UK Science & Innovation Network

Serious Games for Health Workshop
Philadelphia, USA. 22-23 March 2016

University of HUDDERSFIELD

Serious Games & Digital Health

Prof. Minhua Eunice Ma
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University of Huddersfield, UK

Inspiring tomorrow's professionals

Serious Games for Post-Stroke Rehabilitation

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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

University of
HUDDERSFIELD

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

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

Partner with
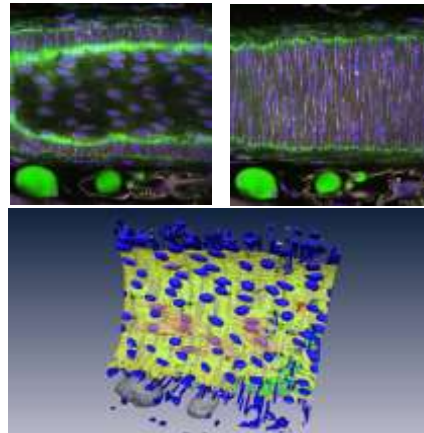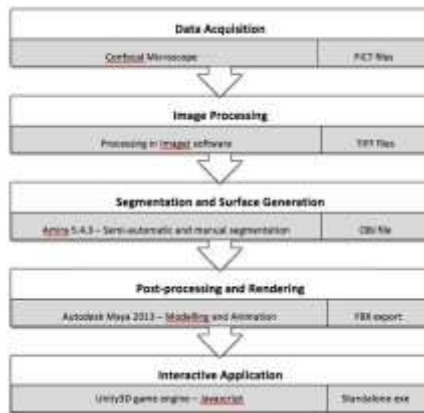• Laboratory of Human Anatomy University of Glasgow

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

University of HUDDERSFIELD

- 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

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Over crowded operating rooms

Oculus Surgery
a mixed reality surgical training experience
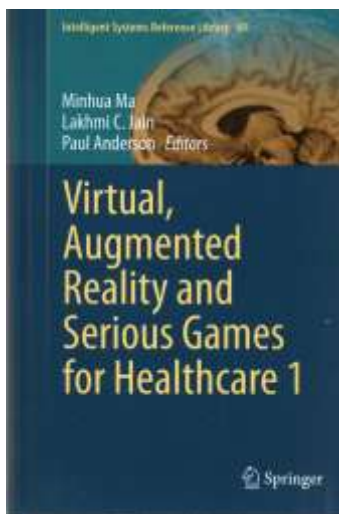
Don't worry Sir, you are in safe hands. We played the game well!

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.

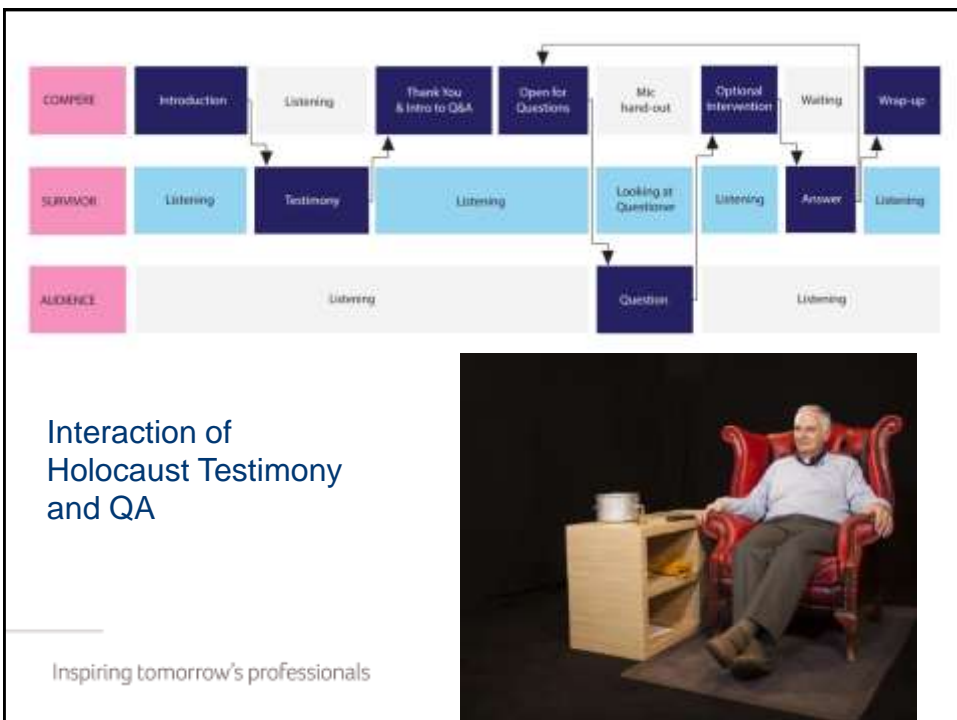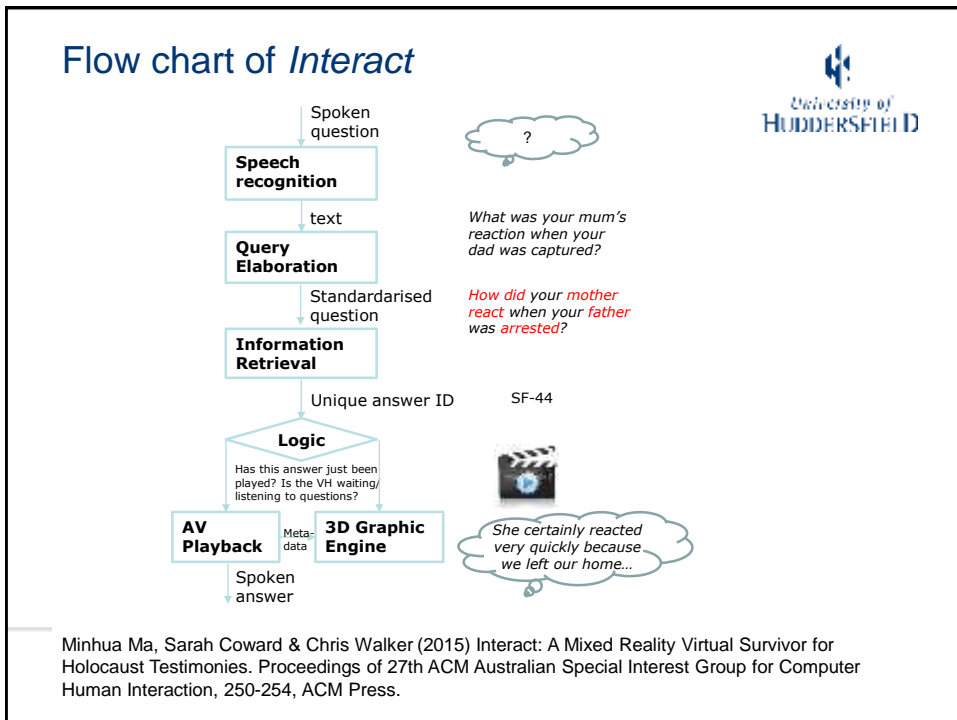http://www.springer.com/engineering/computational+intelligence+and+complexity/book/978-3-642-54815-4

Mixed Reality Virtual Survivors for Holocaust Education

- The *Interact* Project
- Partners
  – The National Holocaust Centre & Museum
  – University of Huddersfield
  – Bright White Ltd
- Funding: NESTA, AHRC, The Arts Council England

Interaction of Holocaust Testimony and QA

Inspiring tomorrow's professionals

Flow chart of *Interact*

Minhua Ma, Sarah Coward & Chris Walker (2015) Interact: A Mixed Reality Virtual Survivor for Holocaust Testimonies. Proceedings of 27th ACM Australian Special Interest Group for Computer Human Interaction, 250-254, ACM Press.

Virtual patients for training doctors' communication skills

University of HUDDERSFIELD

Inspir

Thank you

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