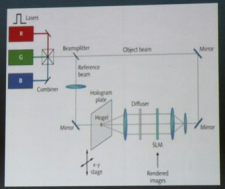

DIGITAL HOLOGRAPHIC MEDICAL IMAGING
FROM ORGANS TO FULL HUMAN ANATOMY
Dr Javid Khan
Holoxica® Ltd
Scottish Microelectronics Centre
Edinburgh
June 30, 2015
United Nations Educational, Scientific and Cultural Organization
International Year of Light 2015

Holoprinter Technology

- Architecture
  - RGB pulse lasers
  - Holopixels/hogels
  - Material
  - SLM
  - Optics
  - X-Y stage
- Desktop devices



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Partners
ZEBRA IMAGING
viewholographics
GEOLA
Ceres Imaging
Bayer MaterialScience
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Benefits of 3D Visualisation

- 75% better in general [1]
  - Spatial Manipulation
  - Finding/ID/classification
- 40% Faster interpretation of CT [2]
- 15% Faster Surgery [3]
- ~20% better quality surgery [3]

Rhind Mummy

- Forensic Archaeology
- CT scan
- NMS, CRIC
- Channels
- MIT Museum
- New Scientist
- Fabrication
  - View, Geola

clinical research imaging centre EDINBURGH

National Museums Scotland

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National Museums Scotland


Lungs
Public Engagement
Royal College of Surgeons
Animated hologram
Fabrication
View Holographics
Geola
Zebra Imaging
THE ROYAL COLLEGE OF SURGEONS OF EDINBURGH
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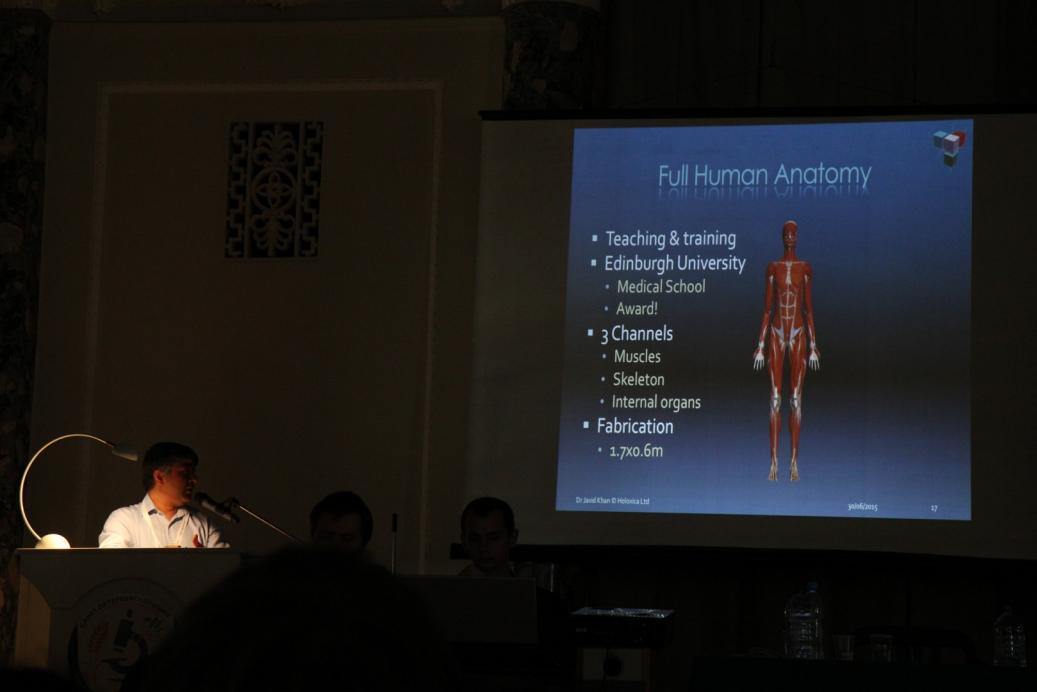
Brain Fibre Tracts

- Functional MRI
  - Diffusion Tensor Imaging
  - Water molecules
    - Anisotropic Diffusion
- Neuroscience
  - Stroke
  - Cancer
  - Degenerative diseases


Full Human Anatomy
Teaching & training
Edinburgh University
Medical School
Award!
3 Channels
Muscles
Skeleton
Internal organs
Fabrication
1.7x0.6m
Dr Javid Khan © Holovica Ltd
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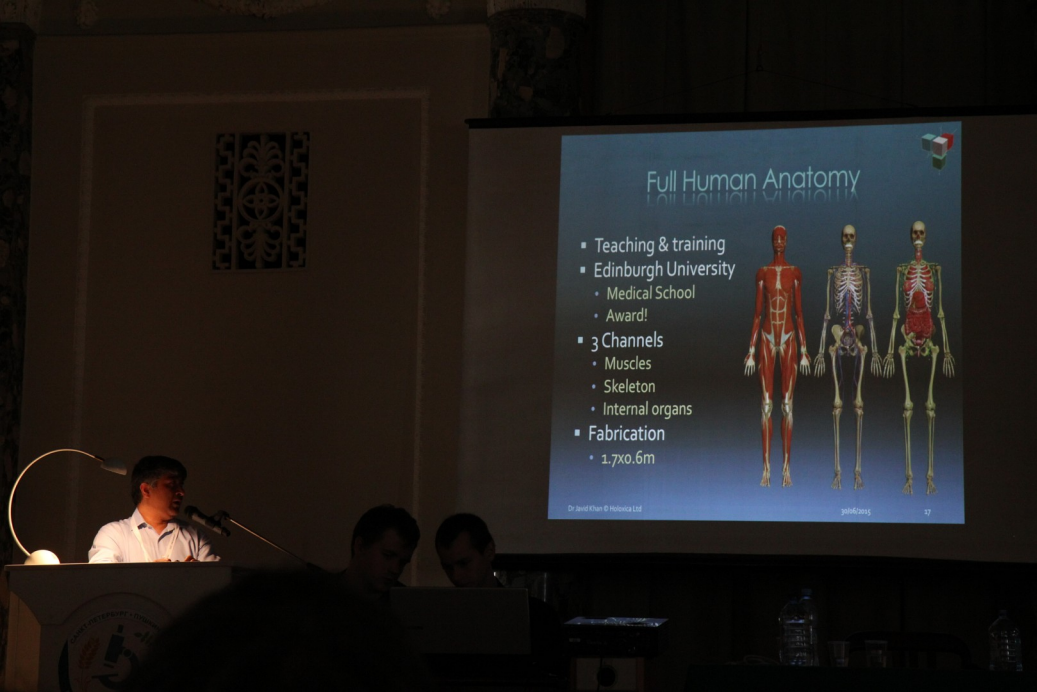
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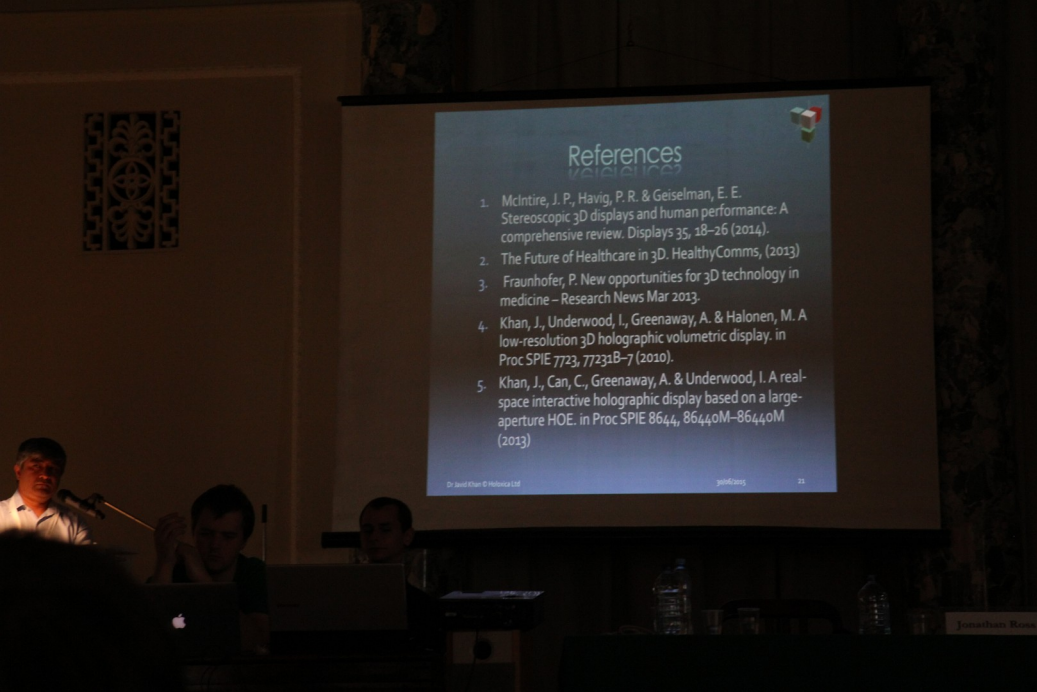
Holographic Video Display

- 3rd Generation display
  - Real space
  - Volume slices
  - Medical scanners
- Advanced components
- Seeking collaborators
  - Clinical
  - Image assessment

Artist's impression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