



XR FOR HEALTH

EU XR FORUM

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 **Europe
Unlimited**

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 **LUCIDWEB**



This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement N° 825545.

WHY?

Helps decision-making

Natural visualization of 3D medical imaging, potentially in collaboration

Perfectly localized contextual information with AR

- Planification data
- Real-time medical imagery
- Reduce ambiguities in mapping contextual information to the patient body

Provides surgeons with the super power to see inside the patient's body

Better understanding of phenomena

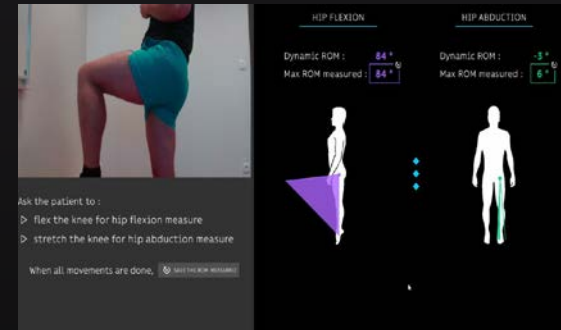
Low invasive surgery



WHEN?



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LEARNING

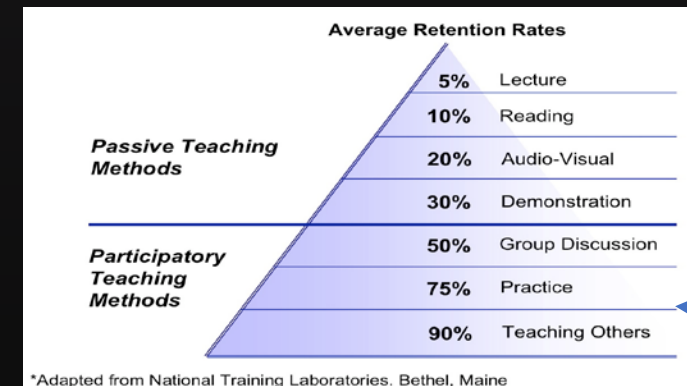
Provides a better understanding of the phenomena and procedures

- A transparent view of an equipment or organ to observe its internal functioning.
- Learning without risk of technical gestures for complex procedure.
- Instant visual feedback of the quality of the gesture.
- For AR, possible interactions between virtual and real elements (e.g. manikin).

Better memorization through practice

Cheaper and easier

- No manikin, or AR extended manikin.
- Less practice on cadavers.



XR learning

PREOPERATIVE

Mainly based on 3D medical imagery visualization

- Magnetic Resonance Imagery
- Computed Tomography Scan

Diagnostic (AR & VR)

- Better understanding of the patient's anatomy and pathology.

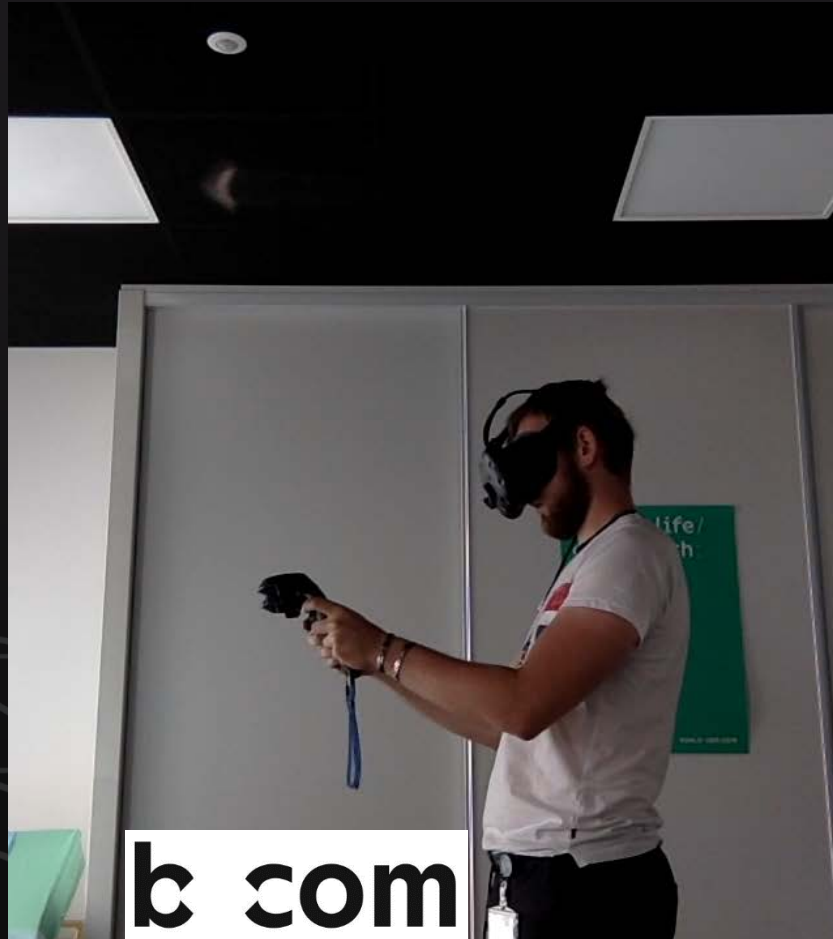
Surgery planning (AR & VR)

- Tool trajectory, positioning of a prosthesis, a cutting plane, etc.
- Improved reliability of complex interventions.

Pathology/procedure explanation to the patient (AR & VR)

- Immersive visualization of 3D medical imagery is much more understandable.

ANEURYSM PLANNING



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INTRAOPERATIVE

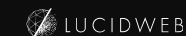
Guiding the surgeon's gesture during a Computer Assisted Surgery (AR).

- Medical information directly registered with the patient anatomy.
 - Preoperative 3D medical imagery.
 - Medical imagery captured in real-time.
 - Planning information (e.g. tools or targets).
- Improved reliability of complex interventions.
- Reduced intervention time.
- Less invasive surgery.
 - Reduced hospitalization time!

AUGMENTED REALITY BASED SURGERY ASSISTANCE

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POSTOPERATIVE

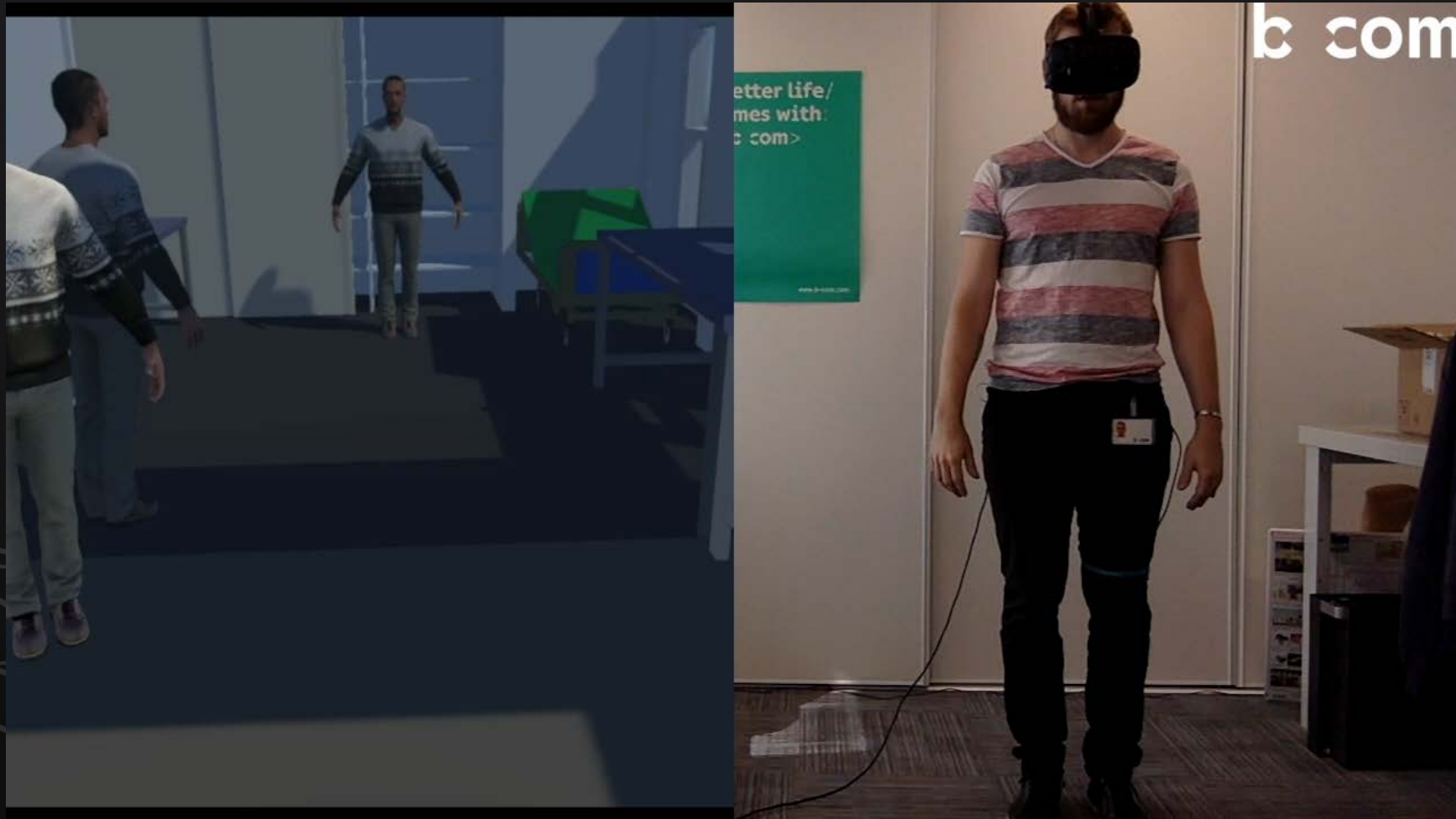
Rehabilitation (AR & VR)

- Gamification of exercises is more motivating and can improve patient mood.
- Within the hospital, in rehabilitation centres, at home.
- Real-time instructions, objectives and visual feedback about the gestures.
- Faster recovery through more effective and frequent home exercises.

Assistance to home care staff (AR)

- Automated assistance.
- Remote assistance in telemedicine:
 - The remote clinician can add some indications on the transmitted images of the patient.

GAMIFIED REHABILITATION IN VR





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