VISUALIZING INVISIBILITY *TECHNOLOGY*

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HXDI
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Master of Arts
Human Experience Design Interactions

HOW CAN WE MAKE INVISIBLE ILLNESSES VISIBLE TO OTHERS?

SIMULATING EMBODIED ILLNESS EXPERIENCES

VISUALIZING INVISIBILITY
MA_HXDI Technology Presentation
2020-2021 Cohort X2(+/-)

Taree Vargas

PURPOSE

Leverage a flexible set of technologies that help express participants' diverse experiences and ultimately create visual projects that emplace audiences in the first person perspectives and embodied experiences of those with invisible illnesses to evoke understanding and empathy...

IMMERSIVE PROJECTS THAT CENTER HUMAN NARRATIVES EVOKE EMPATHY

+

EMPATHY HELPS GENERATE PRO-SOCIAL BEHAVIORS

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0204494

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TECH PHASE 01-A

GENERATE IMMERSIVE ENVIRONMENTS

- 6 cameras
- 5k mode to stitch video internally
- 8k video for high resolution (video translates well in 3D cinema space)
- 4 microphones for immersive sound



Work with collaborators to define "real" immersive environments.

Insta360 Pro



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TECH PHASE 01-A

Ø Ensure formatting is in EXFAT

Ø Select stitching calibration after camera turned on > distance 2m from camera with no obstructions > Press “power” button in app and camera will calibrate based on surrounding scene

Ø Use app on mobile phone to control video recording within click on confirmation button to begin recording, click on it again to end recording.

Insta360 Pro Workflow

Adapted from: https://onlinemanual.insta360.com/pro1/en-us/basic/prepare/4

AR

Augmented Reality

Work with collaborators create evocative impressionistic visuals that illustrate their narratives.

ALTER REAL SPACE TO QUESTION NORMATIVITY

HELP VIEWER'S UNDERSTAND NEW PERSPECTIVES

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TECH PHASE 01-B

CREATE IMPRESSIONISTIC VISUAL ELEMENTS

Work with collaborators to create evocative impressionistic visuals that further illustrate their narratives.

https://www.vrfocus.com/2021/01/google-tilt-brush-now-open-source-creators-instantly-set-to-work/



- Works with a variety of VR headsets
- A variety of colors and textures
- Immersive space in which to create and view
- May build environments from scratch
- Ease of use

Tilt Brush



TECH PHASE 01-B

- Ø Record +/- 5 sec. of video of Tilt Brush object
- Ø Export
- Ø Close Tilt Brush
- Ø Go to Downloads> Tiltbrush> Videos> Select “Bat” file
- Ø Select “6”- omnidirectional Stereo 360, 4k 30 FPS
- Ø Wait for video to render
- Ø Go to Documents> Tiltbrush> VRVideos> Open folder
- Ø Select File (equirectangular format)
- Ø Crop to 2:1 ratio
- Ø Ensure image is fitted to edges to avoid stitch lines
- Ø Export as .mp4

Export Tilt Brush Object Workflow

Adapted from: https://www.youtube.com/watch?v=n31CtycR3KI

TECH **PHASE 02**

CREATE A VISUAL NARRATIVE

- Combine visual and audio elements to develop a cohesive narrative
- Effects to help refine raw footage
- Ability to construct 360 immersive environments

Build narratives, other audio and visual elements into into evocative immersive experiences.

Premiere Pro



TECH PHASE 02



- Ø Select VR videos > Convert in VR180 Creator first.
- Ø In Premiere, Click Import.
- Ø Drag and drop clip into "Timeline" window.
- Ø To set VR properties, click Sequence > Sequence settings.
- Ø Under "VR properties," click down arrow > Select “Equirectangular.”
- Ø Under "VR properties," select Stereoscopic - over/under.
- Ø Change "Horizontal captured view" to 180 > Click OK.
- Ø Drag other clips into sequence.
- Ø Add titles, graphics, and effects
- Ø Create sequence with 1 x 1 aspect ratio.
- Ø Select cropped 180˚sequence.
- Ø In Project pane, click sequence to export.
- Ø Click File > Export > Media.
- Ø Select Format: H.264.
- Ø In Video pane, under "Basic video settings," enter resolution.
- Ø Click Encoding settings > Profile > Select High.
- Ø Click Bitrate settings > Bitrate encoding > Select VBR, 1 Pass.
- Ø Change target/max bitrates to match resolution.
- Ø Under "VR video," make sure Video is VR is checked.
- Ø Select > Frame layout: Stereoscopic over/under > Horizontal field of view: 180 > Vertical field of view: 180
- Ø Under "Source scaling," click Stretch to fill.
- Ø Type a name for your file.
- Ø Click Export.

Edit VR film in Premiere Workflow

Adapted from: https://support.google.com/vr180/answer/9047774?hl=en

OTHER TOOLS UNDER CONSIDERATION

A greater need for ease of use by research participants with varying levels of technological skills is required for this project.

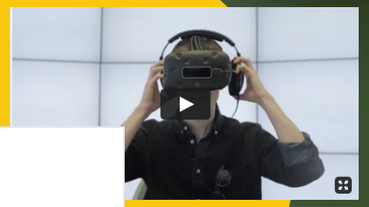
Studio 3D Max



Both useful for creating evocative impressionistic visuals that illustrate narratives through dynamic storytelling.

Twinmotion

TECH CASE STUDIES



embodiedlabs.com

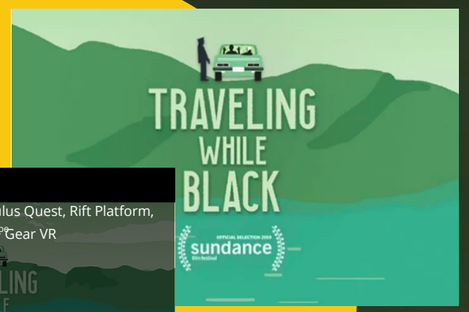
Embodied Labs - Immersive Training Platform

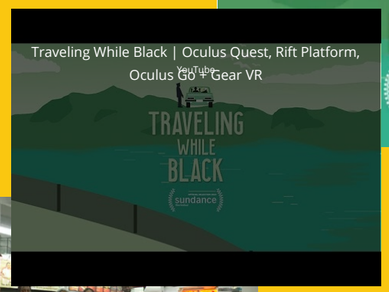
The immersive training platform for companies committed to providing excellent care and service for the aging population.

www.sciencedir...

Virtual reality and embodied experience induce similar levels of empathy change: Experimental evidence

The theory of psychological proximity implies that individuals should empathize with others more the closer their own experience is to that of the tar...









www.projectem...

Project Empathy

A virtual reality film series that shows us the world through the eyes of another. See what I see.





news.stanford.edu

Virtual reality can help make people more empathetic | Stanford News

Stanford researchers found that people who underwent a virtual reality experience, called "Becoming Homeless," were more empathetic toward the homeless.

"Taking the perspective of others in VR produces more empathy and prosocial behaviors in people immediately after going through the experience and over time in comparison to just imagining what it would be like to be in someone else's shoes,"

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DATA OF THE ISSUE

Statistical Data:



www.understood.org

Understanding invisible disabilities in the workplace

Learn about invisible disabilities in the workplace and how you can better support your employees with challenges like ADHD, mental health issues, and more.

Invisible illness or disability refers to a range of conditions including certain mental and physical illnesses the symptoms of which are not prominently visible to others.



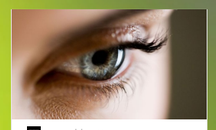
www.disabled-world.com

Invisible Disabilities: List and General Information

Information on invisible disability, disabilities that are not immediately apparent, includes a list of hidden disability conditions.

"It is estimated that **10%** of people in the U.S. have a medical condition which could be considered a type of invisible disability. "

"**96%** of people with chronic medical conditions live with an illness that is invisible. "

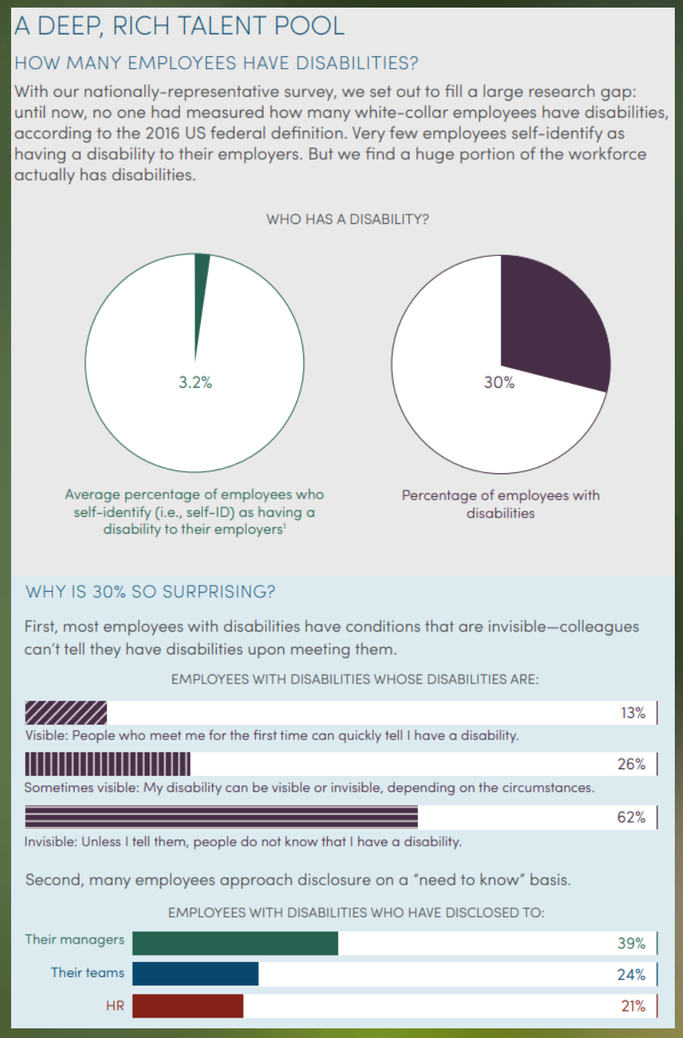


www.bbc.com

The hidden challenges of invisible disabilities

Millions of people work with disabilities they rarely talk about, but greater awareness can help both employers and employees, writes Jessica Holland

"A 2011 Canadian survey found that **88%** of people with invisible disabilities had a negative view of disclosing their disability."



Qualitative Data:

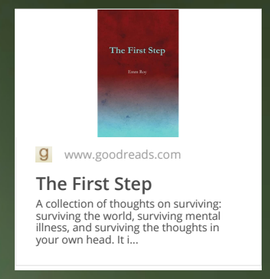
"This invisibility can reduce the social support received from network members and adversely affect the quality of life."

"Respondents felt that their [illnesses were] invisible to social ties and to medical professionals. In addition, treatment and organizational factors in health care contributed to the sense of inadequate care. Finally, validation was derived from informational and emotional support from both support groups, and from some medical professionals."

link.springer.com

Living with invisible illness: social support experiences of individuals with systemic lupus erythematosus

Purpose Because symptoms are not immediately visible to others, systemic lupus erythematosus (SLE) is often considered an invisible illness. This invisibility can reduce the social support received from network members and adversely affect the quality o...



www.goodreads.com

The First Step

A collection of thoughts on surviving: surviving the world, surviving mental illness, and surviving the thoughts in your own head. It i...

"People assume you aren't sick
unless they see the sickness on your skin
like scars forming a map of all the ways you're hurting."
Emm Roy, Author of The First Step, Mental illness sufferer

"If I say, "I have Chronic Fatigue Syndrome," I'm likely to be discredited as a witness to my own condition. I've had doctors tell me there's no such thing as Chronic Fatigue Syndrome. One doctor said: "Just drink some coffee."
Toni Bernhard

"When you have an invisible disease, your sickness isn't your biggest problem. What you end up battling more than anything else, every single day, is other people."
Heidi Cullinan

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Work Flow

This work centers research collaborators from driving conversation in interviews to creating impressionistic details

Work with collaborators to define immersive environments either in real, virtual, or mixed spaces

VR

Audio recording with **Sennheiser AMBEO 3D Virtual Reality Mic**

INPUT

Import audio & footage into **Premiere** to edit all elements into a cohesive short VR film.

Innovation Space

Insta360 EVO + Insta360 Pro to generate "real" footage

INPUT

AR

Work with collaborators to generate impressionistic visual elements that correspond to their embodied experience using **Tilt Brush**

INPUT

Oculus Quest

INPUT

INPUT

Export in appropriate formats for housing across multiple platforms.

INPUT

Youtube

MVP Work Flow

This version of the work centers the researcher's impressionistic interpretation of the qualia of invisible illnesses

VR

Use qualitative data **to define immersive environments either in real, virtual, or mixed spaces**

Audio recording with **Sennheiser AMBEO 3D Virtual Reality Mic**

Insta360 Pro to generate "real" footage

Use **Tilt Brush** to generate impressionistic visual elements that correspond to ***data representing*** embodied experience

AR

Oculus Quest

Import audio & footage into **Premiere** to edit all elements into a cohesive short VR film.

Export in appropriate formats for housing across two platforms.

Youtube

INPUT

INPUT

INPUT

INPUT

INPUT