

Visualisation of injuries for court presentations

The researcher will explore innovative ways of presenting easy-to-understand injury evidence to juries.

Key details

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Police region	West Midlands
Collaboration and partnership	West Midlands Police; West Midlands Surgical Training Centre.
Level of research	Professional/work based
Project start date	September 2015
Date due for completion	September 2024

Research context

Expert testimony at court can be difficult to understand by juries, especially medical/pathological evidence which is often at the centre of homicide trials. However, pathologists cannot use photographs to support their evidence due to the graphic nature of such images.

Micro-CT images provide sufficient abstraction and therefore sanitisation to show the images in court to provide context and visual aids to the jury. Medical and pathological evidence can be difficult to understand for lay people and having illustrative support can increase its comprehensiveness.

Research methodology

Of all the cases submitted for scanning, those displaying complex injury patterns are selected for visualisation. The raw data in all cases come from micro-CT scans which show the injuries in 3D and at high resolution. Using specialist viewing software, these 3D views are animated into video clips showing an overview of the sample, detailed views of the injury, and annotations as required. These individual clips are then incorporated into user-friendly Powerpoint presentations with interactive components. These are based on instructions received from CPS/barristers/investigators and support other expert witnesses' testimony. Additionally, 3D prints can be created from the scans in order to improve the jury's understanding of the item in question.

Interim reports or publications

Baier, W., Warnett, J. M., Payne, M. and Williams, M. A. (2018) Introducing 3D printed models as demonstrative evidence at criminal trials. *Journal of Forensic Sciences*. 63(4), pp. 1298-1302.

Baier, W., Donnelly, M. J., Payne, M., & Williams, M. A. (2020). A Holistic Multi-Scale Approach to Using 3D Scanning Technology in Accident Reconstruction. *Journal of forensic sciences*, 65(5), 1774-1778.

Baier, W., Norman, D.G., Donnelly, M., & Williams, M.A. (2021) Forensic 3D printing from micro-CT for court use- process validation. *Forensic Science International*.