Virtual Worlds, VR & AR Innovations for AI Assisted Therapy & the Behavioral Health Workforce

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About Me

- Work in both the academic and private sectors

- Previous Tech & Media Industry Experience

Overview

- 3D Spaces Overview
  - Virtual Worlds, Virtual Reality (VR) & Augmented Reality (AR)
- Examples of AI Bot & Simulation Implementation
  - Bots & Scripted Agents
  - Smart Simulations
  - Extending Self-Guided AI Content with Social Engagement

Virtual Worlds Overview

- Use voice and text chat
- Individuals represented by a 3D persona that they choose (“avatar”)
- Comprised of user-created 3D social spaces/environments
- Enables a strong sense of embodiment and telepresence
- Home to several health-related AI and scripted bots, simulations and group support experiences
- The largest virtual world is Second Life

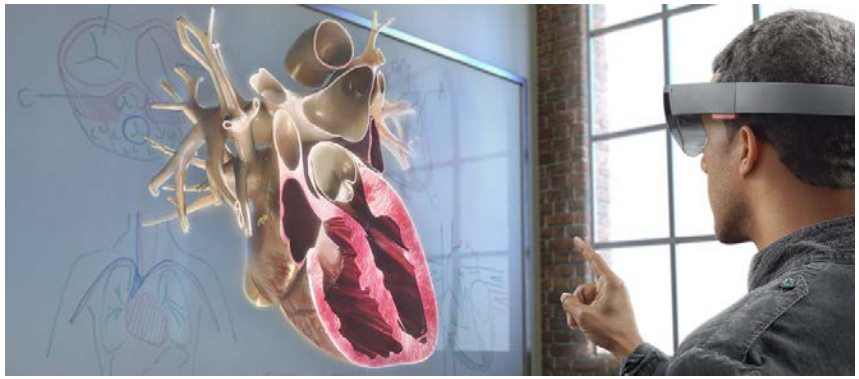
Virtual Reality Overview

- Entire physical world replaced with a closed “virtual reality” environment with sealed headset
- About 36 million Virtual Reality users in 2018
- Most VR users are mobile-phone based
- Major tech companies are investing in this sector
  - Google = Daydream
  - Facebook = Oculus
  - Amazon = Sumerian
  - HTC = Vive
- Users skew heavily male

- Fast-evolving format for health-related AI initiatives – many of which are experimental and geared toward exposure therapy

Augmented Reality (AR) Overview

- A variation of VR wherein the user sees the real world augmented by virtual elements
- Dedicated platforms are emerging
  - Microsoft HoloLens
  - Magic Leap Lightwear
- Mobile AR apps are mainstream
  - Pokemon Go
  - Google Translate
  - SnapChat filters
- Reduced distinction between game and “real life” imagery may amplify “Game Transfer Phenomena”



Pros of Virtual Worlds & VR/AR for Behavioral Health

- **Anonymous** – Ability to get help without the constraints of your “real world” identity
- **Accessible** – Easy to access help without leaving your home
- **Creative** – Allows for individual expression in a way that might be complicated by “in person” sessions; can change gender, ethnicity, human vs. non-human, etc.; Also, the creativity removes some of the stigma and anxiety surrounding treatment
- **Cost** – Free and/or low cost counseling and support groups
- **Safe -** Testing ground to “try” therapy before seeking additional outside help
- **Social** – Virtual worlds add a sense of social presence that can be used to support multiple user formats and group discussions

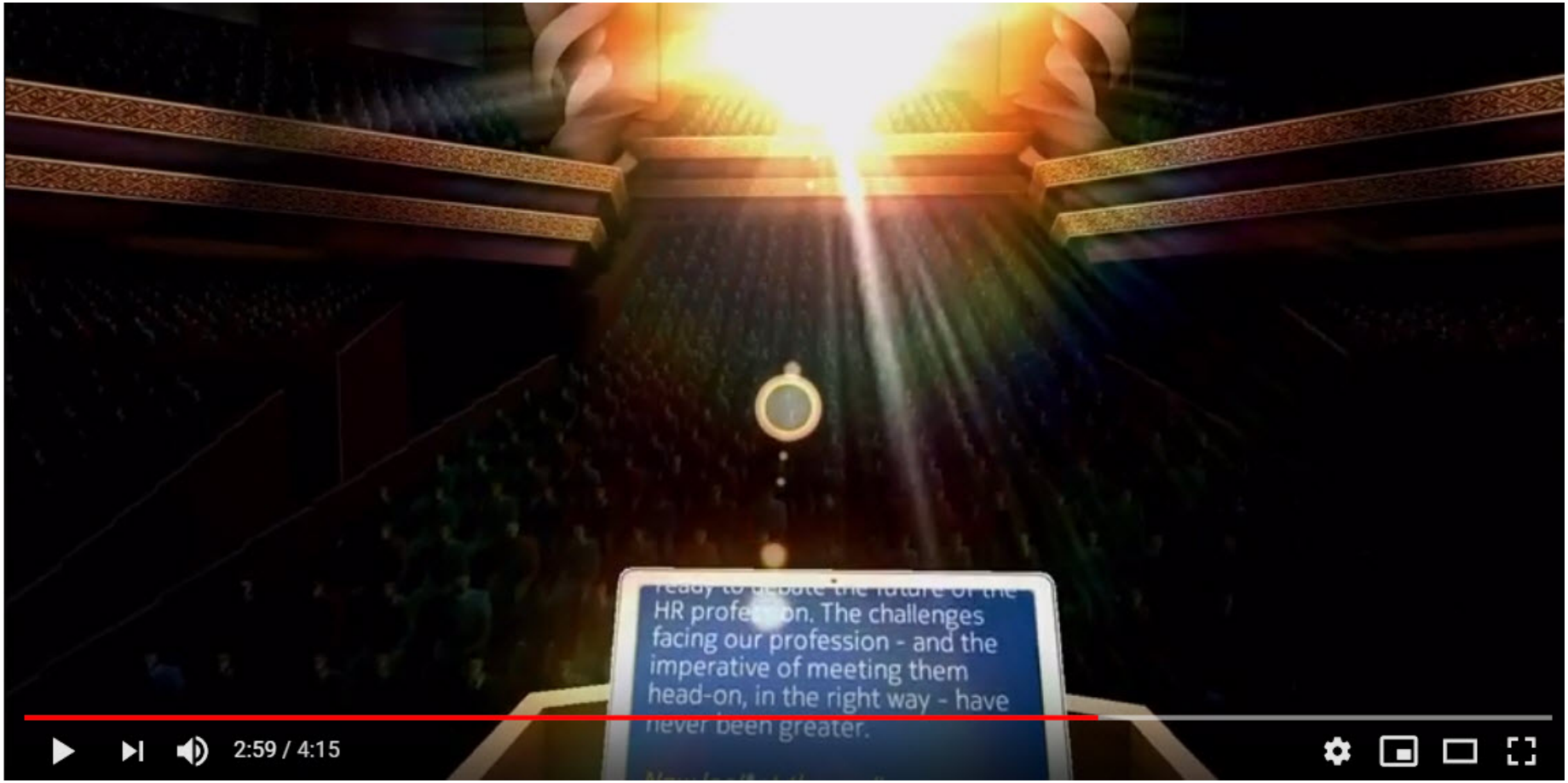
Bots & Scripted Agents in Virtual Worlds & VR/AR

- **Scripted Agents & AI Bots** are coded to converse with humans in a way that emulates real human interactions
- ***Scripted Agents*** typically rely on a pre-determined scripted dialogue that may take a different direction based on specific keyword cues
- ***AI Bots*** may not exclusively rely on a script and instead adapt, learn and respond based on language, content and tone of the interaction

Bots & Scripted Agents in 3D Spaces

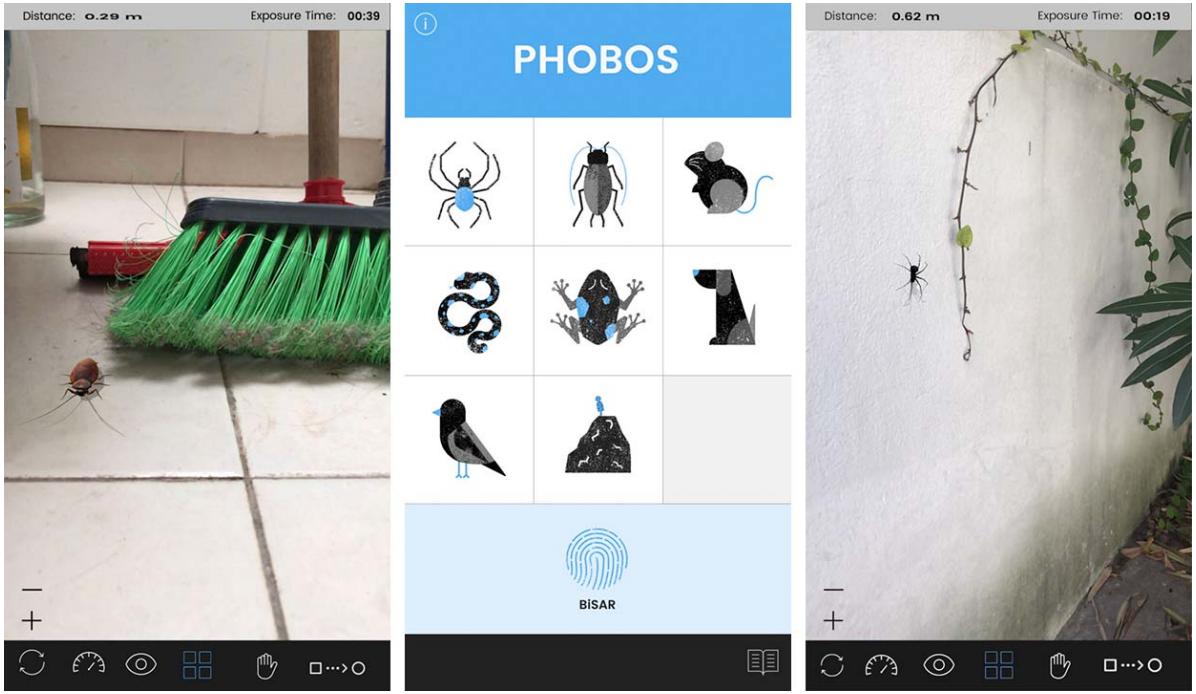
- In virtual worlds and VR/AR, bots typically take the form of human non-playable avatars/characters
  - The relatable human form combined with heightened sense of telepresence and embodiment can increase the perception of a more “real” experience for participants
    - Examples:
      - Role-playing for self-care and exposure therapy
      - Self-guided experiential learning and coping tutorials
- AI learning in 3D spaces is about **more than text input**
  - AI bots in VR can adapt, learn and evolve from body language, facial expressions and voice tone/inflections.

VR Case Study: Public Speaking Simulator



AR Case Study: Phobos AR

- Phobos AR is a mobile app that aims to help people who suffer from specific phobias.
- Complements cognitive-behavioral therapies relying on exposure.



Smart simulations for healthcare and training

- Developers can create smart simulations that incorporate AI to immerse a participant in a experience that helps build empathy, understanding and coping skills
- Some simulations are “open-ended” and evolve based on user behaviors, while others are “guided” to ensure a positive outcome

Virtual Worlds Case Study: Maternity/Family Roleplaying

Find Your Dream Home

Choose from thousands of move-in ready homes for your family.

Romantic Weddings

Explore romantic places for elopements and intimate weddings.

Start a Family

Discover a loving pregnancy experience at a virtual maternity clinic.

Beach Adventures

Escape to dozens of tropical family resorts and beaches.

Romantic Dining

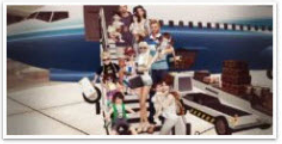
Take your loved one out for a romantic dinner for two...or bring the kids!

Selfie Paradise

Photograph your journey in thousands of selfie-friendly destinations.

Enjoy Nature

Relax in one of the many beautiful garden and nature spots.

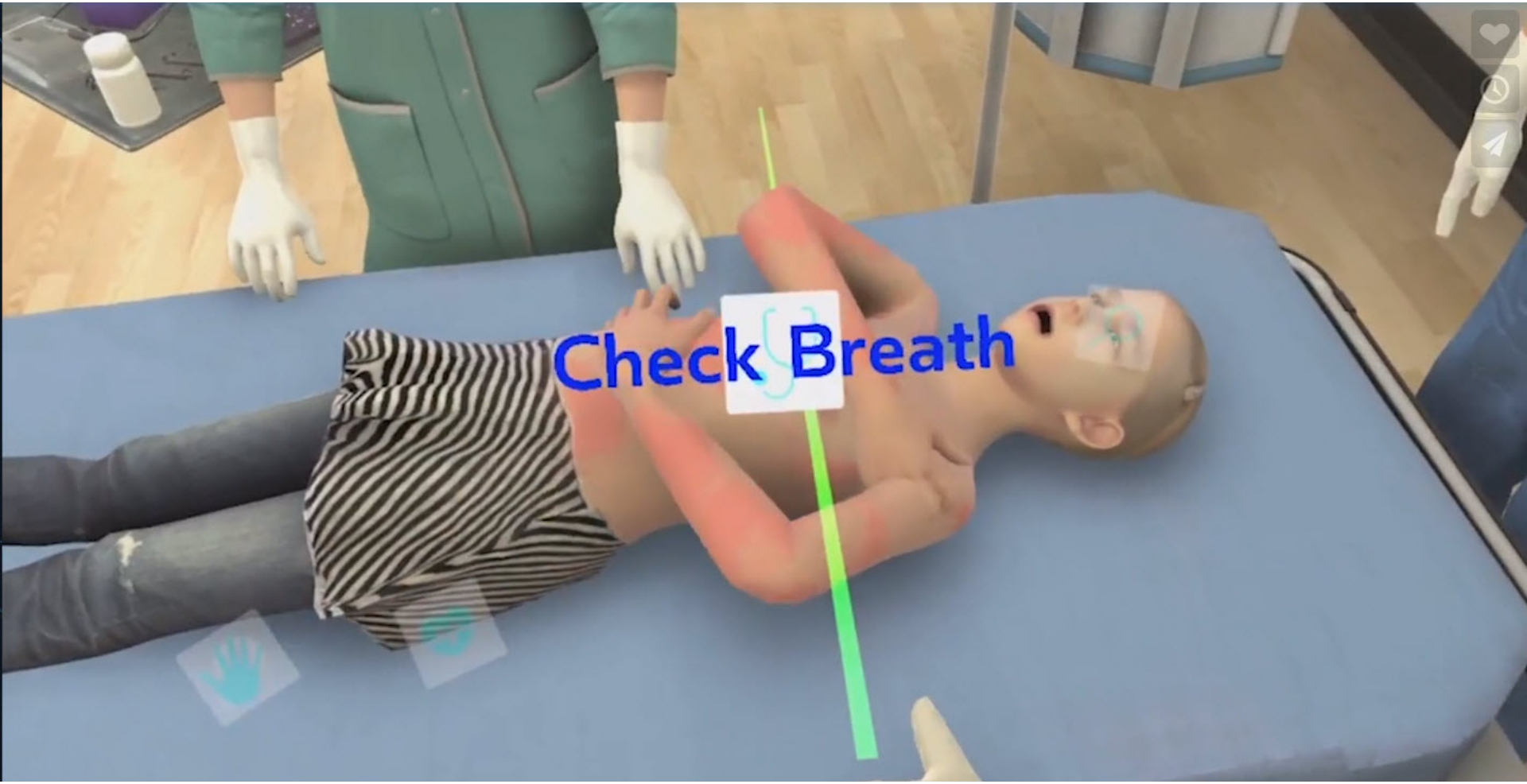


Travel the World

Travel and relax with friends and family at exciting 3D vacation spots.

Case Study: Virtual Hallucinations

Case Study: A.I.Solve



Extending Self-Guided AI Content with Social Engagement

- Virtual World/VR/AR experiences do not have to be solo
- Social engagement amplifies and legitimizes the “realness” of the experience for many participants
  - Group discussions and therapy workshops
  - Collaborative exercises and experiences in 3D spaces

Example: Virtual Health Adventures

Questions?

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