

STIMULATING INCLUSION USING DIGITAL AND VIRTUAL TOOLS

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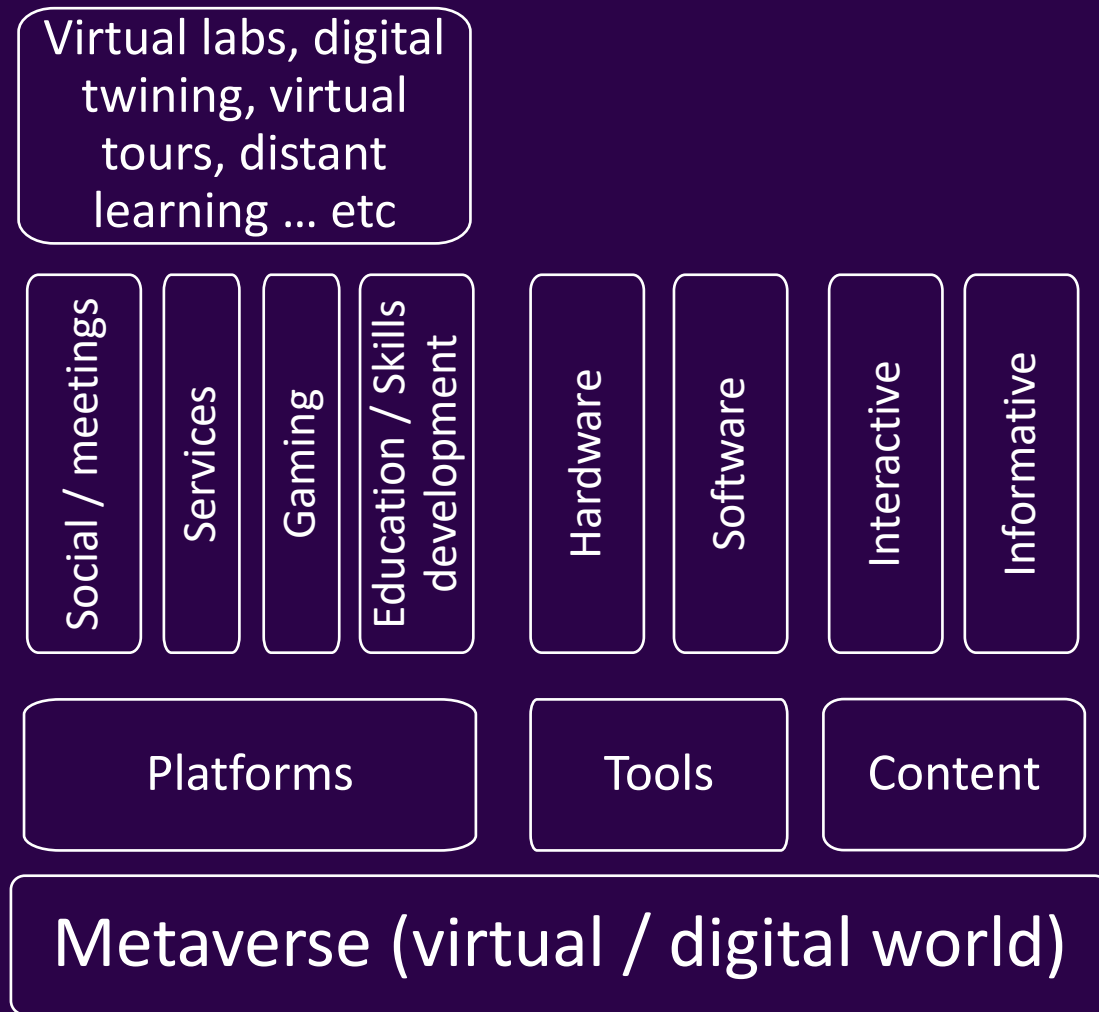
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- Living independently, inclusion and empowerment
- No one is left behind
- Digital inclusion and assistive technologies





❑ Core technologies:

- ML and AI
- Haptic devices
- IOT
- BCI and Oculus tracking
- AR, VR and immersive technologies

❑ Some enabling techniques:

- Text to speech
- Speech to text
- Object / character recognition
- Image / scene description
- Sign language
- Voice overlaying

Digital accessibility and universal design

The Four Principles of Accessibility

Perceivable

The content must be available to users via sight, hearing, and/or touch.

Understandable

The content must be readable and predictable, with clear labels and instructions.



Operable

The product must be keyboard-accessible, navigable, and compatible with different input methods.

Robust

The product must work with a variety of assistive technologies, browsers, and devices.

Source:
<https://www.w3.org/TR/UNDERSTANDING-WCAG20/intro.html>

Seizure Safety: Do not design content that might trigger a seizure for people with photosensitive epilepsy.

Compatible: Maximize compatibility across devices and make sure content is compatible with assistive technologies.

Navigation: Provide multiple, intuitive ways for users to navigate content.

Input Assistance: Help users to avoid making mistakes; make corrections easy.

Readable: Make text content easily readable and understandable, both visually and cognitively.

Predictable: Make pages appear and operate in predictable ways.



Video Alternatives: Provide alternatives for video and audio. Closed captions and audio descriptions are required for time-synced video.

Text Alternatives: Provide text alternatives for any non-text content so that it can be converted into other forms people need.

Adaptable: Create content that can be presented in different ways without losing information or structure.

Keyboard Accessible: Make all functionality available from a keyboard.

Clarity: Provide adequate color contrast and reduce visual clutter that affects legibility.

Time: Provide users enough time to read and use content.

Egypt's relay center and digitally accessible service(s)



- Sign language dictionary

VR

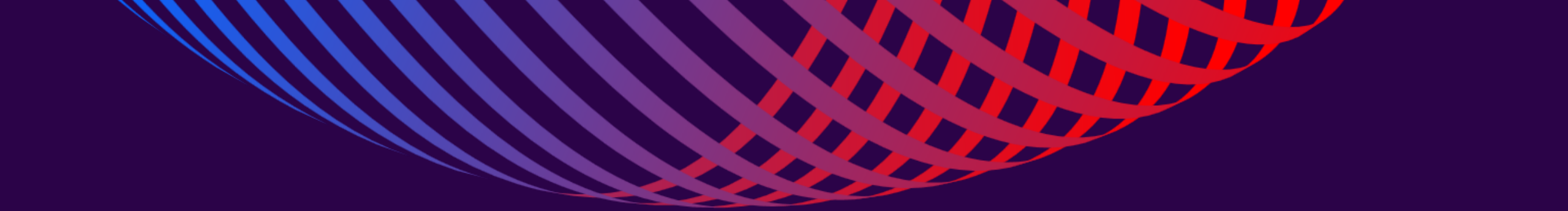
AR

XR

BCI



Metaverse tools (AT)



Enabling People with Visual Impairments to Navigate Virtual Reality with a Haptic and Auditory Cane Simulation

Yuhang Zhao^{1,2}, Cynthia Bennett^{1,3}, Hrvoje Benko¹,
Edward Cutrell¹, Christian Holz¹, Meredith Ringel Morris¹,
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¹Microsoft Research, Redmond

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Using the virtual environment for rehabilitation

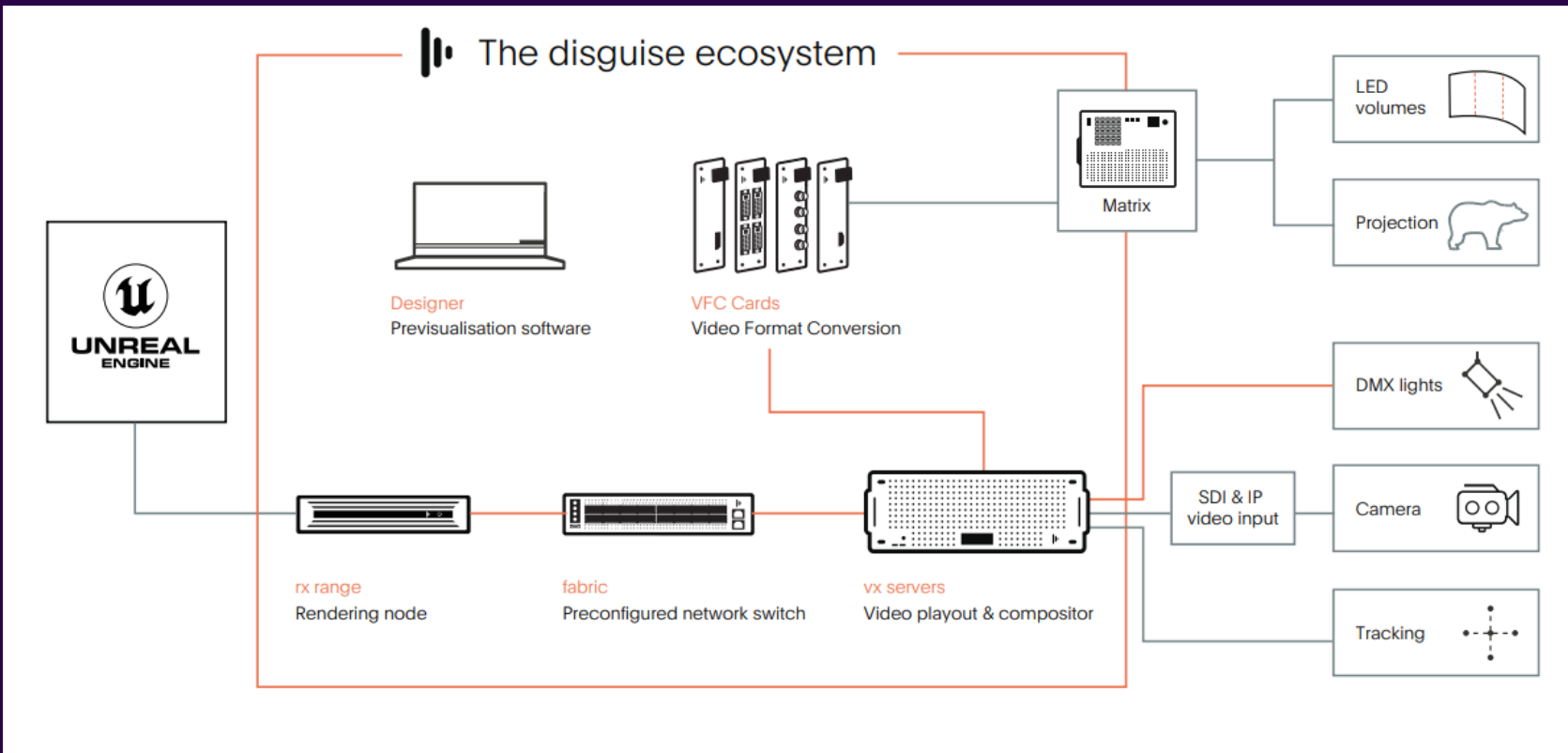


The future of AR wearables



Immersive reality for PwDs

NAID's XR studio (Immersive storytelling and content development)





Ministry of Communications
and Information Technology



National Academy of Information
Technology for Persons with Disabilities

THANK YOU

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