D21 The Boyd Case: Shooting Incident Reconstruction

Alexander Jason, BA, ANITE Group, PO Box 375, Pinole, CA 94564*

After attending this presentation, participants will gain an understanding of the methods and technology utilized to analyze a shooting incident.

This presentation will impact the forensic science community by demonstrating a comprehensive approach to shooting incident analysis and reconstruction utilizing 3D computer modeling, photographic analysis, bullet trajectory determination, and bloodspatter pattern interpretation.

The case presented in this paper resulted in a complex shooting incident reconstruction in which wound paths, shooting locations, bullet trajectories, fired casing locations, bloodspatter, and dynamic positioning of a body were all significant elements.

An attempted armed robbery and kidnapping resulted in a police pursuit of a vehicle. The suspect fired at the police car behind him during a six minute pursuit in heavily populated urban area. When the suspect finally stopped his vehicle in a narrow street, his vehicle was struck by several bullets fired by police officers. The suspect got out of his car without the handgun and variously held his hands up in a surrender position and then down to his side. He went back and forth into and out of the vehicle. At one point, he sat on the driver's side floorboard, reached under the seat and turned rapidly towards police officers nearby.

Believing the suspect was now armed and about to shoot, one officer fired three rounds in rapid succession. The suspect was struck by two of these bullets and was wounded fatally. When police officers tried to move the body away from the car, the decedent's legs separated from his torso: he had no legs below his knees and was wearing two prostheses.

Several of the witnesses reported that the decedent was shot while his hands were in the up, surrender position. Although the shooting was determined to be legally justifiable, a wrongful death/excessive force civil action was filed against the officers involved and their department.

A shooting incident analysis and reconstruction was performed to address the key issues in this incident:

1. The location, position, and orientation of the decedent when shot.
2. The position of the decedent's hands when shot.
3. Sequence of shots.
4. The location of the vehicle.
5. Distance from shooter to decedent
6. Dynamic wound paths
7. Bullet trajectory angles
8. What certain witnesses could and could not have seen from their observation points.
9. Speed of vehicle during pursuit

As part of the analytical process, a three-dimensional computer based model was created which contained the street and sidewalk surfaces, model objects representing the parked cars near the shooting scene, buildings, trees, and street markings. This digital 3D model was created from actual measurements of the scene along with numerous photographs documenting all physical features including colors. The digital model was useful both for analysis of the distances between objects and locations and as forensic trial exhibits which allowed witnesses to illustrate aspects of their testimony concerning observed movements and locations.

The decedent received three bullet wounds; however one wound – in the left hand – was determined at autopsy to be consistent with a re-entry wound. An examination of the decedent's vehicle revealed the presence of bloodspatter in a distribution and location consistent with the left hand being aligned with a perforating bullet wound in the decedent's left thigh.

This paper demonstrates a comprehensive approach to shooting incident analysis and reconstruction utilizing 3D computer modeling, photographic analysis, bullet trajectory determination, and bloodspatter pattern interpretation.

Shooting Reconstruction, Video Analysis, Audio Analysis

 ** Presenting Author*