



TECHNOLOGY ACCESS PROGRAM

AI and Accessibility - Promises and Threats

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AI for Accessibility

Artificial Intelligence for eServices holds promise for several hard accessibility problems

Scale – overwhelming volume of content and interactions



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Customization – individual needs vary



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Modalities – different modes of communication, interaction, and learning



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AI Success Story: ASR & Google Live Transcribe



JOIN THE BETA



Photo courtesy of Google

[ASR app to caption face to face conversations](#) in informal settings

Fills huge communication gap

Inclusive design done right: community-driven features and testing

AI Threat: ASR gone horribly wrong



No, these TV hosts aren't racist. The AI generating the captions was.

Photo & real captions courtesy of Closed Caption Quality Club on Facebook

What was really said: >> HEY REBECCA SWEET, WILL YOU TAKE MY JACKET FOR ME PLEASE? WELL, THANK YOU, THANK YOU. OKAY, HEY! SMITA'S JOINING US NOW. HEY SMITA, HOW ARE YOU?

ASR Issues and Standardization

- Key Performance Indicators: accuracy, latency, punctuation, pacing, what others are needed?
- Usability, user experience – e.g. simplicity and visual indicators were key to Live Transcribe’s success
- Inclusive design requirements
- Guidelines for appropriate applications
- Best practices for user experience, deployment

AI and Customized Content



Summarize: This mode attempts to pull out the most important info, and create a shorter summary.

Original Text

Training is the key to making sure that people who are hard of hearing or deaf—the consumers of hearing assistive technology—have the knowledge and skills necessary to take full advantage of the hearing devices and other emerging assistive technologies they might want or need to use. Consumers, who include both people who are hard of hearing or deaf and parents of children who are hard of hearing or deaf, can benefit from high quality and in-depth training, particularly when it is provided by other consumers of hearing assistive technology. These “consumer trainers” can serve as examples to other consumers of how to use technology with confidence. The consumer trainers bring real life understanding from their personal, social, and workplace experiences. They can share with other consumers their positive experiences and lessons learned in searching for the right technology. Learning

Analyzed Text

Training is the key to making sure that people who are hard of hearing or deaf—the consumers of hearing assistive technology—have the knowledge and skills necessary to take full advantage of the hearing devices and other emerging assistive technologies they might want or need to use. Consumers include both people who are hard of hearing or deaf and parents of children who are hard of hearing or deaf. These “consumer trainers can serve as examples to other consumers of how to use technology with confidence. The consumer trainers bring real life understanding. A technology focused train-the-trainer program.

Content Length: 1185
Summary Length: 612
Summary Ratio: 48.35

[Hide Original](#)

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Simplify



Summarize



Summarize-Simplify



Show Topics



Show Emotions



Show Definitions

[Show More ▾](#)

Customization applications



Summarize text to slow down transmission to the average ~30 wpm that Braille users read at.

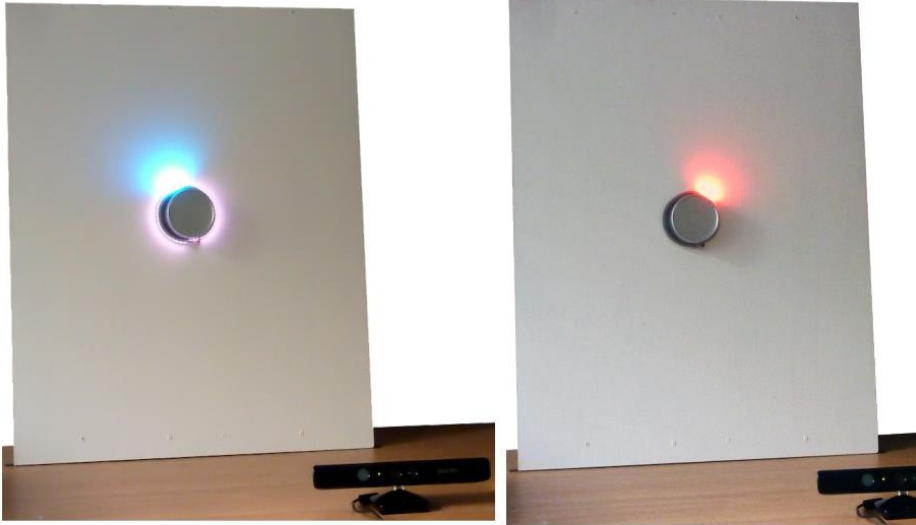
Summarize captions if a user cannot keep up with verbatim speeds. Simplify captions if a user cannot follow complex language.



Customization Issues & Standardization

- The tech is not ready – how do we ensure that the content summaries match intent of the original?
- Not a substitute for writing clear, coherent, plain text
 - Everyone benefits from clear, plain language
- Matching user preferences to levels of simplification?

AI and Voice Interfaces



Over one third of the households in the USA have a voice assistant. They are fantastic for people who are [blind](#), [mobility impaired](#), and even [augmentative/alternative communication](#) users.

Voice Interface Threat

A voice-only world is a real possibility.

It will destroy access for anyone whose speech is not clear, or who cannot speak, or who prefers a different mode of communication.

Text input is inefficient.
Gesture input was not popular in a recent study at Gallaudet.
Sign language input is not ready.



Computer, evacuation sequence.

Voice Interface: Standardization and Study

- We need contained use cases to experiment with alternate input methods
- We need resources and data sets to make sign language recognition a reality
- We need guidelines for visual, auditory, and tactile interfaces
- We need a much better understanding of cultural factors in all modes of communication with computers



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Thank you

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