

Technology Associates

Forensic Engineering Experts – Ph (800) 358-9909 - Fax (888) 358-9901

COMPUTER SIMULATION

When an understanding of complex motions associated with various accidents is required, computer simulation is an invaluable tool, which allows the modeling and visualization of rollovers and collisions. In addition to vehicle accidents, computer simulation can also be used to create many other systems of masses and contacting surfaces, such as a toppling light pole after it has been struck. Simulation can reconstruct the motion of a falling I-beam at a construction site or determine the jack-knife behavior of an articulated truck. Such modeling can determine the speeds and forces during an event and can even predict how an event accident could have been avoided.



Expertise

We have extensive experience in many aspects of computer simulation including:

- 3-Dimensional modeling using the Articulated Total Body (ATB) , a U.S. sponsored simulation code
- Simulation of kinematics of human joints and vehicle hitches
- Use of other computer software including Mathcad & Matlab

Questions Answered

Through scientific analysis, we can help you answer pertinent questions such as:

- How many times did the car rollover?
- Could the accident have been avoided through a design change?
- How did the vehicle reach its rest position?
- What caused the driver to lose control?

Case Examples

SUV Rollover:

An SUV lost control and traveled over a portion of highway guardrail before rolling down an embankment, destroying the roll cage's integrity. The defense theorized the driver was killed by intruding guardrail posts as the SUV rolled along the guardrail, and that a stronger roll cage design would not have protected him. We reconstructed the accident using computer modeling, which disproved the defense's theory and showed that the driver would have survived if the roll cage had been designed stronger.

Water Wagon Rollover at Landfill:

The driver of an articulated water-tanker tractor was injured when the tank trailer rolled onto its side, causing the tractor to roll with it, crushing his arm. The plaintiff claimed that the articulating hitch that was used by the manufacturer was inappropriate in that it did not allow the water tank to roll over independently of the tractor. Using a 3D computer simulation, we demonstrated that the proposed design change could not have prevented the accident.