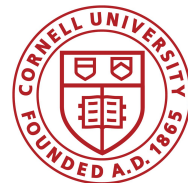


“It’s Kind of Context Dependent”:

Understanding Blind and Low Vision People’s Video Accessibility Preferences Across Viewing Scenarios

Lucy Jiang, Crescentia Jung, Mahika Phutane,
Abigale Stangl, and Shiri Azenkot

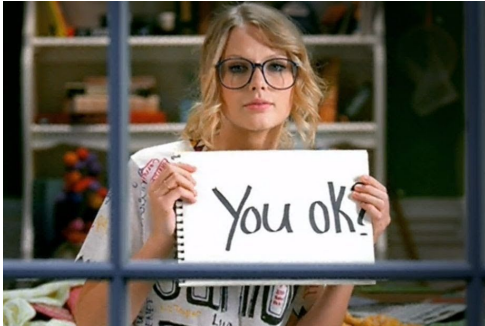
CHI 2024



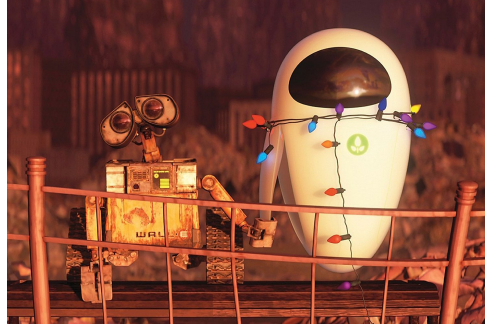
**How do you make
videos accessible?**

AD))) ?

Music Video



Science Fiction



TikTok / Reel



Video Accessibility is...

- Prior work
 - **Image and social media content** (e.g., Morris et al. 2018, Gleason et al. 2019)
 - **Multimodal video output** (e.g., Sackl et al. 2021, Jiang et al. 2023)
 - **Diverse content preferences** (e.g., Stangl et al. 2021, Wang et al. 2021)

Video Accessibility is... *Not One-Size-Fits-All*

- Prior work
 - **Image and social media content** (e.g., Morris et al. 2018, Gleason et al. 2019)
 - **Multimodal video output** (e.g., Sackl et al. 2021, Jiang et al. 2023)
 - **Diverse content preferences** (e.g., Stangl et al. 2021, Wang et al. 2021)
- Research gap
 - Consideration of **emerging video types** (e.g., short-form content)
 - Holistic video accessibility through **different modes of output**
 - Understanding how preferences vary across **diverse viewing scenarios**

Research Question

What are BLV people's needs and preferences for video accessibility across viewing scenarios?

VIEWING SCENARIOS

Video types

+

Viewing platforms

+

Viewing goals

AD)))

+

AI ?

Methodology

Formative Survey Method

- 101 participants
- Asked about **AD usage and types of videos** they wished to watch
 - Allowed us to select relatable and naturalistic videos to co-watch

Video Watching Behaviors

- Popular video types

- Informational / educational
- Comedic
- How-to / DIY
- Lifestyle
- News and commentary

- Popular video platforms

- YouTube
- Netflix
- Facebook



90.6% of respondents used a mobile phone to watch videos

AD Usage

- Varied depending on the scenario
- Most used AD for traditional movies and television

Not for “concerts because I don’t like the audio description talking in the middle of a song [or for] standup comedy because it is hard to hear the comedian talking during the audio description track.”

Interview Method

- 15 BLV survey respondents
- Reviewed survey responses and recalled **previously watched videos**

Interview Method

- Co-watching activity
 - Presented participants with different scenarios
 - One of three common scenarios
 - At least one participant-specific scenario
 - **Compared and contrasted** preferences

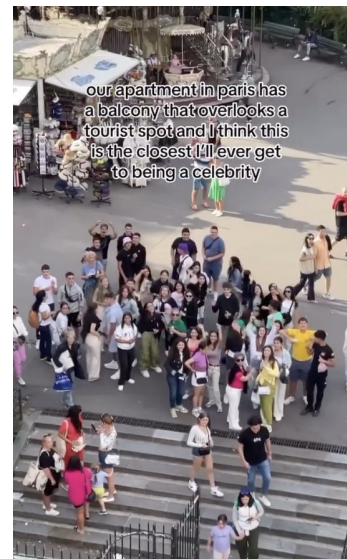
Examples of Presented Scenarios



Documentary



Comedy Sketch



Short-Form
Video

Findings

Scenarios

- **How-to video:** learning how to do something on video sharing sites
- **Informational / educational video:** learning a new concept on a streaming service or video sharing site
- **Short-form video:** engaging with friends and pop culture on a social networking site
- **Music video:** seeking entertainment on a video sharing site
- **Live video:** seeking information or entertainment on a video sharing site or social networking site
- **Personal video:** engaging with friends or family on a social networking site
- **TV show or movie:** seeking entertainment on a streaming service

Scenarios

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How-To Videos

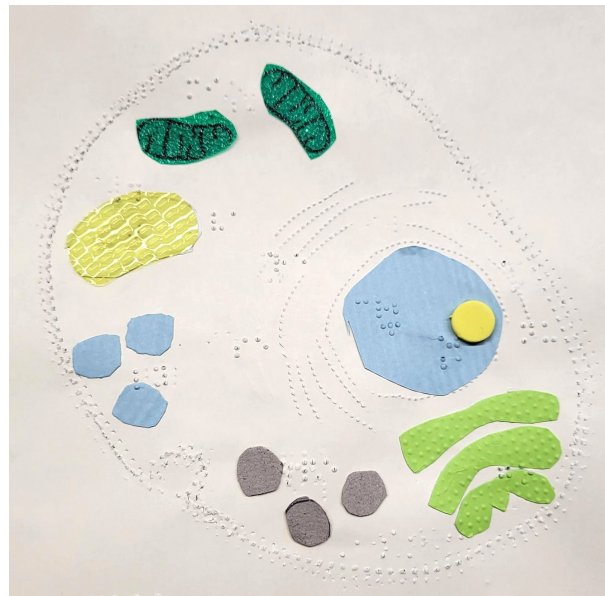
- Details about **actions** and **equipment**
- Explainable audio and tactile cues, including diegetic audio, could give context
- Separate resources could help with preparation, understanding, and execution

“Having a link that you can click, or a list of different workout stuff that they’re going to do, gives you some time to prep...”

(Karla, 24F)

Informational / Educational Videos

- Details about **visual aids**, **settings**, and **subjects**
- Tactile feedback is helpful for learning
 - Specifically for understanding scale or structure
 - Tactile graphics
 - 3D models



“It would be cool to have it be more tactile because that’s how you learn... describing part of a cell is not as good as seeing a picture or feeling it more hands-on.”

– Alice, 30F

Short-Form Videos

- Details about **subjects, actions, clothing,** and **settings**
- Popular “sounds” / background music used as templates help give context
- Additional context typically found in the video caption

“If the caption is ‘When girls’ night goes terribly wrong,’ you can assume that they were relaxing and then something happened.”

(Karla, 24F)

Music Videos

- Details about **people, actions, settings, clothing,** and **visual effects**
- Braille and other tactile cues can provide AD without disrupting music



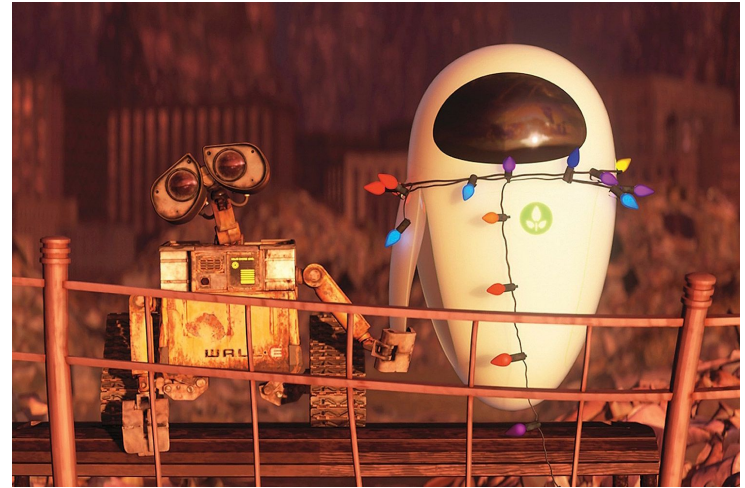
Music Videos

- Details about **people, actions, settings, clothing,** and **visual effects**
- Braille and other tactile cues can provide AD without disrupting music



Science Fiction, Fantasy, and Animation Videos

- Details about **characters**, **actions**, **clothing**, **facial expressions**, and **settings**
- Separate resources could include details about characters and clothing
- 3D models could convey unique character designs



“As somebody who could see Wall-E and now cannot, I can tell you that the [AD] just doesn’t have it. ... I know we can’t roll a Wall-E into people’s homes, but I almost wish we could.”

– Felix, 40M

Similarities Across Scenarios

- Access to text on screen was crucial
- **Adapting a video's visual style** could suit users' differing abilities and vision levels
 - E.g., “flat and simple” animation styles



This image was generated with Microsoft Copilot



Discussion

Video Accessibility Design Space

1

Level of Detail

2

Alteration of
Video Time

3

Level of
Augmentation

4

Modality of
Presentation

5

Synchronicity of
Accessible Content

6

Tone and Style
of Approach

Modality of Presentation

- Additional audio elements can improve video access
- Tactile feedback was helpful, but required Braille literacy or tactile graphicacy

NETFLIX
TUDUM



Tone and Style of Approach

- E.g., excited, sad, first-person, cartoonish
- Some wanted subjective and judgmental descriptions for reality TV

AD))) The contestant
is wearing a “*ridiculous
bathing suit.*”



Generative AI for Video Accessibility

- Personalized AI video a11y → risks of misinformation and echo chambers
- Future work: intersections between **media accessibility, artificial intelligence, and misinformation**



Contributions

- Empirical insights capturing the **diversity of BLV users' video accessibility preferences** across a wide range of viewing scenarios
- A six-dimensional **video accessibility design space** to guide developers and designers
- Formative considerations of the **ethical and societal impacts of AI** for video and content accessibility

Please read our paper and reach out to Lucy (lucjia@cs.cornell.edu) if you'd like to chat about context-aware information accessibility!

Thank you!



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Please read our paper and reach out to Lucy (lucjia@cs.cornell.edu) with any questions!