Chapter 10
Virtual Evidence in the Courtroom

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ABSTRACT

Courtroom environments, which have been one of the last bastions of the oral tradition, are slowly morphing into cinematic display environments (Heintz, 2002). The persuasive oral rhetoric of lawyers is increasingly being replaced by compelling visual media displays presenting a range of digital evidence in a convincing and credible manner (Lederer, 2005; Schofield, 2007).

There are a number of fundamental implications inherent in the shift from oral to visual mediation, and a number of facets of this modern evidence presentation technology need to be investigated and analysed. This chapter describes the use of computer-generated visual evidence in court (particularly forensic animation and virtual reconstruction technology) and discusses some of the benefits and potential problems of implementing this technology.

INTRODUCTION

In a modern courtroom, the presentation of forensic evidence by an expert witness can bring about the need for arduous descriptions by lawyers and experts to get across the specifics of complicated scientific, spatial and temporal data. Technological advances have also meant that experts have had to develop new ways to present such increasingly complex evidence in court. Digital visual evidence presentation systems (including digital displays, computer-generated graphical presentations and three-dimension simulations) can be used to present evidence and illustrate hypotheses based on

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scientific data. Digital reconstruction technology may also be applied in a courtroom to explore and illustrate 'what if' scenarios and questions, testing competing hypotheses and possibly exposing any inconsistencies and discrepancies within the evidence (Burton et al, 2005).

It is important to realise that the use of such computer-generated presentations in a courtroom is only the current manifestation of evidence illustration and visualisation in a long history of evidential graphics used in litigation (Schofield & Goodwin, 2007). However, computer animations and interactive virtual simulations are unparalleled in their capabilities for presenting complex evidence. The use of such enabling visualisation technology can affect the manner in which evidence is assimilated and correlated by the viewer; in many instances, it can potentially help make the evidence more relevant and easier to understand (Tufte, 1985; Mervis, 1999; Burton et al, 2005).

At first glance, these graphical reconstructions may be seen as potentially useful in many courtroom situations, and they are often treated like any other form of digital evidence regarding their admissibility (Schofield & Goodwin, 2007). However, perhaps this specific form of digital media warrants special care and attention due to its inherently persuasive nature, and the undue reliance that the viewer may place on the evidence presented through a visualisation medium, this is often referred to as the 'seeing is believing' tendency (Galves, 2000; Girvan, 2001; Spiesel et al, 2005; Sherwin, 2007). The precise effect that visual imagery has on members of a jury, witnesses and other viewers in the court is not known, and concerns are beginning to be articulated that the use of modern computer-generated visualisation technology can distort perceptions, memories, attitudes and decision making in the court (Girvan, 2001, Spiesel et al, 2005, Bailenson et al, 2006 and Schofield, 2007).

COURTROOM TECHNOLOGY

It is beyond the remit of this chapter to provide an extensive catalogue of every aspect of technology employed and utilised in modern courts. This has been undertaken by many other authors. For example, Brown (2000) gives a comprehensive review of technology used in courts up to the end of the century, and Schofield and Goodwin (2007) also give details of a number of current applications.

For the purposes of this chapter, technology used in courts and chambers is defined as including any technology built into the court, and any technology used in legal proceedings. In 1997, it was estimated that there were approximately 50 high-technology courts around the world (Lederer and Solomon, 1997). A more recent survey found that over a quarter of US district courts had some form of computer monitors or screens for the jury, and two-thirds of them had access to digital projectors and projection screens (Wiggins, 2006). The cost of upgrading to a high-technology court has, in the past, often been seen as prohibitive; however, as digital technology develops, the costs invariably continue to fall.

Courts contain different levels of technology, but specifically may include options for the following (Lederer and Solomon, 1997 and Schofield and Goodwin, 2007):

- Electronic filing (potentially with document display capability).
- Foreign language translation (potentially simultaneous – with audio or visual and textual presentation).
- Multimedia court records captured using stenographic real-time electronic transcripts accompanied by digital audio and video.
- Information and evidence retrieval using imaged documents available from CD-ROM or other data storage and retrievable by a computer system.