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Serious Games and Digital Health

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Serious Games & Digital Health

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Inspiring tomorrow's professionals



Serious Games for Post-Stroke Rehabilitation



Funded by NI Chest, Heart & Stroke Association
Ma, M. & Bechkoum, K. (2008) Serious Games for
Movement Therapy after Stroke. IEEE Systems,
Man & Cybernetics, Oct 2008, 1872-1877.

Inspiring tomorrow's professionals



Serious Games for Respiratory Physiotherapy



Partner with Nottingham University Hospitals
EU Regional Development Fund
Oikonomou, A., Hartescu, D., Day, D., & Ma, M. (2014) **Computer Games Physiotherapy for Children with Cystic Fibrosis**. In *Virtual, Augmented Reality and Serious Games for Healthcare*, Ma, M. et al. (Eds.) 411-444, Springer, Heidelberg. ISBN 978-3-642-54815-4

Inspiring tomorrow's professionals



3D Visualisation for Anatomy Education



Real-time Medical Visualisation of Human Head & Neck Anatomy and its Applications for Dental Training



Partner with

- Laboratory of Human Anatomy University of Glasgow

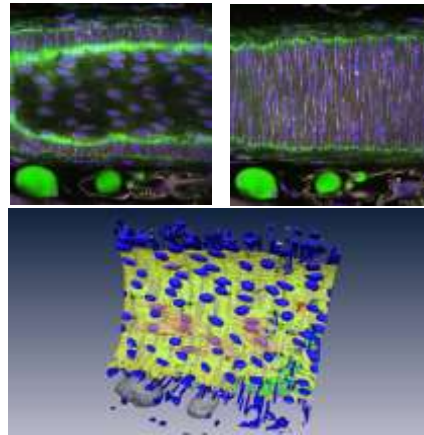
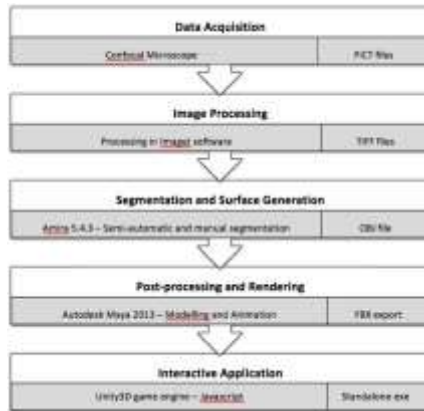
Funding

- NHS Education for Scotland

Anderson, P., Chapman, P., Ma, M. & Rea P. (2013) Real-time Medical Visualization of Human Head and Neck Anatomy and its Applications for Dental Training and Simulation. *Current Medical Imaging Reviews*, 9(4): 298-308, November 2013. Bentham Science Publishers: Netherlands.



3D Visualisation for Physiology Education



Partner with

School of Life Sciences, University of Glasgow

Funded by

Physiological Society David Jordan teaching grant
Daly, C., Clunie, L. & Ma, M. (2014) From Microscope to Movies: 3D animations for teaching physiology. *Microscopy & Analysis* 28(6):7-10, John Wiley & Sons.

Inspiring tomorrow's professionals



Sur-Face: A mobile app for educating patients regarding corrective surgery of facial deformities



- Orthognathic surgery - a complex procedure to correct the underlying facial deformities
- Patients make voluntary decisions
- Understand the intricacy of the techniques & potential risks of the surgery before they sign the consent form
- Interactive 3D visualizations in healthcare app



Available on Google play, search
Sur 'FACE' Yeshwanth

Inspiring tomorrow's professionals





Oculus Surgery

a mixed reality surgical training experience

Equipment for the project

- Bubi Camera
- 360° Videography
- Virtual reality viewer
- Oculus Rift
- Interactive user interface
- unity
- Unity 3D
- Motion control
- Leap Motion
- Formlabs

Stereoscopic 3D videos



Don't worry Sir, you are in safe hands. We played the game well!



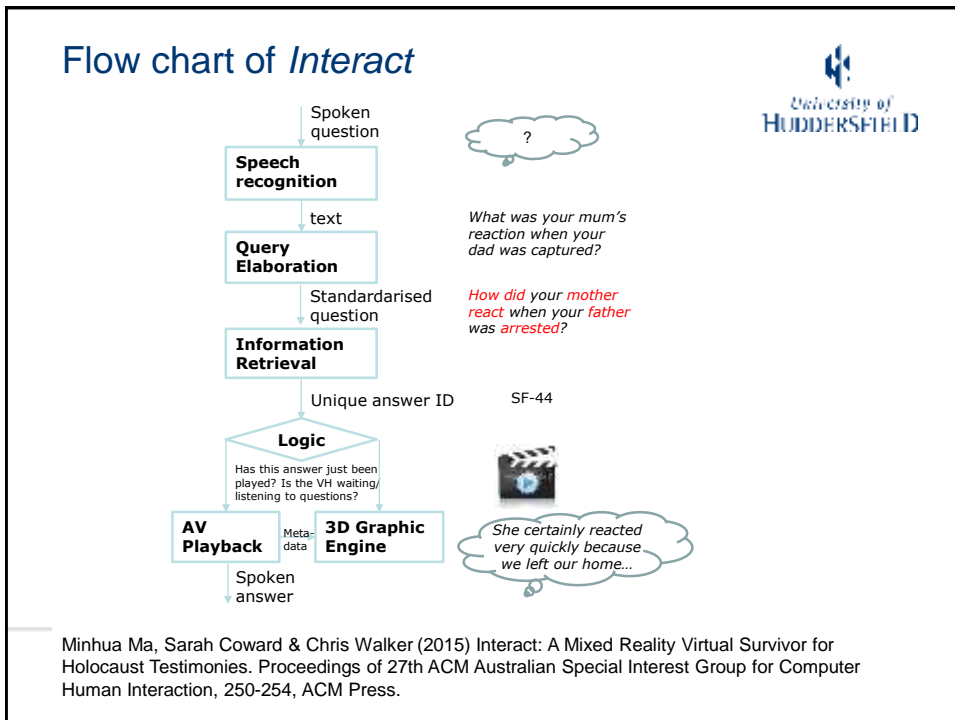
Ma, M., Jain, L., Anderson, P. (Eds.) (2014) Virtual, Augmented Reality and Serious Games for Healthcare 1. Springer-Verlag: Heidelberg, Germany. ISBN 978-3-642-54815-4, 650 p.

<http://www.springer.com/engineering/computational+intelligence+and+complexity/book/978-3-642-54815-4>



Inspiring tomorrow's professionals





Virtual patients for training doctors' communication skills



Inspir



Thank you



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