METAVERSE FOR ALL

Research Towards Augmented & Virtual Reality Accessibility

XR Access Research Lab

XR Access

CORNELL UNIVERSITY FOUNDED A.D. 1865
CORNELL TECH

Community involvement is crucial in an inclusive design process

Why are we here?

Share Research!   **Get excited!**   YOU!

We publish in venues like ASSETS, an a premier accessibility conference,
but that's only <u>one</u> part of the picture.

Research should be an ongoing conversation with everyone involved!

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VIRTUAL REALITY
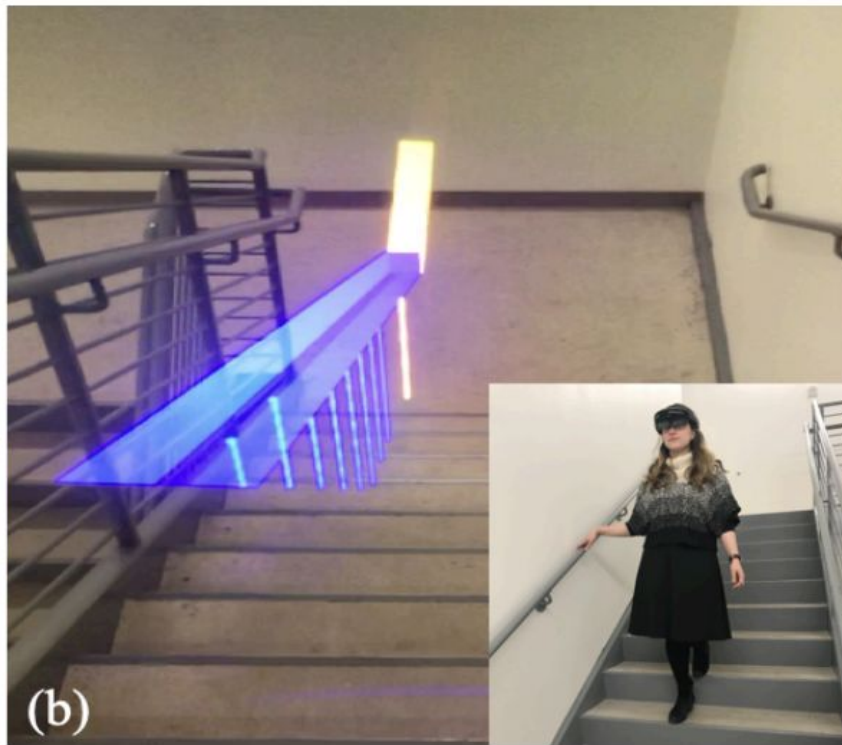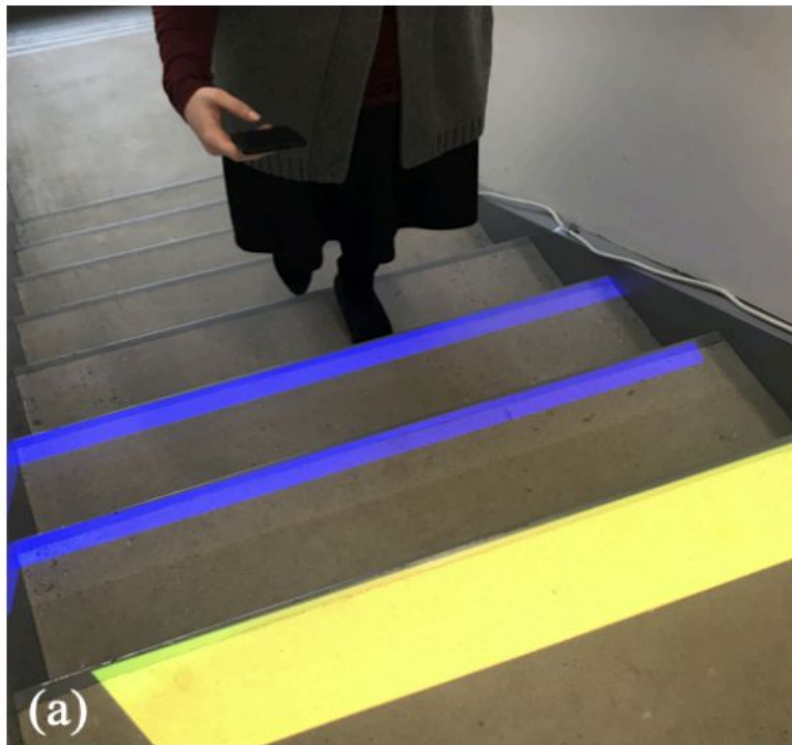GUIDE

360 VIDEO
DESCRIPTIONS

Recruiting for these projects!

Augmented Reality

(a)

(b)

Virtual Reality

Virtual Reality

How can people with <u>various</u> neuromotor disabilities interact in VR?

Abilities aren't diagnosis–dependent.

Individuals can gain or lose abilities over time. VR interactions need to adapt.
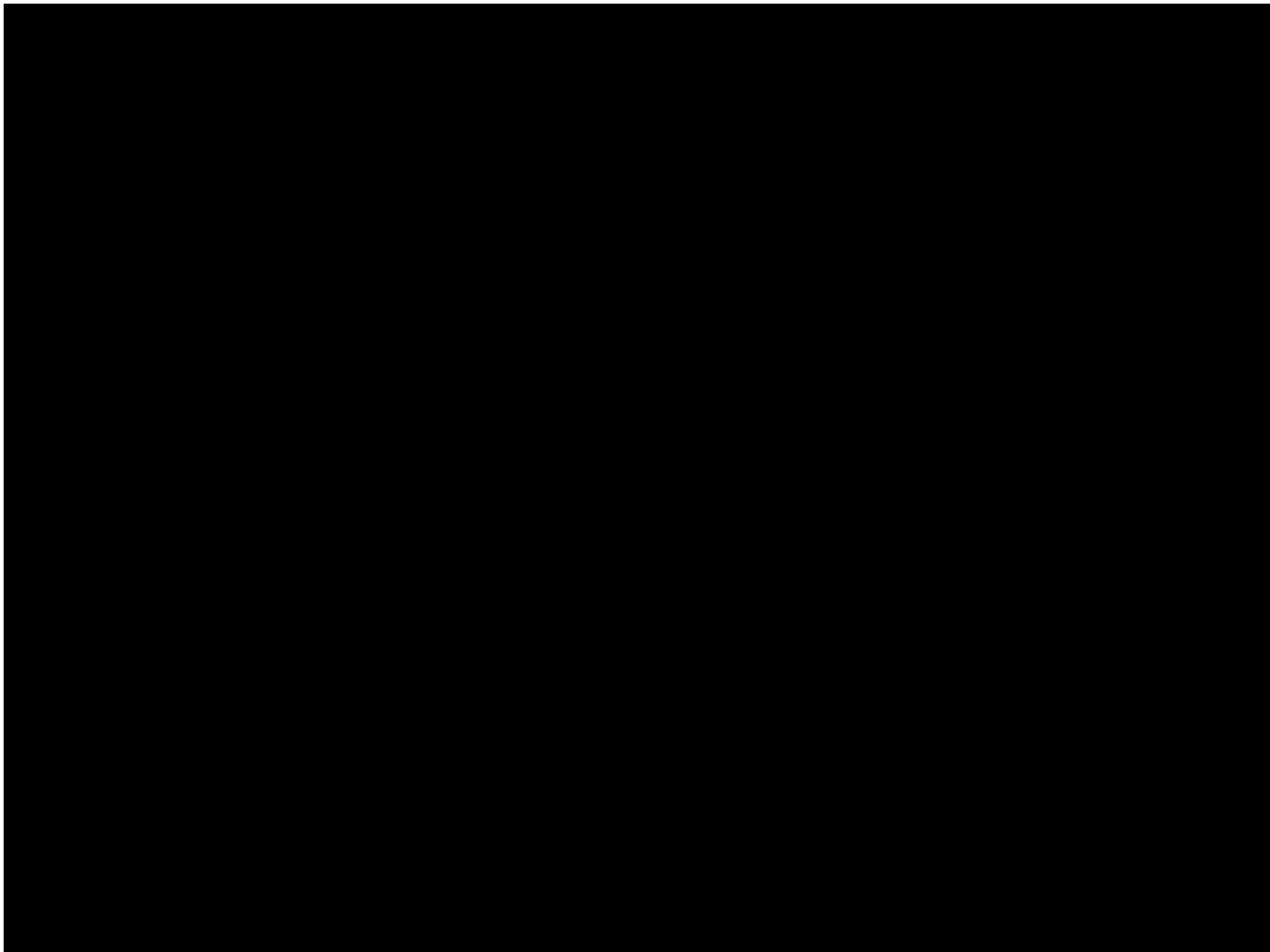
Virtual Reality

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Head Orientation

Nonverbal Social Cues for Social VR

- What are nonverbal social cues?

- **Problem:** Nonverbal social cues are inaccessible in virtual environments

- **Goal:** Create design guidelines for accessible nonverbal social cues
  - how can these nonverbal social cues help social interactions?

- **Implications:** Improving social VR accessibility

Invisible Disabilities in VR

- What is an invisible disability?

- **Problem:** Limited prior work on disability representation in VR

- **Goal:** Understand **disability disclosure and representation** in social VR

- **Implications:** Improving avatar inclusivity

- *We are recruiting interviewees with social VR experience!*
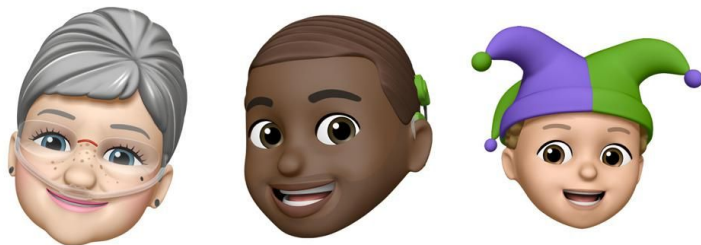
Guide in Virtual Reality

Happening at CSUN!

- What is a virtual guide?

- **Problem:** inaccessible navigation, scene understanding, social interaction

- **Goal:** Understand the needs and role of a guide in VR

- **Implications:** Improving social VR accessibility

- *Conducting studies at CSUN!*

360° Video Descriptions
Happening at CSUN!

- What is a 360° video?

- **Problem:** 360° videos are not accessible or immersive for BLV users

- **Goal:** Create design guidelines for immersive 360° video experiences
  - AD consumers and creators

- **Implications:** Improving the accessibility of immersive media

- *Conducting interviews and design workshops at CSUN!*

Get Involved!

- **Sign up for our studies at CSUN:**
  tinyurl.com/csun-xrstudies

- **Learn more about XR Access:**
  xraccess.org

THANK YOU!

Join us at CSUN: **tinyurl.com/csun-xrstudies**

Join our future studies: **tinyurl.com/future-participate**

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Outline

- Augmented Reality (AR) Accessibility

- Virtual Reality (VR) Accessibility
    - People with neuromuscular conditions (REU)
    - Video games for blind and low vision users (REU)

- Ongoing work in VR Accessibility
    - Nonverbal Social Cues for Social VR
    - Disability Representation in VR
    - **VR Guide for Blind and Low vision users ** HAPPENING AT CSUN!**
    - **360 Video Descriptions ** HAPPENING AT CSUN!**