promote awareness of accessibility
- Show your appreciation of captioned material
- Participate and support training on captioning
- Compile & share captioning resources

# Questions...

Marsha Schwanke

Burton Blatt Institute (BBI) – Syracuse University

[msschwan@law.syr.edu](mailto:msschwan@law.syr.edu)



ADA  Audio  
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**Web:** [adata.org](http://adata.org)

Coordinated by the DBTAC: Great Lakes ADA Center

**Toll-free: (877) 232-1990** [voice/tty]

# Thank you for Your Attention

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- Your feedback is important. Please complete the evaluation form at [http://www.formdesk.com/idealgrouppinc/dbtac\\_evaluation\\_captioning\\_video](http://www.formdesk.com/idealgrouppinc/dbtac_evaluation_captioning_video)
- and you can always send any comments or suggestions to [jpete@uic.edu](mailto:jpete@uic.edu).