

E61 The Use of Video Recording Systems in Solving Forensic Cases

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Learning Overview: After attending this presentation, attendees will understand the role of video recording systems in forensic investigations.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by reporting six cases in which video systems were crucial for reconstructing the events.

To date, video surveillance systems guarantee safety both to people and items. Video surveillance systems have also changed over time, both in technology and in approach. The new generation systems allow sharp image details, and the advent of digital technology has made possible the development of so-called “video analysis.” This allows, through sophisticated software, the automatic recognition of any critical issues and different applications. Modern video monitoring systems are designed to perform multiple tasks simultaneously. From the legal point of view, it is important to extract the video recording to reveal the guilty party of a crime and provide evidence of guilt. In the forensic field, video recording systems are often useful even when they record in neighboring areas and become, in a completely random way, fundamental elements for solving cases since they are located in areas where crimes took place, then used for judicial purposes. The purpose of this study was to evaluate the role of video recordings in the analysis of scenes in which often the dynamics and events are not clear and present doubts about witnesses, statements, and culprits. In every case, a detailed scene analysis, an autopsy, and a video recording analysis were performed. In all cases, the video recordings were reproduced on CD-ROM support and were analyzed through the computer screen. Finally, all the video recordings were compared with autopsy findings and witnesses.

Reported are six forensic cases in which the acquisition of videotaped images was analyzed after the events. The first reported case is the death of a man who was hit by a car. The dynamics of the event were unclear and the driver’s story about the lack of road visibility aroused doubts. The analysis of the images clarified the driver’s responsibility. In the second case, a woman fell from the second floor of a building. In this case, it was not clear if the manner of death was suicidal or accidental. The analysis of the images allowed the visualization of the suicidal will of the woman. The third reported case was a case of fire that caused the death of two people. The manner of the fire was doubtful, in particular if it was intentional or malicious. The analysis of the video recordings made it possible to understand the involvement of the victims in the fire and the investigation revealed the motive. The fourth case concerns the death of a girl following a car accident. In particular, video recordings clarified the responsibilities of the accident and the speed of the vehicles involved. In the fifth case, the death of a woman due to a heinous murder is reported. Video recordings of cameras placed on a street made it possible to clarify the veracity of the testimony of a subject and his role in the murder. In the sixth case, the death of a girl in a psychiatric clinic was analyzed during lunch because of a choking. In this case, the intervention of the health personnel was doubtful and investigations about the correctness of the first aid were performed. Security camera recordings continue to play an increasingly important role in crime investigations. Visual information is very important independent of the fact that it concerns a crime or a criminal activity. However, investigators often only have recordings, taken without any forensic precautions, which are useless or rendered unusable. There are also limits due to the technical characteristics of the equipment used; the most frequent, for a subsequent analysis and elaboration, are low resolution and image frequency, camera shooting angle, inadequate lighting conditions, and incorrect or insufficiently documented time references.

It is necessary, for forensic purposes, that the preservation in the native format of the extracted videos avoids conversions in other formats that could further deteriorate the quality of the original images and cause the loss of the precious metadata that could be crucial for the reconstruction of the events. Therefore, it is essential to use video recordings as a tool for the complete acquisition of images, such as acquisition of evidence or clues about times, date, and people; clarification of dynamics; and exclusion or inclusion of any alibis.

Forensic Science, Technology, Software