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CONTACT DJS

215-659-2010

800-332-6273

Company Information

Joy S. Falk
jsf@forensicDJS.com
ext. 31

Experts/Research/Exhibits

Yaisa Q. Freeman
yqf@forensicDJS.com
ext. 17

3D Laser Scanning & Investigations

Terry W. Myers
experts@forensicDJS.com
ext. 14

Engineering Animations

Hugh Borbidge, BSME
hbb@forensicDJS.com
ext. 23

Truck/Child on Bike: Which Story "Fits"?


Steven M. Schorr, PE

Case Synopsis: A 36-foot long straight-body delivery truck stopped at a stop sign in a residential neighborhood for a period of time to fill out paperwork. The truck operator testified that when he finished the paperwork he looked up, looked in his mirrors, looked both ways, and started to turn left. While turning, he felt a bump and then noticed people yelling for him to stop.

Plaintiff, a young child riding a bicycle, testified that he was at the corner of the intersection as the truck stopped. He waited a bit while the truck was stopped, looked up at the driver, and thought the driver waved him on. He started to cross in front of the truck when the truck began to move. The child and his bicycle were overrun by the truck, resulting in severe puncture wounds where the handlebar of the bicycle penetrated the child's abdomen. There were no witnesses.

Engineering Analysis: The point of rest of the bicycle, the child's body, and blood and roadway scrapings defined the angle of the truck's turn. 3D laser scans of the truck, bicycle and site allowed for the creation of an

accurate, to-scale, three-dimensional environment where the sight line for both the bicycle operator and the truck operator were evaluated. Accepting the child's testimony, it was clearly shown that the child could have seen the truck operator "wave him on". However, there were blind spots close to the front of the truck, such that the child on the bicycle would be blocked from view by the high, "conventional" hood of the truck. The plaintiff argued that the truck, which was routinely utilized in areas where pedestrians and bicycles were common, should have had mirrors on the front (similar to school bus mirrors) and that the truck operator needed to be more diligent in looking since he was stopped for an unusually long amount of time. The reconstruction, however, could not answer the question of exactly what happened. Both the plaintiff and defense versions of the scenario correlate with the available physical evidence.

Result: So which story "fit"? In this case, both did! The case was tried to verdict. The jury found the truck operator responsible for the collision. 

Wheelchair Transport Accident

Robert Benowitz, EE

Case Description: Transport personnel left plaintiff, a patient, seated in a wheelchair away from the nurse call button in a rehabilitation facility. The wheelchair occupying the plaintiff was not equipped with a seat belt or foot rests. The patient's feet did not reach the floor. While the plaintiff was adjusting her position in the wheelchair, the wheelchair tipped over. The plaintiff suffered a shoulder injury, which required surgery.

Expert Analysis: The lack of a seat belt, as well as appropriately fitted foot-rests,

allowed the patient to move so that her center of gravity was in front of the wheelchair's caster wheel. This caused the wheelchair to tilt forward, dropping the patient to the floor. The expert concluded, after reviewing the Joint Commission policies, as well as other applicable standards, that the rehabilitation facility failed to provide a safe wheelchair, as well as failed to properly train personnel as to safe practices for transporting patients in wheelchairs.

Result: Case settled. 

Slip Sliding Away

Bryan Smith, PE

Case Synopsis: While walking on the sidewalk leading up to the front door of the apartment she rented, the plaintiff alleged that she stepped onto an icy patch and fell. Her fall caused multiple injuries to herself. Plaintiff's expert opined that the sidewalk had a slight concave surface to it allowing water from weather events to pool in it. Freezing temperatures allowed the pooled water to freeze and this caused the slipping hazard that plaintiff experienced. Plaintiff sued the property owner and property manager.

Expert Analysis: A site survey was conducted approximately a year after the incident to gather evidence. Still photographs and videography were performed as well as slope measurements. The evidence showed that the incident sidewalk surface was indeed concave; however, it was also sloped to a degree that allowed water to completely run out of the slightly dished area. The survey also revealed that adjacent to the alleged fall location was a decorative stone half-wall that a prudent pedestrian might grasp onto to afford stability while walking over ice, if any had been present. The plaintiff alleged that she chose not to grasp the half-wall. The site survey revealed no surface defects in the sidewalk at the location of the alleged fall. Pennsylvania law doctrine (Hills and Ridges) requires that plaintiffs alleging a slip and fall on ice or snow covered surfaces prove that their fall was due to a defect in the walking surface and that the fall was not due solely to the ice or snow. The doctrine also states that "...an owner of land is not liable for slippery conditions resulting from fallen ice and snow unless he or she permitted the ice and snow to unreasonably accumulate in a dangerous manner in uneven elevations, such as small ridges and hills of frozen snow or ice. The landowner also must be on notice about the dangerous condition in order to be held responsible." It was found that the property owner and manager had no notice of any dangerous conditions at the fall location and that the plaintiff had not fallen due to any surface defects.

Result: Plaintiff accepted a minor settlement offer. 


Late Night Dip in the Pool

Tom Griffiths, Ed.D

A young, newlywed couple staying at a hotel decided to venture to the swimming pool. Although the pool was older, it was in good shape, well maintained, operated and signed. The problem with older hotel/motel swimming pools, unlike post 1980s hotel pools, is that the older pools were constructed with deep ends to accommodate diving boards, and typically require between 8.5 FT and 10 FT of water. Just about all hotels have removed their diving boards because they caused catastrophic neck injuries; however, removing the diving boards left these pools with an abundance of deep water. Today's swimming pools, especially hotel pools, are constructed with a maximum depth of 5 FT which reduces the chance of drowning by more than 50%.

Neither husband nor wife knew how to swim; nevertheless, they decided to go "swimming" at night when it was dark. After both entered the swimming pool, the husband demonstrated to his wife how to swim underwater although he was not proficient at swimming on the surface. Somehow, the husband ended up in the deep "diving well" portion of the pool and proceeded to drown. His wife panicked and did not use the rescue equipment supplied at poolside. Nor did she go to the lobby nearby and ask for help.

Eventually, hotel employees recovered the victim from the deep end of the swimming pool.

Plaintiff's expert argued that the pool was dangerously designed, depth markers were inadequate, the buoyant life-line that separates deep from shallow portions of the pool was never installed, and a myriad of other omissions existed. Defense expert argued the buoyant life-line was neither required nor common in this southern city and the pool met all applicable health codes. Defense expert also claimed that when a well-educated adult who does not know how to swim enters a deep water swimming pool at night, this irresponsible action is tantamount to playing in traffic. The victim could have and should have simply stayed in the shallow end of the swimming pool. An extremely small financial settlement was accepted by the plaintiffs in this case. 

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Troubles Up in Smoke


Nicholas Palumbo, MS, CFEI

Case Synopsis: The subject dwelling had suffered an extensive amount of fire damage. The examination commenced on the exterior where most windows and doors had been covered over by plywood. There were deep and extensive burn and char patterns that had emitted from the opening in the walls of the dwelling. The interior exam began at the rear, ground level doorway. The interior of the dwelling was heavily burned with many wooden members burned away. There was a major portion of the roof burned completely away and the roof had been covered over with a tarp for weather protection. The interior inspection revealed numerous burn patterns throughout the interior with many being detached from one another. This is the typical pattern when an accelerant is used to initiate a fire at numerous locations. According to reports, the resident succumbed to injuries suffered within the fire. He was found lying on the floor at the top of the stairway by firefighters.

Expert Analysis: It was ascertained from a discussion with members of the local Arson Task, that the resident had set the fires in a suicide attempt. He had also re-

moved his wife's clothing from her closets and placed them along with two (2) suicide notes within her car in the driveway. The patterns noted during the inspection were consistent with the findings of the public sector investigators. It was concluded that the fires were intentionally set by the deceased resident as he had been alone at the time of the fire. The fire was set by the resident to both destroy the property, as well as to kill himself. When interviewed, his spouse stated that she was not aware of any reason, physical or emo-

tional, as to why he would have done this. A deeper investigation into the resident's financial status revealed that he was in debt and owed numerous companies and the IRS monies totaling over \$150,000.00. He had caused his own death hoping that his life insurance would pay off his spouse, thus allowing her to pay off his debts.


Result: A thorough investigation into the resident's life and finances led this investigation to a successful conclusion by both the public and private sector investigators. This caused the case to be denied by the homeowner's insurance carrier and the life insurance carrier as well. 

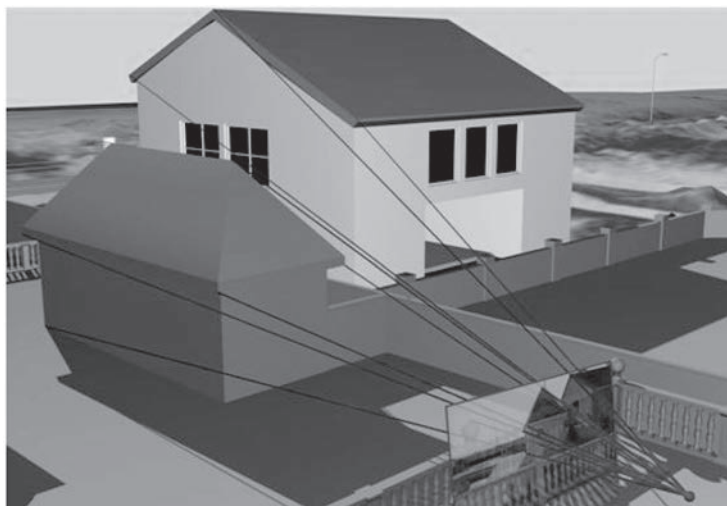
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Camera Matching - A Valuable By-Product of Collecting Data in Three Dimensions

Hugh Borbidge, BSME

Many times physical evidence left as a result of the catastrophic event is memorialized in photographs but, for whatever reason, no accurate measurements of the data were documented. A technique often referred to as camera matching can be utilized to accurately transfer data from an image onto a real-world, three-dimensional environment. Whether the data is the location of debris from a building collapse; the point of rest of vehicles following a collision; tire marks on the roadway; the location of trees or bushes that may have obstructed the view of the vehicle operator; or any other data that no longer exists at the site, camera matching can often times replicate the location of this data in an accurate three-dimensional environment. By correlating known points in the photograph to known points in the collected three-dimensional data, the location of the camera that took the photograph can be placed within the three-dimensional environment. Once this placement has been confirmed, objects within that image can be accurately mapped and measured in the three-dimensional environment. 



Electronic Control Module Speaks

R. Scott King, BSME

A passenger vehicle and commercial tow truck collided within a controlled intersection, resulting in substantial injuries. Witnesses reported that both vehicles entered the intersection on a green light. The tow truck was traveling straight through the intersection while the passenger vehicle turned left and into the truck's path when the collision occurred. Based on her belief that the tow truck was traveling too fast, the operator of the passenger vehicle brought suit against the tow truck company.

Physical evidence at the scene, the damage profile to both vehicles, and event data recorder information from the passenger vehicle facilitated the engineering and reconstruction analysis. In dispute, however, was the relevance of a single tire mark and whether that mark was made by the tow truck. Experts for the plaintiff opined that the tire mark was a skid mark made by one locked wheel on the tow truck despite it being equipped with anti-lock brakes. Based on the tire mark, plaintiff's expert calculated the tow truck speed at the beginning of the skid mark was approximately 72 mph. The tow truck operator however testified he was traveling approximately 45 mph as he approached the intersection. He also testified that his transmission was in 9th or 10th gear.

Although the tow truck was not equipped with an event data recorder, its engine control module contained programming information that, along with the truck's physical configuration, permitted calculating the range of vehicle speed attainable in 9th and 10th gear. That analysis revealed a limit of approximately 50 mph, consistent with the operator's testimony and available physical evidence, less the alleged skid mark.

The case went to trial resulting in a defense verdict. 

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Watch Where You Stick Your Hand

Sterling Anthony

Case Synopsis: A mother purchased a tub of Plaster of Paris at an arts-and-crafts store for a project with her daughter. The project involved making a cast of the daughter's hand. After mixing the Plaster of Paris, the mother told the daughter to insert her right hand. The plaster hardened, entrapping the daughter's hand, during which time the daughter complained of a burning sensation in that hand. After various failed attempts to free the daughter's hand, the mother did so by breaking the plaster with a hammer. By then, the daughter had incurred burns to the hand so severe that surgery and partial amputation of fingers was necessary. The mother sued the manufacturer alleging that the product was defective and unreasonably dangerous due to failure-to-warn.

Expert Analysis: A duty to warn manifests when a product embodies a hazard, meaning that the product has the potential to inflict harm. To be effective, a warning should conform to well-established guidelines as to content and format. The warnings, prominently displayed in capitals on the label, included statements directly relevant to the incident, namely: *Avoid contact with skin and eyes; when mixed with water, this material hardens and then slowly becomes hot; do not attempt to make a cast enclosing any part of the body; and,*

failure to follow these instructions may cause burns. The Plaster of Paris was not defective, nor was it unreasonably dangerous, and did carry adequate warnings. The mother admitted in her deposition that she had read the warnings in the store and again at home; nonetheless, she claimed that she did not voluntarily assume risk because she was not left with an appreciation for the extent of the risk. In support of her claims, her lawyer argued that there were differences in wording between the warnings on the label and those on the Material Safety Data Sheet (MSDS).

Expert analysis revealed that the warnings on the label were not ambiguous; and, that the mother was not claiming that she could not interpret their meanings; rather, she chose not to comply. Such was not the fault of the warnings since warnings can't force compliance. Expert analysis further stated that a label warning and a MSDS warning were directed to separate readers (the consumers of the product and the employees of the product manufacturer, respectively). It was further opined that, in this case, the differences in wording between the two warnings were neither substantive nor causal to the incident.

Result: Case Settled 


Your Motorcycle is Leaking

Stephen Batzer, Ph.D., PE

A motorcycle enthusiast purchased a high-end Italian racing replica. While riding through the countryside, he cornered to the right. The rear tire lost traction, then rapidly re-established its grip, flipping the rider over to the left with a "high side" overturn. He suffered a fractured wrist and other injuries. When righted his bike, he found that oil covered the underside of the belly fairing and the rear tire. At the dealer, when running the motorcycle on a test stand, oil poured out past a seal that surrounded the clutch rod at the bottom right of the bike.

The manufacturer disputed that oil bleeding past the seal caused the accident. They attributed the damage to the wreck, which they say was caused

by operator error. However, discovery showed that the seal had been manufactured out of its design tolerance; and, that numerous other customers had suffered the same defect and required warranty repair although no other wrecks were attributable to the seal defect. Importantly, the accident bike impacted on its left side, while the seal and leak were on the right side. All other damage to the motorcycle was cosmetic; after the seal was replaced, the motorcycle worked as designed without leaking oil.

As the manufacturer disputed all liability, litigation ensued. The case settled under confidential terms that were satisfactory to the owner. He now rides a new replacement motorcycle. 



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