



DIGITAL FUTURES

HUMAN CENTERED DIGITAL INNOVATION

Dr Nick Peres – Director of Digital Innovation & Transformation

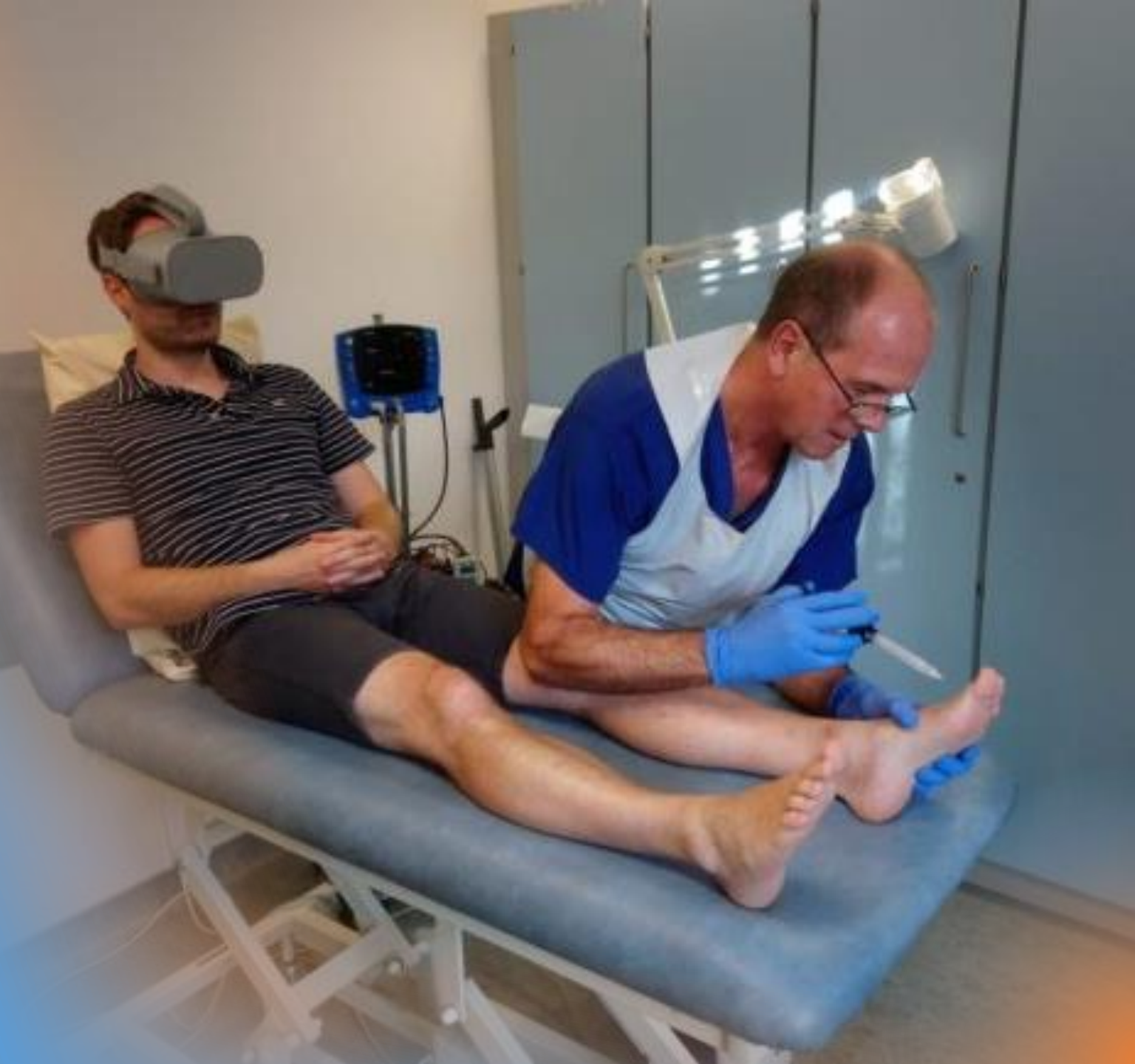
Learn more on our website:



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Torbay and South Devon
NHS Foundation Trust



Our Focus

“The NHS should expand research and development programmes to co-create digital technologies and ensure that emerging technologies meet their needs.”

Topol Review (2019)

Digital Futures is a team made up of technical, creative, clinical and academic based skillsets.

We also harness studentships, apprenticeships and fellows from non-traditional disciplines, such as software design, media and video games.

Our Team



NICK PERES
*DIR. DIGITAL INNOVATION &
TRANSFORMATION*



BUZZ MATTHEWS
*HEAD OF DIGITAL EDUCATION
& SIMULATION*



JACQUI REES-LEE
*DIGITAL FUTURES CLINICAL
LEAD*



PAYAL GHATNEKAR
*IMMERSIVE TECHNOLOGIES
RESEARCH LEAD*



JON WATT
DIGITAL INNOVATION LEAD



DAVID HALLETT
*DIGITAL INNOVATION
DEVELOPER*



CAYDEN ANDERSON
DIGITAL APPRENTICE



JETT BRADFORD
*DIGITAL T LEVELS
PLACEMENT*

Fostering the benefits of digital technology

The 'Art of the Possible' is now.



XR Immersive Technologies



3D Printing



3D Scanning/Digital Twins



Artificial Intelligence



Mobile/Desktop Applications

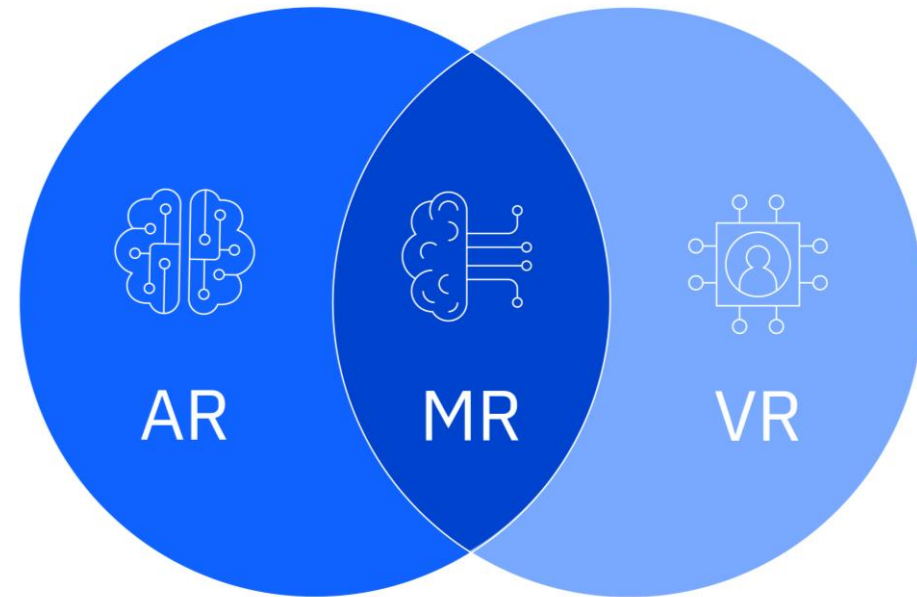


Smart wearables

What is XR?



An umbrella term – encapsulating Virtual Reality (VR), Augmented Reality (AR), Mixed Reality (MR) and everything in between.



XR

Augmented Reality (AR)

Digital content on top of the real world

Mixed Reality (MR)

Digital interacts with the real world

Virtual Reality (VR)

Digital environments that shut out the real world



Our XR journey at Torbay



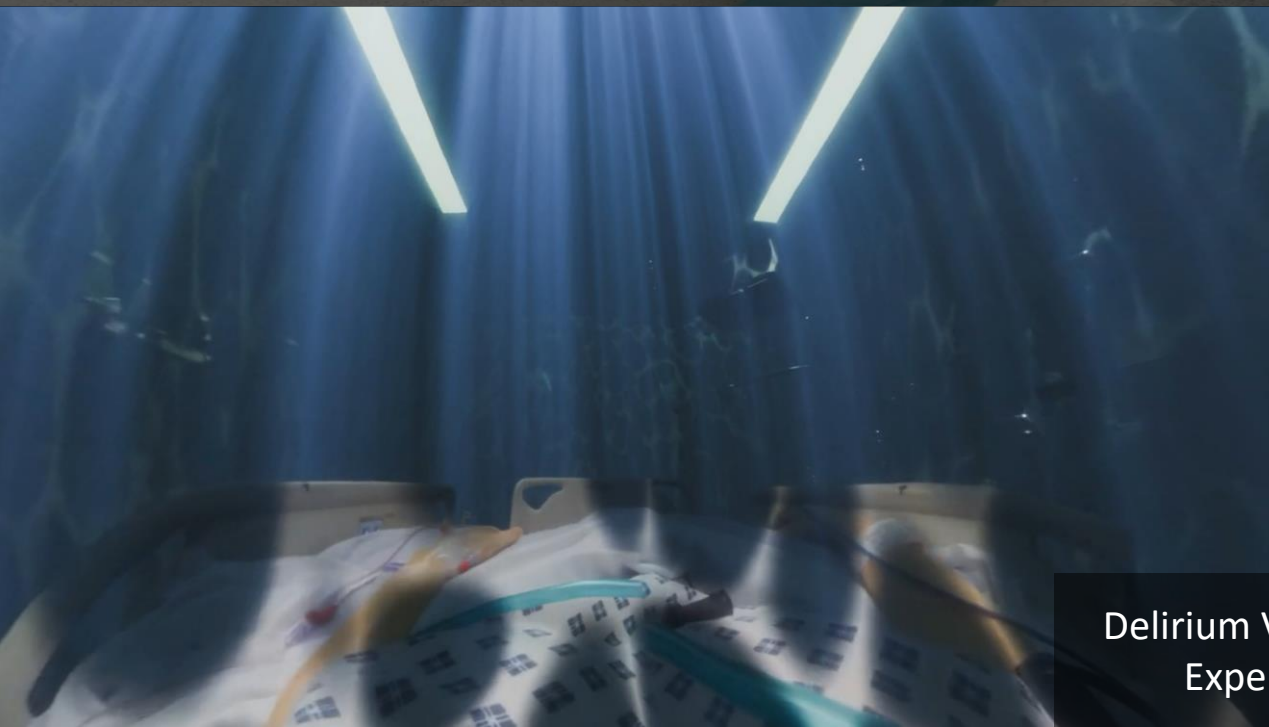
360 Training – Sexual Harassment



ODP Theatres Orientation



Care Homes Deterioration Training



Delirium VR Training Experience



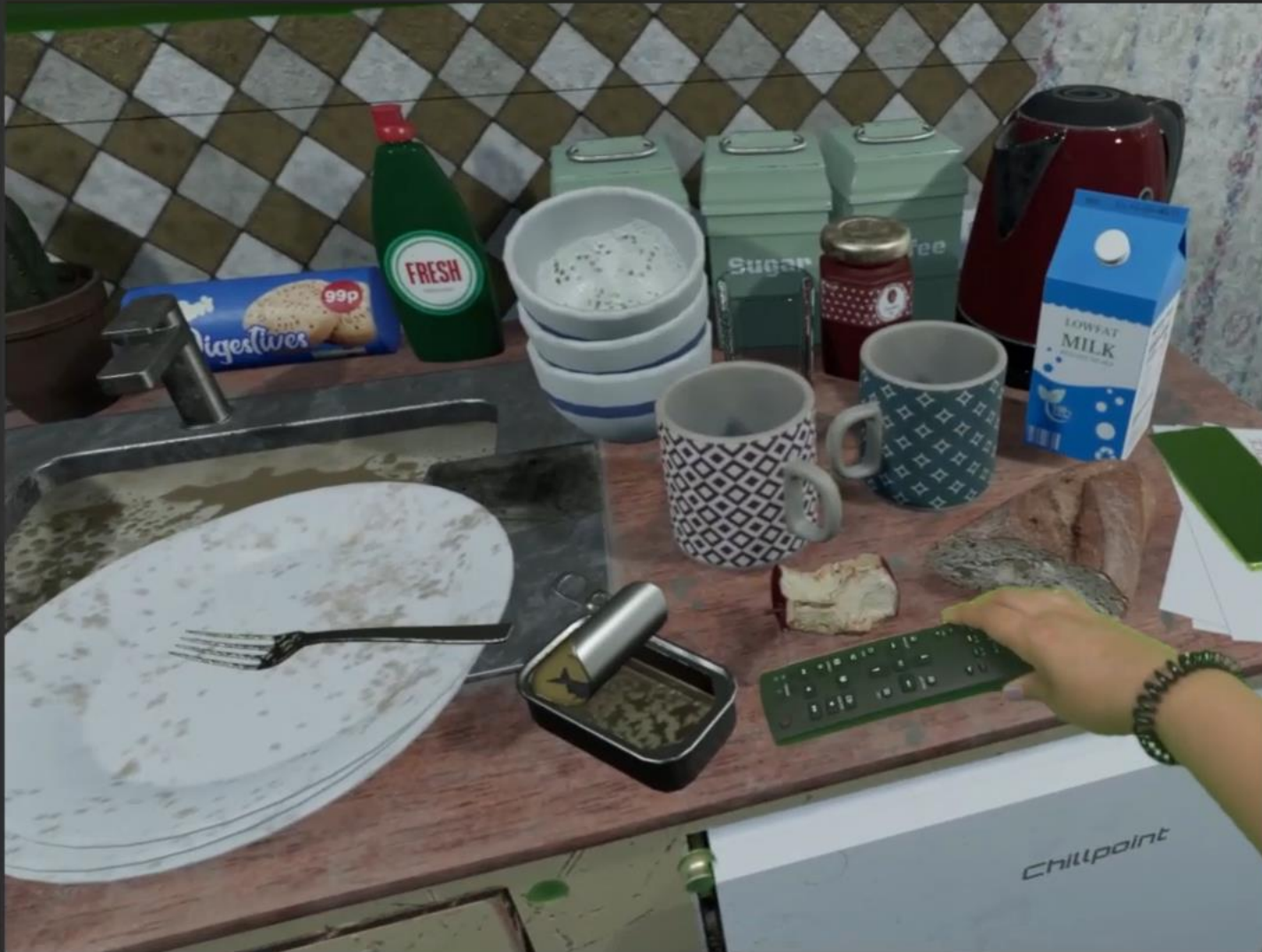


Resus – Interactive 360
Orientation of
emergency medical
devices.

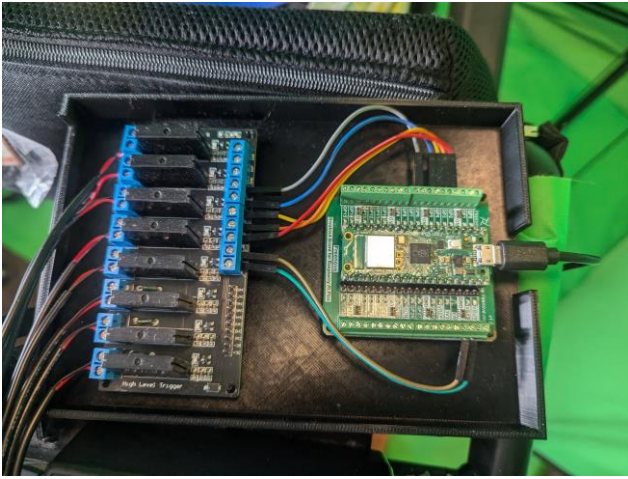
- Blending digital interactive artefacts with 360 imagery
- Allowing new trainees to better orientate themselves with ward layout and locations of emergency medical equipment



XR Community Simulation Project



XR Simulation van demonstration



In-House Developed XR Eye-Tracking Solution

Intuitive Control for MND Wheelchairs and Devices

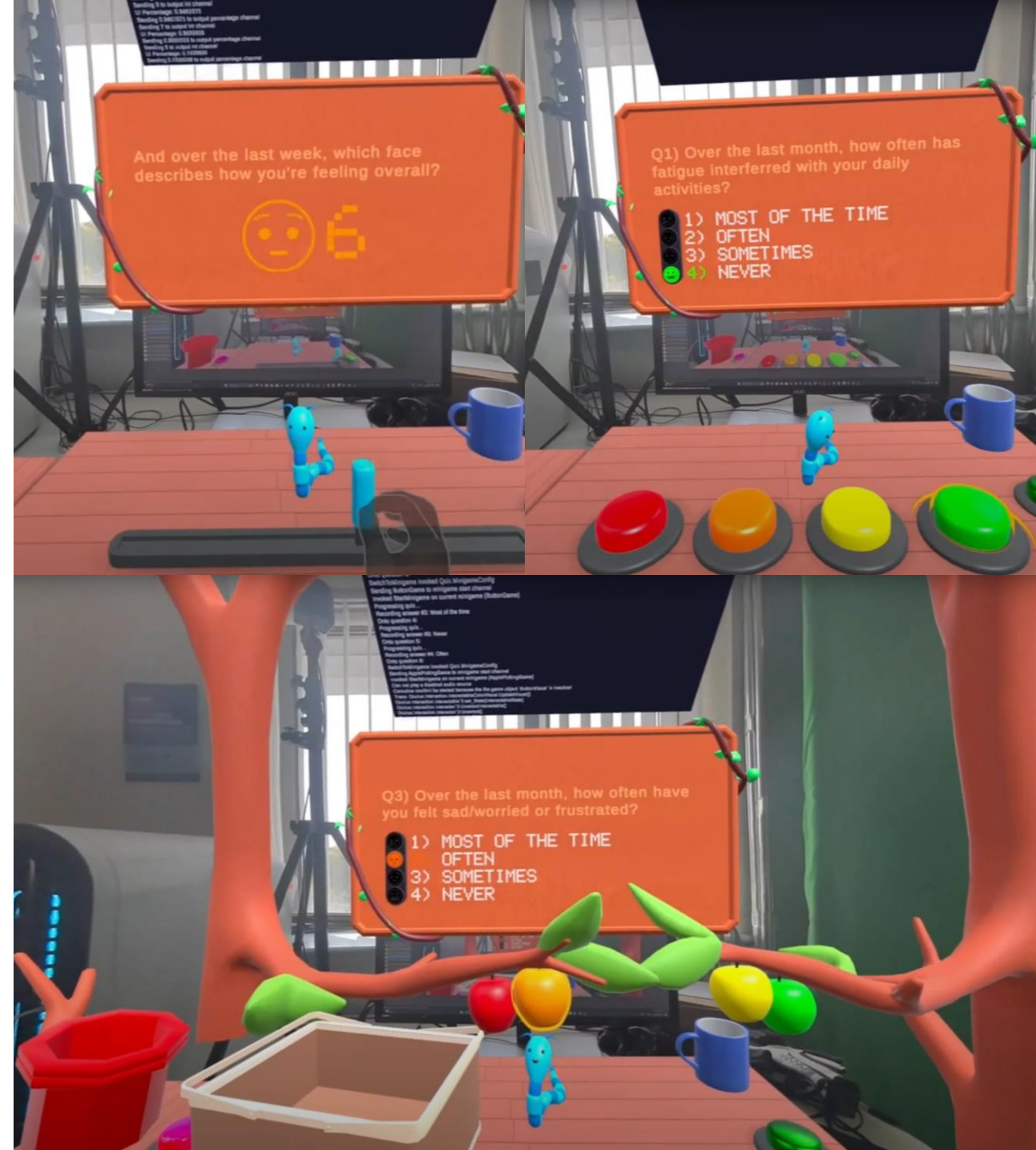
Powered by Our Team's Specialised Technical Expertise



Eye tracking controlled MND Wheelchair

Rheumatology Adolescents Pain scores

- Addressing SEND Patients in Rheumatology
 - High volume of children and young people with special educational needs and disabilities
 - Innovative solutions needed to enhance their healthcare experience
- Revolutionising Pain Score Questionnaires
 - Utilising hand tracking and passthrough in XR devices (Quest 3)
 - Creating an interactive and engaging experience for young patients
 - Transforming traditional questionnaires into accessible activities
- Guided by Rheumy, The Rheumatology Worm
 - Friendly character guides users through the XR questionnaire
 - Provides comfort and clear instructions for a smooth experience
 - Responses securely transmitted to clinicians in real-time





Interactive AI Virtual Patients

- Harnessing XR Passthrough and Hand Tracking Technology
 - Creating immersive virtual simulated patient scenarios
 - Providing a safe practice environment for trainees and medical students
- Integrating AI for Enhanced Interaction
 - Enabling conversation with virtual patient avatars
 - Allowing trainees to ask questions and perform basic observations
 - Simulating realistic patient encounters and responses
- Customisable Scenarios for Diverse Training Needs
 - Tailoring scenarios to cater to various specialties and learning objectives
 - Collaborating with multiple teams to develop bespoke training modules
 - Ensuring adaptability and relevance across different medical disciplines



The Challenges



Limitations to hardware access



Cost associated with devices



Workforce requirements for development of bespoke content, or funding requirements for external development.



Digital literacy and tech barrier – training clinical teams and educators to gain confidence to adopt and utilise these technologies.



Infrastructure limitations (network, device control, etc)

Deep dives – breaking down the tech barrier

- Detailed 90-minute sessions, delivered to clinical staff and teams.
- Targeting a variety of innovation areas and technology (XR Technology, 3D Scanning/Printing, Artificial Intelligence, Machine Learning, etc)
- To stimulate discussion and inspire idea generation for innovation, as well as nurturing digital confidence.



Thank you, Any Questions?

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