

# RESEARCH REVIEW

• UNIVERSITY OF MICHIGAN TRANSPORTATION RESEARCH INSTITUTE • JULY-SEPTEMBER 2011 • VOLUME 42, NUMBER 3 •



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## Road Safety Ambassadors in China

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### UMTRI's Strategic Intent

To be the leader in transportation systems research integrating vehicles, people, and infrastructure to achieve a highway transportation system where:

- Fatalities and injuries are eliminated
- People and goods flow efficiently
- Reliance on nonrenewable energy is reduced

# Road Safety Ambassadors in China

While taking a taxi in China this summer, University of Michigan (U-M) student Yash Bhutada found himself wondering one thing: why wasn't the driver wearing a seat belt? He decided to ask. The driver, who happened to speak English, explained that she and many other female taxi drivers don't wear seat belts in case they need to defend themselves against unruly clients.

The exchange was just one of many insights into Chinese transportation culture that Bhutada and a group of fellow U-M students learned during a recent four-week visit to China to promote road-safety practices. UMTRI assistant research scientist Jingwen Hu coordinated the trip, which was part of the Global Intercultural Experience for Undergraduates (GIEU) program at U-M. The group's task was to investigate the rate of use for seat belts and child safety seats in China through

observations and questionnaires.

Before the trip began, Hu had his doubts as to whether the students would be able to fulfill their informal role as road-safety ambassadors. None of the students spoke Chinese and had no particular knowledge of transportation safety. Still, with passion and enthusiasm, they accomplished their goal. When Hu thinks back on the success of the trip, he's amazed at the outcome.

"Our students not only conducted observational surveys successfully but also interviewed people fearlessly in spite of the language barrier and culture difference," said Hu. "It really was fun to watch their growth from amateurs to experts on road safety. The data they collected is a valuable research component and provides a window into China's road-safety problems."

## Engineering, Enforcement, and Education

Since 2009, China has passed the United States to become the world's largest auto market, but the cost of this rapid increase in motorization has been high. Studies show that road-traffic injury has become a major public health problem in China and is expected to become worse in the future. Data collected by Hu's GIEU China team indicate that low usage rates for seat belts and child safety seats may be one of the major reasons for the high injury rates in China.

Hu's team arrived in Tianjin on July 11. Each student was assigned to live with a host family and partnered with Chinese high school students ("host brothers and sisters") from Tianjin, who assisted in communication.

The second day of the month-long visit began with a personal performance



GIEU CHINA TEAM

The GIEU China team is shown here at Tsinghua University. From left are Joe Lipsey, Yash Bhutada, David Wolfgang, Lilly Jordan, Jordan Fenner, Julieta Ibarra, Charles Cox (student fellow), Arlene Go, Kelcie Jimenez, Betsy Krupar, Alexander Perlman, Shonique White, Karen Coker, Monet Stokes, and Jingwen Hu.

*continued...*

by the Beijing Opera—one of many memorable events staged for the U-M students throughout the trip. The event was followed by a review of research procedures and preparation to conduct the transportation surveys.

For the remainder of their trip, the students collected transportation information each day. They observed the seat belt and car-seat use rate on the street, and conducted interviews with drivers and parents to get their opinions on road safety. In all, the students observed and recorded information on nearly 40,000 vehicles. Based on the data collected, they determined that the seat-belt use rate in Tianjin is 3.7 percent for drivers and 1.7 percent for front-seat passengers, while in Beijing it is 25.2 percent for drivers and 5 percent for front-seat passengers.

Advance preparation made conducting the surveys go smoothly, said student fellow Charles Cox, but the results came as a surprise to the whole team.

“We could not believe that the seatbelt rate was so incredibly low,” said Cox. “We were also very surprised by the reasoning regarding seatbelt use. Many passengers said that they don’t wear their seat belt while riding in a vehicle because they trust the driver.”

According to Hu, lack of law enforcement combined with a low level of public awareness about vehicle

safety are two major reasons behind the low rates as are vehicle designs that do not include a seat-belt warning system or car-seat anchors—the engineering aspect of the problem—that may also be contributing.

### **Chinese Transportation Culture**

When they weren’t conducting research, the students visited some of China’s most well known landmarks, including the Temple of Heaven, Tiananmen Square, and the Great Wall of China. Traveling to their various destinations was half the fun. Throughout their stay, the students observed and experienced transportation in China firsthand. They had the opportunity to ride bikes, buses, subways, and taxis.

“I think the GIEU students found that the Chinese transportation culture was more complicated than that in the United States,” said Hu. “They’ve never seen so many bikes and pedestrians, and the driving behavior in China is beyond what they could even imagine.”

To promote their road-safety message, the team visited automotive companies, driving schools, car dealers, and transportation research centers. One of the highlights of the group’s trip, said Hu, was a collaborative event to promote awareness of child passenger safety, which was held at the automobile crash lab of Tsinghua

University on July 30. Nearly fifty children and their parents (over 100 people total) were invited to attend the event. The day began with short lectures on child passenger safety, followed by a child-seat crash test, interactive games between GIEU students and the children, and a quiz with prizes. During the event, Hu presented the use rate for seat belts and child safety seats in Tianjin and Beijing. The U-M group’s final data indicate a seat-belt use rate in China that is sixty to eighty percent lower than the use rate in the United States. Survey data also reveal a nearly zero use rate for child safety seats. Hu told attendees that if China had the same rates of use as those in the United States, an estimated 20,000 lives would be saved in China each year.

As a research and an educational project, the GIEU China trip has been extremely successful, said Hu, not only in gathering first-hand research data but also in promoting public awareness of road safety in China. He credits much of the trip’s success to the students themselves: “I felt so fortunate for leading this team with fourteen amazing students. It is their openness and dedication that made this trip so fruitful. I enjoyed every minute with them and felt that I learned as much as they did.”

Though China’s transportation problems are complicated and research is lacking, Hu is confident that international collaboration will lead to solutions, and the GIEU China trip is a good start. **RR**

Throughout their trip, the students maintained a blog of their activities and experiences. See photos and read more at <http://gieuchina.tumblr.com/>

GIEU CHINA TEAM



*In total, the GIEU students observed more than 300 sites with nearly 40,000 vehicles, and spoke with an estimated 2,000 people about their road-safety practices.*

# UMTRI Awarded \$14.9 Million USDOT Connected Vehicle Contract

UMTRI has been awarded a \$14.9 million contract from the U.S. Department of Transportation (USDOT) to conduct a pilot project that will serve as a model deployment of Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I) safety applications in Ann Arbor, Michigan.

The thirty-month program will establish a real-world, multimodal test site in Ann Arbor for enabling wireless communications among vehicles and roadside equipment for use in generating data to enable safety applications. Passenger cars, commercial trucks, and transit buses will be included. All vehicles are equipped with a mix of integrated, retrofit, and aftermarket V2V and V2I-based safety systems, a technology that could prevent thousands of crashes.

“This is a tremendous opportunity, and we are very excited to be able to support the USDOT’s demonstration of cutting-edge transportation technologies in our community,” said program manager Jim Sayer, an associate research scientist at UMTRI.

The data generated and archived as part of

the model deployment will be used for estimating safety benefits in support of future policy decisions by the USDOT, as well as for use by the broader transportation industry in developing additional safety, mobility, and environmental applications utilizing wireless technologies.

“Safety is our number one priority, and this research could save lives and prevent injuries across America,” said U.S. Transportation Secretary Ray LaHood. “With more than 30,000 people a year killed on our nation’s roads, we need to keep looking for new ways to improve safety and reduce fatalities.”

During the pilot, drivers will be alerted to impending dangers in real-time so they can take action to avoid crashes. Data will be collected from the vehicles in order to understand how different types of motorists respond to safety messages in the real world.

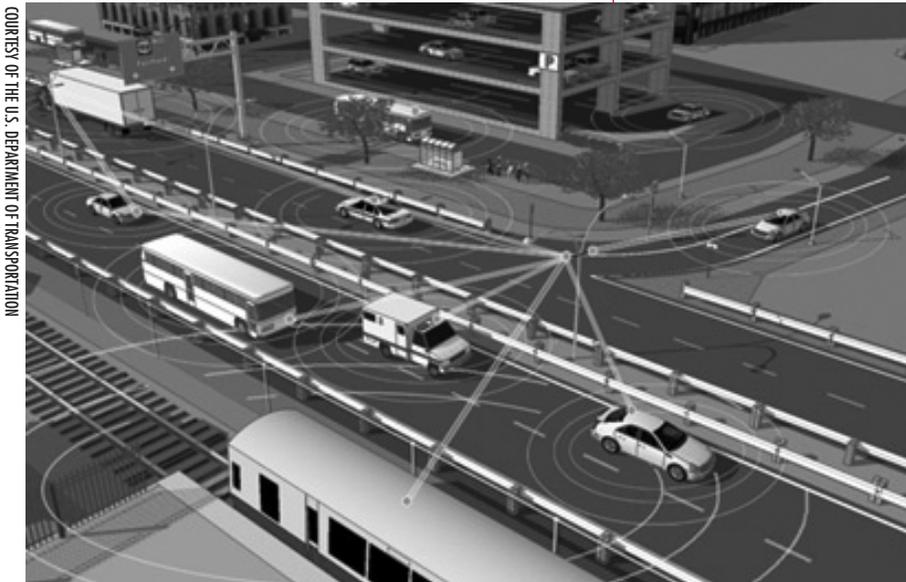
The testing phase will last twelve months and include approximately 2,850 vehicles.

“We feel honored to be hosting the national test environment for vehicles that don’t crash,” said UMTRI director Peter Sweatman. “We look forward to helping many private and public-sector organizations advance connected-vehicle technologies, which save lives and promote efficient movement of cars, trucks, and transit buses.”

Partners supporting UMTRI on the program include the Michigan Department of Transportation, the City of Ann Arbor, Parsons Brinkerhoff, Mixon Hill, HNTB, SAIC, Texas

Transportation Institute, AAA of Michigan, and ESCRYPT. Additional support is being provided by the Office of the Vice President of Research at the University of Michigan and the Michigan Economic Development Corporation.

**RR**



COURTESY OF THE U.S. DEPARTMENT OF TRANSPORTATION

## Interactive Website Helps Parents Keep Teen Drivers Safe

A new online program, developed by UMTRI in partnership with the Michigan Department of Community Health, helps parents keep their teenage drivers safe as they gain experience driving without adult supervision.

The Checkpoints Program, <http://saferdrivingforteens.org/> is a free, interactive web resource that establishes rules in a personal written agreement that assures parents that their teens are clear about where and when they can drive.

“Motor vehicle crashes kill more teens than any other cause,” says C. Raymond Bingham, a research professor who heads up UMTRI’s Young Driver Behavior and Injury Prevention Group. “The main reason driving is more dangerous for teens, is that they are young and not experienced at driving unsupervised. Becoming a safe driver takes years of experience.

“Many parents struggle with wanting to let their teens start driving unsupervised and knowing how to keep their teens as safe as possible when they are not in the vehicle with them. By being actively involved in their teen’s driving, parents help increase their teen’s safety.”

Checkpoints gives parents facts about teen driving safety, shows them things they can do to make their teen’s driving safer and gives them an interactive parent-teen driving agreement that helps them set clear guidelines for driving. The program highlights four driving situations that research has shown to be especially risky for teen drivers: driving with teen passengers, at night, in bad weather conditions, and at high speeds.

The agreement also allows parents to establish rules for teens to follow in all driving situations:

- Never play around with passengers, talk on a cell phone, mess with the radio or do anything else distracting.

- Always call home if for any reason it is not safe to drive or ride with someone else.
- Always call home if going to be late.
- Always wear a safety belt and require all passengers to wear safety belts.
- Always obey all traffic laws.
- Never speed, tailgate or cut off others.
- Never drive after taking any drugs/alcohol or ride with a driver who has taken drugs/alcohol.
- Always tell a parent/guardian where you’re going and with whom.

And allow families to establish common rules for parents, such as:

- Provide safe ride home when asked (no questions at that time).
- Consider necessary exceptions to the driving privileges.
- Apply rules fairly and consistently.
- Point out and discuss safe and dangerous driving situations and practices.
- Be a good role model behind the wheel.

Checkpoints, created by Bruce Simons-Morton of the National Institutes of Health, has been tested in several research studies. It is available to parents for free through a grant to the University of Michigan Transportation Research Institute and the Michigan Department of Community Health from the National Center for Injury Prevention Control, part of the Centers for Disease Control and Prevention.

The program has been tested by parents and teens in several states, including Michigan, and has been shown to help parents create and use a parent-teen driving agreement during the first months their teens had licenses. Those teens received fewer tickets and reported less risky driving behaviors (e.g., speeding, tailgating, turning fast, unsafe lane changes, cutting in front of other vehicles, going through yellow or red lights).

—Bernie DeGroat, *U-M News and Information Service* **RR**



# Eco-Driving Index: Environmental Impact of New Vehicles Improving

A new national index developed by UMTRI researchers shows that emissions of greenhouse gases per driver of newly purchased vehicles are down 14 percent since late 2007.

The U-M Eco-Driving Index, <http://www.ecodrivingindex.org>, estimates the average monthly amount of greenhouse gases produced by an individual U.S. driver who purchased a new vehicle that month.

The EDI for June 2011, which is the latest month for which data is available, stands at 0.86, compared with the baseline 1.0 in October 2007, the nominal start of the 2008 model year and the first for which the Environmental Protection Agency started using the current fuel-economy rating system.

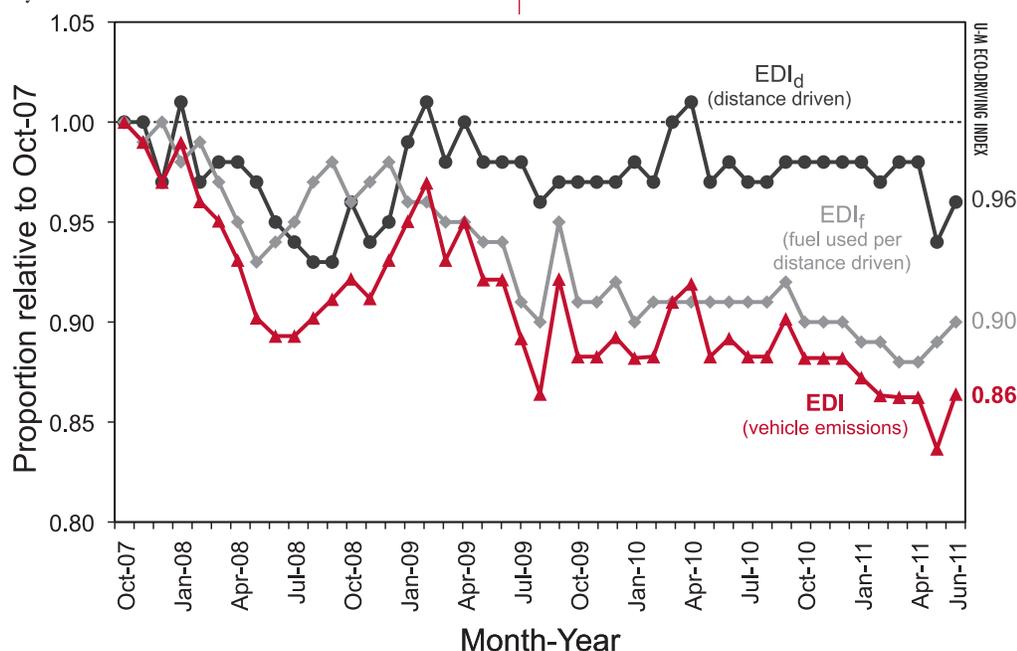
“The amount of greenhouse gases emitted when using internal-combustion engines depends on the amount of fuel used,” said UMTRI research professor Michael Sivak. “The EDI estimates the amount of fuel used (and thus the amount of greenhouse gases emitted) by taking into account two primary variables—the fuel economy of the vehicle and the distance driven.”

Sivak and UMTRI colleague Brandon Schoettle compute the monthly EDI by cross-multiplying the average amount of fuel used per distance driven by newly purchased vehicles ( $EDI_f$ ) and the distance driven per individual ( $EDI_d$ ). The lower the value of the EDI, the smaller the environmental impact.

$EDI_f$  estimates the relative amount of fuel needed to drive a fixed distance. It is calculated as an inverse of the sales-weighted, average fuel economy of purchased new vehicles for each individual month. In turn, the average fuel economy (in mpg) is derived from the monthly sales figures of individual models and the EPA fuel-economy ratings for the respective models.

$EDI_d$  provides information about the relative amount of driving per licensed driver. It starts with the estimates of the total distance driven in the United States each month as issued by the Federal Highway Administration. The researchers then adjust these raw distances to take into account the seasonal variations in driving, the varying number of days in a month, the continuously increasing number of drivers, and the so-called rebound effect (the increased amount of driving as a consequence of improved fuel economy of the new vehicle).

—Bernie DeGroat, U-M News and Information Service **RR**



## 55th Stapp Car Crash Conference



Researchers and safety engineers from around the world will gather November 7-9 at the Hyatt Regency in Dearborn, Michigan, for the 2011 annual Stapp Car Crash Conference®. Dr. John Melvin, former head of UMTRI's Biosciences Division and a retired Research Scientist from General Motors Biomedical Research Labs, will serve as the General Chairman of this year's Conference.

The 39th International Workshop on Human Subjects for Biomechanical Research, sponsored by the National Highway Traffic Safety Administration (NHTSA), will be held on Sunday, November 6, preceding the Stapp Conference. Registration for the workshop is included in the Stapp Conference registration.

The Stapp Conference is the premier forum for the presentation of research and development in impact biomechanics, human injury tolerance, and related fields that advance the knowledge of land-vehicle crash-injury protection. The conference provides an opportunity to participate in free discussion regarding the causes and mechanisms of injury, experimental methods and tools for use in impact biomechanics research, and the development of new concepts for reducing injuries and fatalities in automobile crashes.

The Stapp Conference is named after John Paul Stapp, M.D., Ph.D. (1910–1999). Dr. Stapp was a USAF colonel and flight surgeon who conducted pioneering research on the effects of acceleration and deceleration forces on humans. The first Stapp Conference was held in May of 1955.

Papers presented at each Stapp Car Crash Conferences are published in the annual peer-reviewed *Stapp Journal*, for which UMTRI's Leda Ricci serves as the executive editor and Larry Schneider is coeditor-in-chief with Dr. John Melvin



*Larry Schneider, General Chair of the 2010 Stapp Car Crash Conference, presents Dr. John Melvin, General Chair of the 2011 Stapp Car Crash Conference, with a gift following Dr. Melvin's presentation of the John Paul Stapp Memorial Lecture at the opening of the 2010 conference.*

and Dr. Albert King of Wayne State University. Journal papers span a wide range of research and development topics related to injury causation and occupant crash protection. These topics include the biomechanics of human impact response and injury tolerance, restraint-system effectiveness and performance based on in-depth crash investigations and laboratory testing, the development and validation of advanced crash-test dummy design and human crash-victim computational models, the biomechanics of sports-related injuries and injuries sustained in military environments, and the application of crash-avoidance technologies to improving occupant protection systems.

For further information on this year's *Stapp Car Crash Conference*®, including conference registration and hotel information, go to <http://www.stapp.org/>. **RR**

*The updated version of  
"Crash Protection for Child Passengers"  
by Kathleen Klinich, Miriam Manary, and  
Kathleen Weber will be published in the next  
issue of the UMTRI Research Review.*

## UMTRI Paper Wins Patricia F. Waller Award

Three members of UMTRI's Vehicle Safety Analytics Group have won the prestigious Patricia F. Waller award presented by the Transportation Research Board (TRB) for the best paper in road safety. Their 2011 paper is titled "Tractor Trailer Rollover Prevention: The Effectiveness of Electronic Stability Control Systems."

Coauthors of the paper are John Woodrooffe, head of UMTRI's Vehicle Safety Analytics Group, associate research scientist Dan Blower, and assistant research scientist Paul E. Green. Their paper reports on the effectiveness of electronic stability-control systems (ESC) and roll-stability-control systems (RSC) in preventing heavy-truck tractor-semitrailer rollover.

The paper documents part of a study conducted by UMTRI under a cooperative agreement between the National Highway Traffic Safety Administration (NHTSA) and Meritor WABCO to examine the performance of electronic stability-control systems and roll-stability-control systems for heavy-truck tractor-semitrailers.

The Waller award was established to recognize the best paper for a particular year, submitted for the TRB annual meeting (presentation and publication) in highway safety. The award is in memory of former UMTRI director Dr. Patricia F. Waller, a clinical psychologist, researcher, and advocate for policy reform in transportation safety and injury control. **RR**

## Schneider receives RESNA Distinguished Service Award

UMTRI research professor Larry Schneider received a Distinguished Service Award from the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) at the group's annual conference, held June 5-8 in Toronto. The award recognizes members for sustained contributions and service to RESNA and the fields of rehabilitation engineering or assistive technology.

Schneider was recognized for his efforts and contributions in setting wheelchair transportation safety standards. These efforts have included more than thirty years translating basic principles of occupant crash protection into national and international industry standards for wheelchair tie-downs and occupant restraints and for wheelchairs used as seats in motor vehicles.



UMTRI

Schneider has been involved in countless efforts to support and promote wheelchair transportation safety standards and to facilitate the development of a body of knowledge focused on wheelchair transportation safety. **RR**

## Reed Assumes Leadership of UMTRI Biosciences

Research associate professor Matthew Reed became head of UMTRI's Biosciences Group on September 1. He replaces research professor Larry Schneider, who has served as head of UMTRI Biosciences for more than twenty-five years, and will continue to serve as UMTRI's associate director for faculty development.



UMTRI

Reed has been with UMTRI Biosciences since 1989. He leads significant research programs both at UMTRI and in U-M's Industrial and Operations Engineering (IOE) Department, where he directs the Human Motion Simulation Laboratory.

Reed's research interests focus on occupant protection and physical ergonomics for road vehicles. He has conducted research on restraint systems, emphasizing investigation of airbag-induced injuries, crash-dummy positioning procedures, and child passenger safety. He has developed tools for the ergonomic design of vehicle interiors, including posture prediction and motion simulation algorithms for use with digital human-figure models. **RR**

Most UMTRI reports are available in full text online. See the website address at the end of the citation. Please contact the UMTRI Library at 734-764-2171 or [umtridocs@umich.edu](mailto:umtridocs@umich.edu) to inquire about the availability of other publications listed here.

## Book Chapters

Barretto, A.; Bingham, C.R.; Goh, K.G.; Shope, J.T. 2011. Vivoda, J.M.; Eby, D.W. 2011. "Factors Influencing Safety Belt Use." In *The Handbook of Traffic Psychology*, B. Porter, ed., pp. 215-229. San Diego, CA: Elsevier.

Eby, D.W. 2011. "Naturalistic Observational Field Techniques for Traffic Psychology Research." In *The Handbook of Traffic Psychology*, B. Porter, ed., pp. 61-72. San Diego, CA: Elsevier.

## Conference Papers

Reed, M. P. 2011. Measurement of the Contour and Deflection of Vehicle Seats for *Comparison with the FMVSS 213 Dynamic Test Bench*. SAE Technical Paper 2011-01-0265. Society of Automotive Engineers 2011 World Congress & Exhibition, April 2011, Detroit, MI, USA.

Strauss, R.; Bland, M.; Biddle, A.; Reed, M. 2011. *Design and Testing of a Child Restraint for Developing Countries Using Low-Technology Manufacturing Methods*. SAE Technical Paper 2011-01-0260. Society of Automotive Engineers 2011 World Congress & Exhibition, April 2011, Detroit, MI, USA

Wegner, D.M.; Reed, M.P. 2011. *Understanding Work Task Assessment Sensitivity to the Prediction of Standing Location*. SAE Technical Paper 2011-01-0527. Society of Automotive Engineers 2011 World Congress & Exhibition, April 2011, Detroit, MI, USA.

Woodrooffe, J.H.F.; Blower, D.F.; Green, P.E. 2011. *Tractor Trailer Rollover Prevention: The Effectiveness of Electronic Stability Control Systems*. Paper no. 11-2422. TRB 90th Annual Meeting Compendium of Papers. <http://amonline.trb.org/12khq3/12khq3/1>.

## Journal Articles

Dion, F.; Robinson, R.; Oh, J-S. 2011. "Evaluation of Usability of IntelliDrive Probe Vehicle Data for Transportation Systems Performance Analysis." *Journal of Transportation Engineering*, vol. 137, no. 3, pp. 174-183. DOI:10.1061/(ASCE)TE.1943-5436.0000199.

Reed, M. P. 2011. "An Eyellipse for Rear Seats with Fixed Seat Back Angles." *SAE International Journal of Passenger Cars - Mechanical Systems*, vol. 4 no. 1, pp. 586-590, DOI: 10.4271/2011-01-0596.

Schneider, L.W.; Rupp, J. D.; Scarbor, M.; et al. 2011. "BioTab—A New Method for Analyzing and Documenting Injury Causation in Motor-Vehicle Crashes." *Traffic Injury Prevention*, vol. 12, no. 3, pp. 256-265, DOI: 10.1080/15389588.2011.560500.

Sivak, M.; Schoettle, B. 2011. "A Preliminary Analysis of Traffic Crashes by Out-of-State Drivers." *Traffic Injury Prevention*, vol. 12, no. 3, pp. 220-222, DOI: 10.1080/15389588.2011.553975.

Sivak, M.; Schoettle, B. 2011. "Toward Understanding On-Road Interactions of Male and Female Drivers." *Traffic Injury Prevention*, vol. 12, no. 3, pp. 235-238, DOI: 10.1080/15389588.2011.562945.

## Technical Reports

Luoma, J.; Sivak, M. 2011. Interactions of Environmental aJarossi, L.; Matteson, A.; Woodrooffe, J. 2011. *Trucks Involved in Fatal Accidents Factbook 2008*. Report no. UMTRI-2011-15. <http://hdl.handle.net/2027.42/84148>

The research documented in this report was sponsored by the Federal Motor Carrier Safety Administration.

Matteson, A.; Jarossi, L.; Woodrooffe, J. 2011. Buses Involved in Fatal Accidents Factbook 2008. Report no. UMTRI-2011-17. <http://hdl.handle.net/2027.42/84149>

The research documented in this report was sponsored by the Federal Motor Carrier Safety Administration.

Sivak, M.; Schoettle, B. 2011. Eco-driving: Strategic, Tactical, and Operational Decisions of the Driver that Improve Vehicle Fuel Economy. Report no. UMTRI-2011-34. <http://hdl.handle.net/2027.42/86074>

The research documented in this report was sponsored by UMTRI's Sustainable Worldwide Transportation program.

Sivak, M.; Schoettle, B. 2011. Recent Changes in the Age Composition of U.S. Drivers: Implications for the Extent, Safety, and Environmental Consequences of Personal Transportation. Report no. UMTRI-2011-23.

<http://hdl.handle.net/2027.42/85149>

The research documented in this report was sponsored by UMTRI's Sustainable Worldwide Transportation program.

Sivak, M.; Schoettle, B. 2011. Unemployment Rate and Price of Gasoline Predict the Fuel Economy of Purchased New Vehicles. UMTRI-2011-13.

<http://hdl.handle.net/2027.42/83358>

The research documented in this report was sponsored by UMTRI's Sustainable Worldwide Transportation program.

**RR**

## September

Transportation Association of Canada  
September 11-14; Edmonton, Alberta  
[www.tac-atc.ca/english/annualconferenceindex.cfm](http://www.tac-atc.ca/english/annualconferenceindex.cfm)

The Business of IT: Transforming the Organization and the Vehicle  
September 14; Ann Arbor, Michigan  
[www.umtri.umich.edu/divisionPage.php?pageID=47](http://www.umtri.umich.edu/divisionPage.php?pageID=47)

International Conference on Road Safety and Simulation  
September 14-16; Indianapolis, Indiana  
<https://engineering.purdue.edu/RSS2011>

Human Factors and Ergonomics Society Annual Meeting  
September 19-23; Las Vegas, Nevada  
[www.hfes.org/Web/HFESMeetings/2011annualmeeting.html](http://www.hfes.org/Web/HFESMeetings/2011annualmeeting.html)

EV 2011  
September 26-29; Toronto, Canada  
[www.emc-mec.ca/ev2011ve/en/home.html](http://www.emc-mec.ca/ev2011ve/en/home.html)

EV Battery Tech USA: 4th Global Cost Reduction Initiative  
September 27-28; Troy, Michigan  
[www.ev-battery-tech.com/](http://www.ev-battery-tech.com/)

## October

American Public Transportation Association  
October 2-5; New Orleans, Louisiana  
[www.apta.com/mc/annual/Pages/default.aspx](http://www.apta.com/mc/annual/Pages/default.aspx)

European Transport Conference  
October 10-12; Glasgow, Scotland, U.K.  
[www.trb.org/calendar](http://www.trb.org/calendar)

Biomedical Engineering Society annual meeting  
October 12-15; Hartford, Connecticut  
[www.bmes.org/aww/BMES/pt/sp/meetings](http://www.bmes.org/aww/BMES/pt/sp/meetings)

AASHTO Annual Meeting  
October 13-17; Detroit, Michigan  
[www.aashtoannualmeeting.org/](http://www.aashtoannualmeeting.org/)

ITS World Congress  
October 16-20; Orlando, Florida  
[www.itsa.org/worldcongress.html](http://www.itsa.org/worldcongress.html)

The Networked EV: Smart Grids and Electric Vehicles  
October 20; San Francisco, California  
[www.greentechmedia.com/events/live/the-networked-ev-2011/](http://www.greentechmedia.com/events/live/the-networked-ev-2011/)

EcoMobility 2011  
October 22-24; Changwon, Republic of Korea  
[www.ecomobility.org/activities/ecomobility-2011](http://www.ecomobility.org/activities/ecomobility-2011)

METRANS National Urban Freight Conference  
October 12-14; Long Beach, California  
[www.mettrans.org/](http://www.mettrans.org/)

## November

55th Stapp Car Crash Conference  
November 7-9; Dearborn, Michigan  
[www.stapp.org/currentconf.shtml](http://www.stapp.org/currentconf.shtml)

Inside China: Understanding China's Current and Future Automotive Industry  
November 16; Ann Arbor, Michigan  
[www.umtri.umich.edu/divisionPage.php?pageID=47](http://www.umtri.umich.edu/divisionPage.php?pageID=47)

**RR**

# CONFERENCES & EVENTS

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