Utilizing Speech-to-Text Resources to Improve Communication

Amanda Demas, B.S. and Amanda Ortmann, Ph.D.

Program in Audiology and Communication Sciences
Department of Otolaryngology

Washington University in St. Louis
School of Medicine

First a little background of who we are . . .

Amanda Ortmann, Ph.D.
Co-Director of PACS
Director of Adult Audiology

Amanda Demas, B.S
3rd year Au.D. student in PACS

We have no financial disclosures

No introduction is complete without . . .

Happy Chase!

First a little background of who we are . . .

Agenda (Why are we here?!)

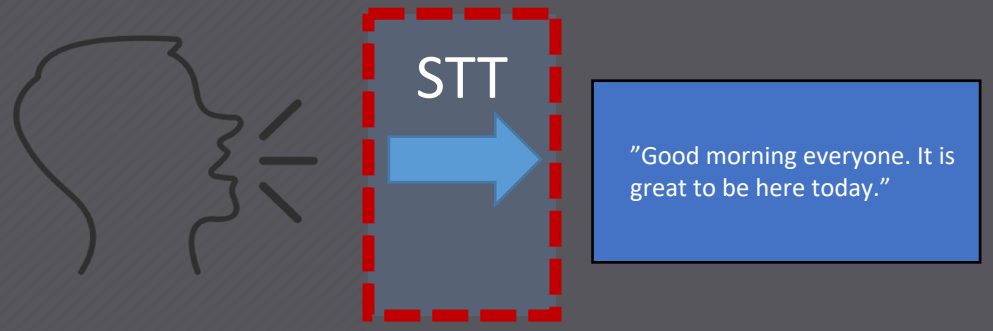
- Speech-to-text transcription STT: What is it? Why is it important?
  - COVID-19's impact on audibility
- Automatic STT algorithms vs CART
- The importance of universal design
- How to use STT in educational and clinical environments

What is Speech to Text Transcription (STT)

STT

”Good morning everyone. It is great to be here today.”

Types of STT



1.

CART:

Communication Access Real-Time Translation

2.

ASR:

Automatic Speech Recognition Software

CART:
Communication Access Real-Time Translation

Requested by Deaf/hoh

CRC CERTIFIED REALTIME CAPTIONER

Providers:
≥ 98% accuracy
(NCRA, 2011)

$ $

$75-200
(CaptionMatch, 2019)

ASR:
Automatic Speech Recognition Software

Requested by broad population for broad use

Microsoft

Otter.ai

$ $

Free to minimal cost

Automatic Speech Recognition Algorithms

Acoustic Pattern Perception

Statistical Modeling / Language Modeling

1960's

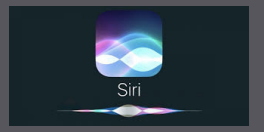
90-00's

Isolated Words

Connected Digits

Connected Words

Continuous Speech



Automatic Speech Recognition Algorithms:

Machine Learning, Deep Learning, AI

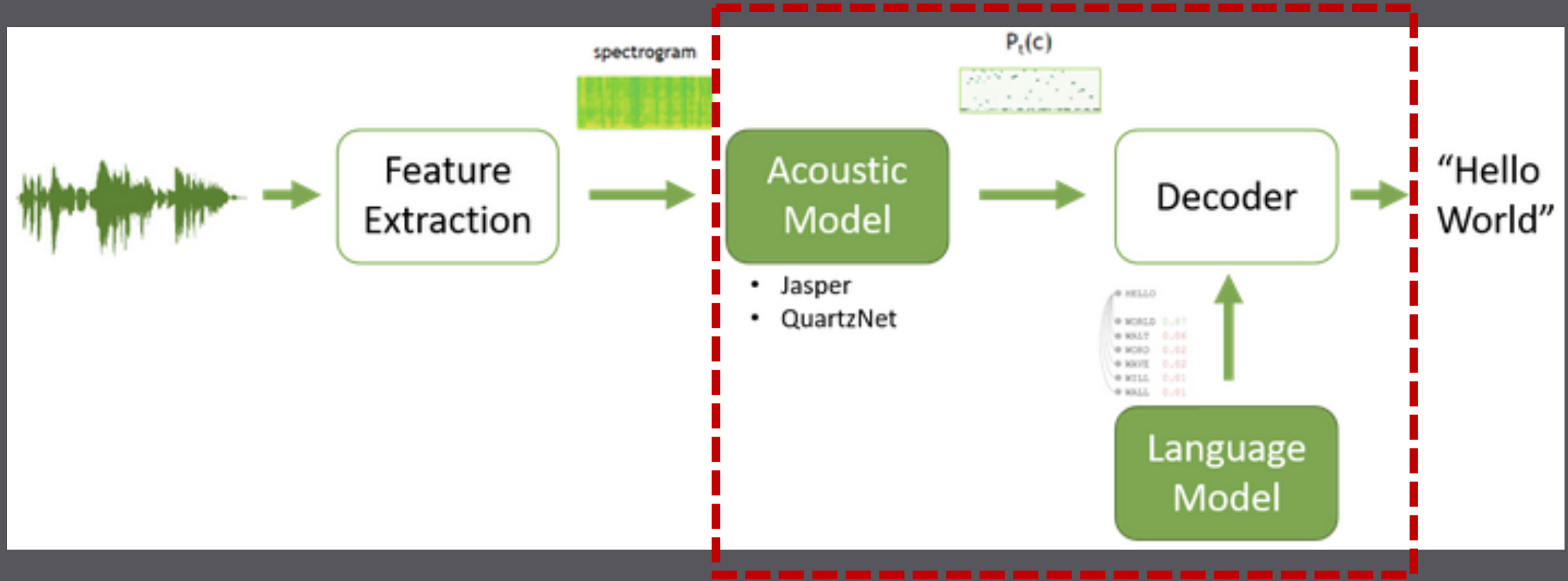


Image credit: Miranda, Chitale, Cohoen 2019

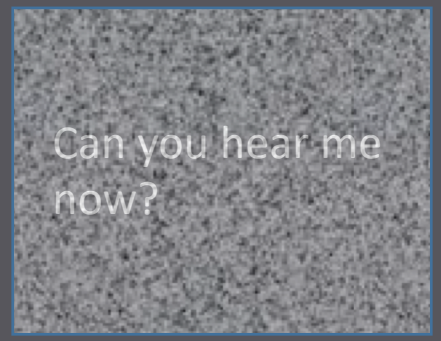
So why is STT important?

Who
benefits?

So why is STT important?

Learners are expected to listen, take notes, integrate information, and ask questions.

Who benefits?



ESL Learners

When is it beneficial?

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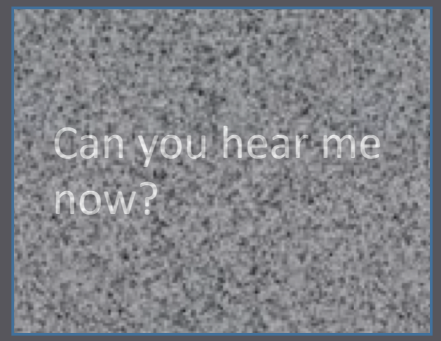

ESL Learners

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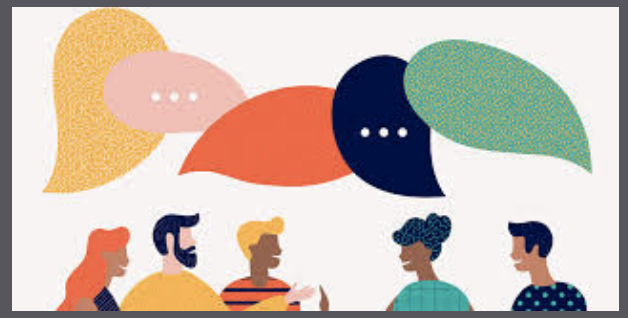


Closed captioning: a brief history . . .

- American's with Disabilities Act 1990
  - Requires "effective communication", which translated to be the provision of equal alternatives, such as captioning

television, movie theaters, other public venues

Then the internet happened

NETFLIX

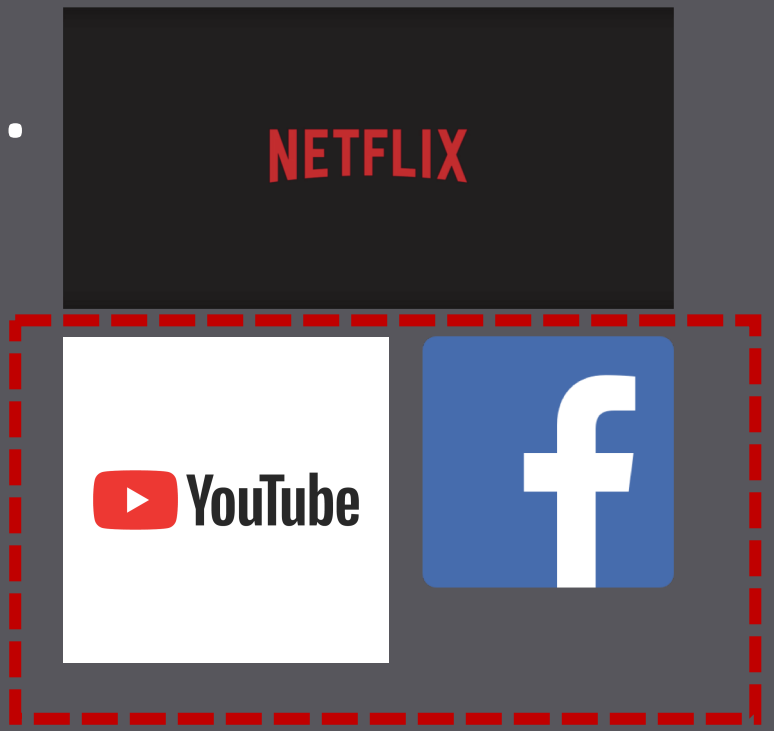
hulu

prime video

YouTube

Why is STT all the rage right now?

1.



easy to add captions

How to Add Captions

Add Captions to YouTube

1. Log into YouTube account
2. Go to Video Manager
3. Select video and click "edit" button
4. Once in video editor → selection click captions on bar at the top
5. Do not trust automatic captions they are usually wrong
6. Select the "English" button NOT the "English automatic captions"
7. Press play on the video and the caption boxes with change on the right-hand side as the video progresses. This is to alert you what section of the video occurs in the specific time frame so that you can add the appropriate captions.
8. Finally, listen through your video and following the outline on the right-hand side of the screen, type captions to your video

Helpful link: https://www.youtube.com/watch?v=qYcj85tBje4

Add Captions to Facebook

1. Upload video to YouTube and add captions as described above
2. Click "Actions" and under the download section select ".srt" this saves the file
3. Once downloaded, rename to ***_en_US.srt (*** can be whatever you would like to name it)
4. Go into your Facebook and upload video
5. Click "captions" tab and select upload SRT file (You can make an SRT file outside of YouTube but the easiest way is to go through YouTube
6. Change default language to the version you just uploaded (English_en_US)

OR

1. Upload your video to Facebook (may have to wait for up to an hour for this option to become available)
2. Select edit post
3. Click Captions
4. Select "Generate"
   a. This allows Facebook to generate automatic captions HOWEVER this is usually wrong
5. You will now need to listen to your video and correct the captions in the right-hand window to be accurate

Helpful link: https://www.youtube.com/watch?v=nldTF2WcuKY&frags=pl%2Cwn

Students with Hearing Loss Task Force, SAA

Why is STT all the rage right now?

1. NETFLIX

YouTube

2. Apps in your Pocket
Real Time Captions

ASR

Wait, isn't CART the gold standard for STT?

- ASR
  - Free or minimal Cost
  - Deep learning
  - Universally available
- CART
  - High financial cost
  - Shortage of trained professionals
  - Human fatigue
  - Extra person involved

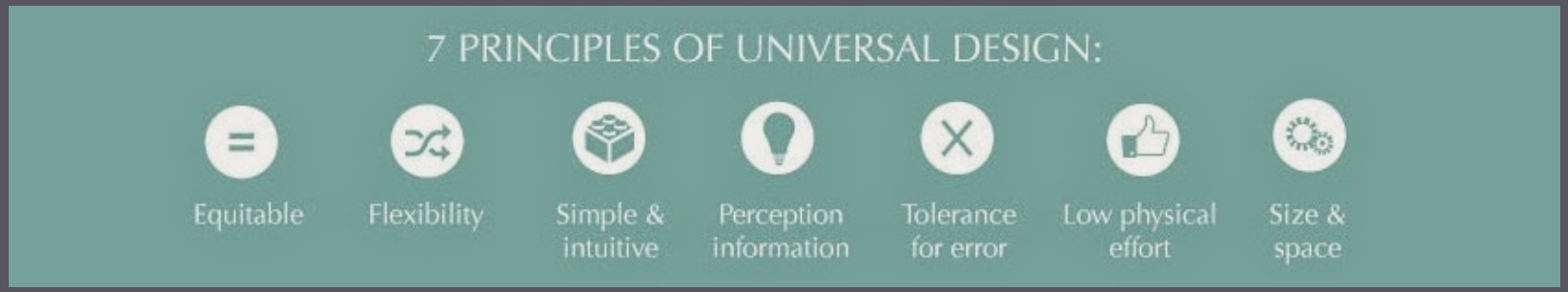


image created by Anne-Marie Womack

Why is STT all the rage right now?

1. NETFLIX

YouTube

2. Real Time Captions

TO THE PEOPLE ALL POWER

3. COVID-19

zoom

COVID-19: Impact on Audibility

All masks:

- Eliminate visual cues
- Act as a low-pass filter
  - Reduces the level of speech after 2 kHz

- Surgical & Homemade
  - 3-5 dB reduction

- N95 masks
  - 10-12 dB reduction

(Goldin, Weinstein, Shiman, 2020)

What we know about STT…

There is a NEED!

Promotes Inclusivity

Universally accepted

How to use STT as part of your workflow. . .

Needs?

Existing Resources?

PC

Connection?

Cost?
$$

??

THE best resource for STT in Audiology

Tina Childress, M.A., CCC-A

https://bit.ly/3qnSDnt

http://connect-hear.com/

Washington University in St. Louis
School of Medicine

Google ASR

https://bit.ly/3g94IIr

Needs?

Devices Needed

PC

Android

Cost?

Google Live Transcribe

Hangouts, Meet, Slides, and Docs

Language Modeling Source:

YouTube

Microsoft ASR

https://bit.ly/3qnhibJ

Language Modeling Source:

Microsoft Azure

PowerPoint

Microsoft Teams

Third Party ASR: Otter and Ava

https://bit.ly/2VuD2UX

Needs?

Resources Needed

PC

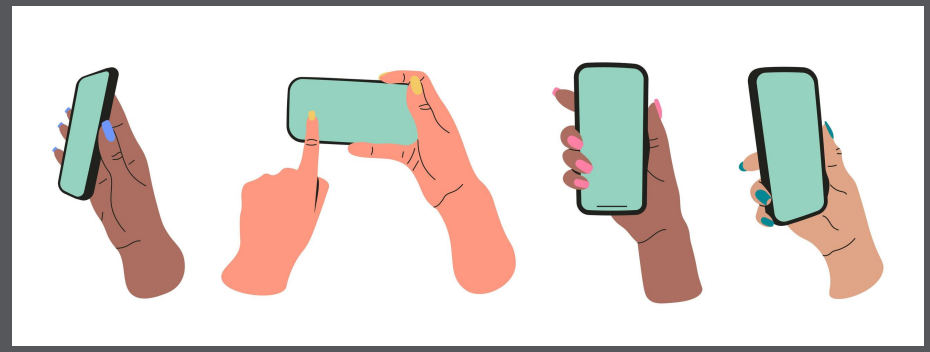
Cost?

$$

Own Language Modeling Source

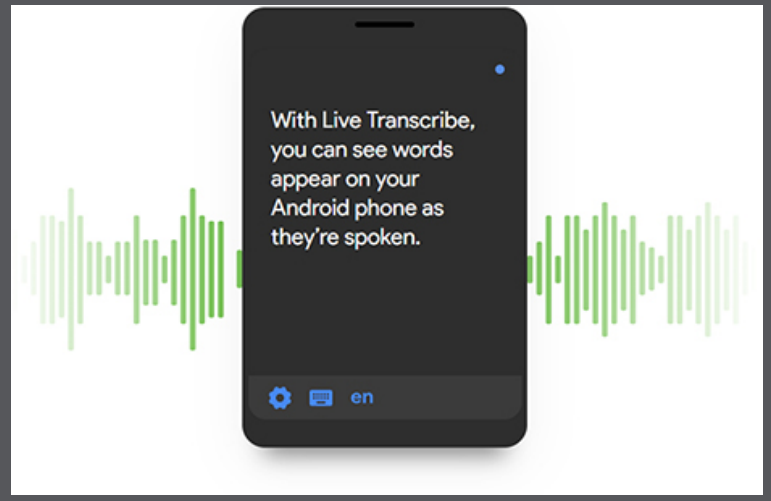
Telehealth and STT

Let's Otter!



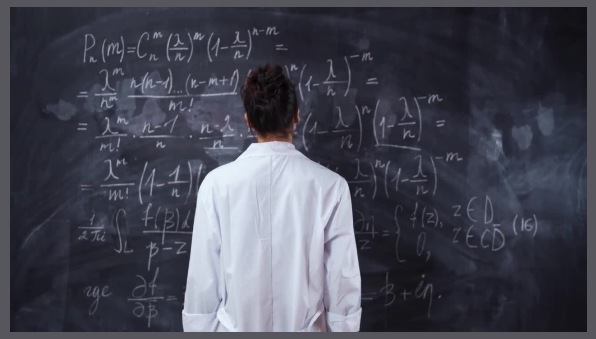
Microsoft Teams

Google Hangouts



STT Aids with Mindful Presenting

What not to do:



What to do:

Repeat questions from the audience

Offer a copy of notes or slides beforehand

Directions for Future Research

Accuracy

Latency

CART

ademas@wustl.edu
amanda.ortmann@wustl.edu

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