

Physics
At Work

Joe Nolan

Senior Vice President, Vehicle Research Center;
Ruckersville, VA

Joe Nolan realizes his career, much like automobile accidents, was not planned. While earning his graduate degree in engineering, he realized he needed a research position to graduate. “The only research position available was at the Automobile Safety Lab at the University of Virginia’s School of Engineering,” said Nolan. Today, he is the senior vice president at the Vehicle Research Center for the Insurance Institute for Highway Safety, located in Ruckersville, Virginia.



The Insurance Institute for Highway Safety is a nonprofit, nongovernmental research organization. It is funded by insurance companies and performs over 100 full-scale crash tests per year. The Vehicle Research Center currently reproduces three different real-world crashes to test a vehicle’s safety: frontal offset collisions, side impacts, and rear-end whiplash tests. “In the front and side tests, we observe the way the dummies move in the car, the way the restraint system works, and how the car’s structure holds up,” he said.

While automobile manufacturers continue to upgrade their safety features, Nolan believes that new drivers still need to be more responsible behind the wheel. “Car crashes are the number one cause of death for people under the age of 18, even though vehicles are getting better and belt use is going up,” argues Nolan.



Marjorie Cooke

Marine Safety Expert,
Robson Forensic;
Fairfax County, VA

Dave Cooke

Professional Engineer,
Robson Forensic;
Fairfax County, VA

Dave and Marjorie Cooke met at the State University of New York Maritime College, and have been working together for over 30 years. According to the couple, their job is never routine. “We may be inspecting a ship or boat to determine its condition, or we may be interviewing someone to determine what happened during the incident.”

The couple’s understanding of physics is vital during an investigation. “You have to be able to determine what direction and the amount of force applied to various components. In boating accidents, there are no skid marks to help you out.”

Michael Jackson

Emergency Medical
Technician (EMT);
North Apollo, PA



Michael Jackson is an Emergency Medical Technician (EMT) at Allegheny Valley Hospital, located in Natrona Heights, PA. A typical day involves responding to a variety of emergencies, from shortness of breath and chest pains, to automobile accidents. The most severe automobile accident Jackson responded to in his seven-year career was a vehicle that had gone over a hillside. “The passengers were young adults, and luckily, both survived,” said Jackson. Jackson believes that most car accidents are caused by speeding, especially when road conditions are poor. “So many accidents could be prevented if people would drive at safe and appropriate speeds for the current road conditions.”