

An aerial night view of a city, likely New York City, showing a dense urban landscape with numerous skyscrapers and buildings illuminated with lights. A prominent feature is a large, curved highway interchange with multiple lanes, illuminated with warm orange and yellow lights. The overall scene is dominated by blue and white light from the buildings, contrasting with the warmer tones of the highway. The text is overlaid on this background.

BI-ANNUAL REPORT 2017-2018

CONNECTICUT
TRANSPORTATION SAFETY
RESEARCH CENTER
(CTSRC)

CONNECTICUT TRANSPORTATION SAFETY RESEARCH CENTER

The Connecticut Transportation Safety Research Center (CTSRC), located at the Connecticut Transportation Institute at the University of Connecticut, is grant funded by the Connecticut Department of Transportation (CTDOT). The mission of the CTSRC is to support CTDOT in developing and maintaining a state-of-the-art crash data entry, collection, and safety analysis system. The goals of the Center include 1) development of efficient tools for the collection and analysis of crash data 2) tracking, documenting and researching safety improvements and needs in the state 3) researching and developing outreach programs to target Connecticut specific/identified safety concerns 4) developing custom training and early intervention programs to assist law enforcement in collecting uniform, timely and complete crash data, and 5) conducting transportation safety research that has state, national and global implications and applications.

Since its inception in 2012, the CTSRC has grown to become nationally recognized for accomplishments in a wide range of safety areas. The CTSRC has been awarded a number of national awards for innovative programs and projects related to identifying the causes of road crashes and developing programs and policies to address them effectively.

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March 2019
Connecticut Transportation Safety Research Center (CTSRC)
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A WORD FROM OUR DIRECTOR

Dr. Eric Jackson



A new year always begins with a look back at all that transpired in the previous year. Transportation safety in Connecticut in 2018 was met with the same major challenges; pedestrians, distracted drivers and impairment. Pedestrian safety has become an all too common challenge for our state. November, December, and January have historically been our worst months for pedestrian fatalities. In 2017, the Center kicked off a major pedestrian safety project to look at high crash intersections in the state and found that many pedestrians do not follow the rules of the road and are engaging in risky behaviors. However, the same can be said for drivers. The CTSRC partnered with the CTDOT and Connecticut Public Broadcasting to assist in a documentary on distracted driving called "Three Seconds Behind the Wheel". It was a startling view of the private world of a few drivers who volunteered to have their every trip recorded via dash cam over 6 months. Not only is driver distraction a major issue, but Connecticut is now dealing with one of the highest rates of impaired driving in the country. While always a focus, there seems to be new challenges facing altering these behaviors. In 2018, the Center obtained funding from UConn and CTDOT to build a world-class full-scale driving simulator. This tool will be used to research and implement new technologies and policies to help prevent crashes from occurring in the future.

As we look ahead to 2019, the CTSRC will continue to look for ways to change public perception and alter these risk-taking behaviors. We will look to law enforcement for support and a fresh perspective on how to stop fatalities on our roadways, while also supporting CTDOT in their safety programs. The CTSRC made major advancements in the deployment of the Roadway Safety Management System. The first two modules of this system, Network Screening and Diagnosis, were released for use by the CTDOT. This is the first step of many to provide the CTDOT the ability to conduct a full safety analysis using the Highway Safety Manual methods. This effort will conclude in the summer of 2020 with a fully functional tool to enhance safety planning for Connecticut.

We look forward to expanding partnerships and addressing the key safety issues that impact the quality of life in Connecticut!

A handwritten signature in black ink that reads "Eric Jackson". The signature is fluid and cursive.

Director and Associate Research Professor
Connecticut Transportation Safety Research Center
Connecticut Transportation Institute

2017-2018 IN THIS ISSUE

- 2017 & 2018 Northeast Autonomous Vehicle Summits
- CPTV & Boyd Productions Distracted Driving Documentary "3 Seconds Behind the Wheel"
- CTSRC Human Factors Lab Driving Simulator
- 2017 Pedestrian Observational Study
- Autumn 2018 Public Roads Feature Article "Crash Data Model for the Future"
- 2017 Event Data Recorder Project Speaking Engagements and Conference Presentations
- Crash Data Repository Updates
- Facilitated Training
- Staff Highlights

CTSRC

CORE ELEMENTS

1 data

Develop and maintain state-of-the-art crash data entry, collection, and safety analysis system.

Utilize crash, injury, toxicology, driver history and judicial data to target enforcement and messaging efforts

Analyze collected crash data to guide engineering improvements to the infrastructure.

2 behavior

Research and implement current behavioral modification and deterrence strategies to improve the safety of motorists and non-motorists

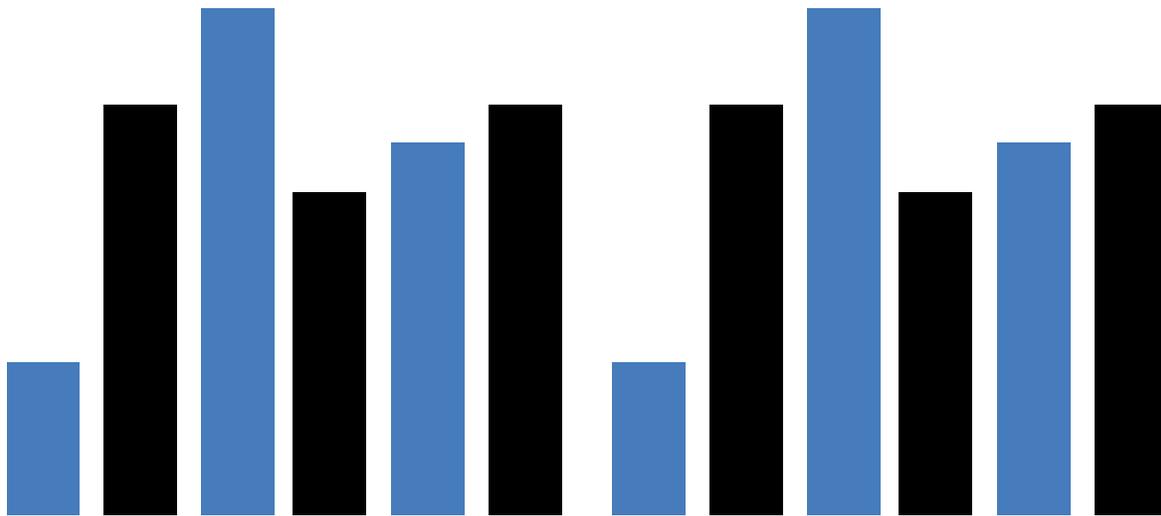
Apply knowledge of social norming and acceptability to engineering treatments.

3 engineering

Expand and enhance safety analysis methods and systems for roadway infrastructure and design.

2017-2018

CTSRC GROWTH



In 2017 and 2018, having solidified our identity as leaders of innovative traffic safety in the Northeast, the CTSRC began embarking into the realm of automation, driver simulation, biometrics, and V2V/V2R technology. With the advancements in automation and other intelligent transportation systems in vehicle manufacturing, the next logical step was to expand our focus in these areas to stay aligned with the latest technology.

Over the last two years, the CTSRC hosted two autonomous vehicle summits and also acquired a driving simulator equipped with automation capabilities. The research center also grew in staff and expertise. We welcomed the addition of a full stack software developer, human factors engineer, and GIS analyst to build upon the existing research team working on the testing of autonomous and connected vehicles.

Our Partnerships





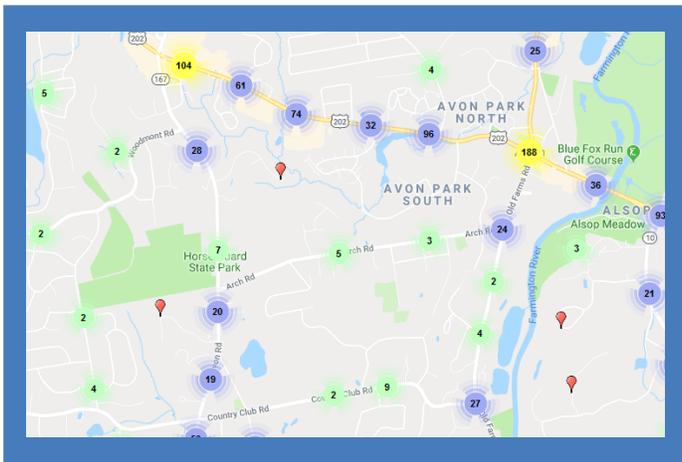
CRASH DATA REPOSITORY

New Crash Dashboard Features

CUSTOMIZE REPORTS BY POLICE AGENCY

The CTCDR Crash Emphasis Areas Dashboard is now equipped with the ability to filter reports by police agency. Crash data is available for all agencies that the CTSRC receives data from including all State Police troops, local PDs and specialty departments such as CCSU and Amtrak PDs. The Crash Emphasis Dashboard summarizes crash data for specific crash types including but not limited to DUI, pedestrian or bicyclists, young drivers, intersection crashes and wrong way drivers.

ctcrash.uconn.edu



Updated Mapping

CRASH CLUSTER FEATURE

The crash hot spot tool displays motor vehicle crashes on a map of the state. Each crash is represented by a red pin marker. With recent updates, locations where multiple crashes have occurred now display circular clusters along with the number of crashes associated with that area (Figure 1). This feature was implemented in an effort to make identifying high-crash locations easier. Users can continually zoom in to refine the map and get close enough to see the individualized crash pins.



4,030 Total Users

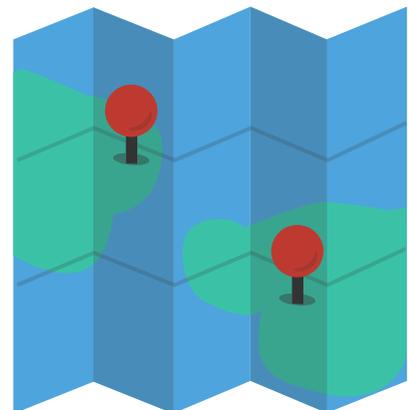


36,180 Total Queries



4,304 Total Exports

CTCDR tutorial videos can be found on the CTSRC website under Resources -> Videos and Tutorials.





WITH READERS IN MORE THAN **70 COUNTRIES**

Drivers Behaving Badly Blog

In 2018, CTSRC's traffic psychology blog "Drivers Behaving Badly" saw an increase in popularity. The blog had a combined total of over 2,100 views and more than 1,200 visitors in 2017 and 2018. Individuals from countries such as Singapore, Morocco, and New Zealand visited the site to read posts discussing autonomous vehicle development and testing, the research center's traffic safety driving simulator, and environmental influences that effect behavior.

This blog is authored and maintained by Marisa Auguste, Driver Behavior Analyst for the CTSRC. [Click here to read additional posts.](#) [Click the "Follow" button to get email updates of new content.](#)

CTSRC SOCIAL MEDIA

The Connecticut Transportation Safety Research Center was mentioned in the news **16 times** during 2017 and 2018 in reference to various traffic safety research and local crash data information. News outlets such as MSN, the Hartford Courant, State Smart Transportation Initiative, Traffic Technology Today, FOX 61, NBC Connecticut, the Daily Campus and the Chronicle featured excerpts from CTSRC traffic safety experts and crash data obtained from the CT Crash Data Repository.

Follow the CTSRC on:



Crash News Update

Crash News Update is a monthly electronic newsletter distributed to CT law enforcement professionals, and other traffic safety partners who work closely with the CTSRC and CTDOT. In 2017 and 2018, the newsletter provided information on available training courses and events for law enforcement. Also included in the newsletter were updates to the PR-1 crash report form or electronic uploading process.

Crash News Update is authored and maintained by Sgt. Charles Grasso, Crash Data Liaison for the CTSRC. An archive of previous monthly newsletters can be found [here](#).





CTSRC projects

2017 Pedestrian Observational Study

The CTSRC and CTDOT conducted an observational research study aimed at better understanding pedestrian risk-taking behavior and how it can be used to evaluate and predict vehicle-pedestrian crashes. The study used historical statewide pedestrian crash data from 2015 to 2017 and four different analytical approaches to rank and identify hotspot locations. Site selection for the observational study was accomplished utilizing a combination of the results of this analysis and direct input from CTDOT traffic safety experts. CTDOT issued cameras were installed at intersections in Hartford, New Haven, New Britain, Waterbury, and Hamden to collect video footage of pedestrian behaviors and pedestrian-vehicle interactions.

The information obtained during this study was analyzed and used to develop a pedestrian-specific safety guide. Set to be released in early 2019, the Pedestrian Safety Guide will address pedestrian safety through outreach, education, innovative engineering treatment(s) and intelligent vehicle technology systems. This guide is unique in that it ties together the industry's current best practices and the results of naturalistic observation, focusing exclusively on countermeasures to change the behavior of pedestrians. General and location-specific countermeasures will be provided.



"Passenger Power" Distracted Walking Program

In August of 2018, members of the CTSRC and the CT DOT Highway Safety Office partnered with Hot 93.7's DJ Kid Fresh to deliver a presentation on the dangers of distracted walking to children and adolescents attending the Channel 3 Kids' Camp in Andover, CT.

The main objective was to educate and inform young children and adolescents about the risks associated with distracted walking while also empowering them to use their "passenger power" to speak up when they witness dangerous driving behaviors. This population is particularly vulnerable because they are not old enough to drive, leaving walking and biking as their primary mode of transportation. This generation of adolescents are also very attached to cell phones, tablets and MP3 players, increasing the probability of distracted walking behaviors.





Photos and logo: 3seconds.org/Boyd Productions, LLC

3 SECONDS BEHIND THE WHEEL

This Connecticut Public Television (CPTV) and Boyd Productions joint project first premiered on CPTV on June 21, 2018 and was released globally in October 2018.

3Seconds.org

Several members of the CTSRC research staff provided analysis and expertise for a traffic safety research project and documentary about the dangerous of distracted driving. '3 Seconds Behind the Wheel' follows 8 residents of Florida and Connecticut by observing their habits and driving behavior in their vehicles. In-vehicle camera footage was analyzed by the CTSRC and speed and phone manipulation data was tracked by Cambridge Mobile Telematics and MIT via participant's cellphones. The documentary presents an eye-opening account of the distracted driving behaviors of the average driver. Participants and distraction varied in age, race, gender, profession and location, suggesting that distracted driving is a more common behavior than most would like to admit.

Beyond observing driver behavior, the documentary also explores innovative technologies that are starting to emerge as hopeful solutions to crashes. The film covers international traffic safety, discussing a Swedish company's technology that could allow our cars to make driving decisions based on our moods and emotions, as well as Google's continued work with driving simulators. '3 Seconds Behind the Wheel' was created by Connecticut Public Television (CPTV) and Boyd Productions, LLC, with sponsorship from Travelers and CTDOT.

The documentary will be shown in Finland, Hong Kong, Israel, Singapore, Norway and Spain under the international title " Driving While Distracted"

**1 of 20 documentaries selected for
WORLDWIDE RELEASE by**



PBS INTERNATIONAL



Law Enforcement Training Events



The CTSRC Crash Data Liaisons are responsible for the research center's training of law enforcement officers. Training events are centered around individual department needs and CTDOT performance measures and goals.

2017 and 2018 training facilitated by Charles Grasso included electronic crash reporting under the updated Model Minimum Uniform Crash Criteria (MMUCC) regulations and field investigation. In addition, Grasso provides training for basic, commercial vehicle, and fatal crash scene reconstruction.

Charles Grasso is a retired Sargent from Enfield Police Department with over 20 years of experience in law enforcement, expert witness testimony and crash scene reconstruction. In 2017, he served on the American National Standards Institute, Inc. D16 committee for classification of motor vehicle traffic crashes under the direction of the Association of Transportation Safety Information Professionals of the National Safety Council Highway Traffic Safety Section. Members of the D16.1 Consensus Body participate in the review and voting of the Eighth Edition's new and revised definitions and classifications of motor vehicle crashes.



Commercial Vehicle Crash Investigation

In 2018, a Federal Motor Carrier Safety Administration (FMCSA) high priority grant was awarded to the CTSRC to facilitate the training of 60 law enforcement officers in the area of commercial vehicle crash investigation. Two one-week certification courses were held in Fall 2018 at the State Police Academy in Meriden, CT and included instructors from the Institute of Police Technology and Management. Officers participated in "hands-on" exercises and were taught the unique variables involved in collisions with these vehicles.



Pedestrian Safety Training

A one-day course in Pedestrian Safety programs was held at the Connecticut Police Academy for state law enforcement. The course centered around how officers can effectively enforce pedestrian safety.



In December 2018, the CTSRC welcomed Lt. Brandon O'Brien, a recent retiree of the Hartford Police Department. Lt. O'Brien joins Sgt. Grasso as a Crash Data Liaison.



Event Data Recorder (EDR) Project

The CTSRC received an \$80,000 grant from CTDOT to conduct a 2017 study of five fatal motor vehicle crashes utilizing data extracted from the vehicles' Event Data Recorder's or EDR. A vehicle's EDR contains recorded data of all vehicle activity prior to a crash, during a crash and post-crash. Recent improvements in EDR technology allow for data recording 5 to 20 seconds prior to a crash. The study results determined that valuable information was obtained from the EDR downloads that would otherwise be unavailable in more traditional reconstruction investigation.

Although only five fatal crashes were included as the case studies for this research, as many as 40 EDR downloads have been conducted by Sgt. Grasso statewide since 2017. [Click here to read the report.](#)



BOSCH EDR Download Kit

Sgt. Grasso facilitated training of 60 law enforcement officers as Certified EDR Technicians at no cost to their department. Two training courses were held to certify officers in EDR technology and correct data collection procedures.

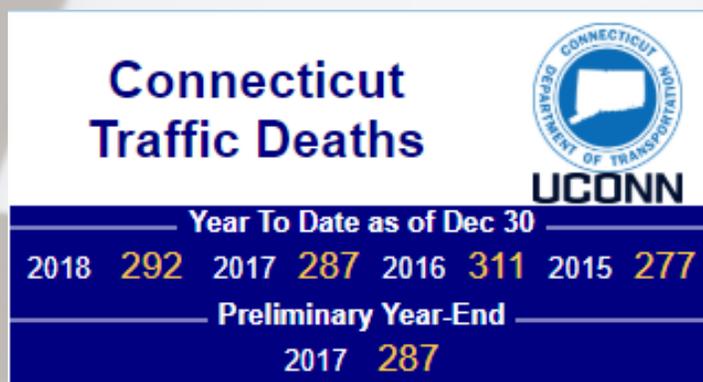
Statewide Data Linkage

Connecticut traffic safety partners are working towards a comprehensive data set of crash factors and conditions in an effort to reduce fatal and serious injury crashes. For the past several years, the CTSRC and CTDOT have worked closely with other state agencies to link numerous sources of data (toxicology, injury, judicial, driver history, roadway, and crash) together into one comprehensive database for crash analysis and injury prevention.

At this past Association of Transportation Safety Information Professionals (ATSIP) Traffic Records Forum, the CTSRC presented the paper, "**Cross system data linkage: Connecticut's journey towards a traffic injury surveillance dataset**". The results of a research project completed with crash data from the CTCDR and in-patient hospitalization data and emergency management system (EMS) data obtained from Connecticut Department of Public Health were presented. The objective of the study was to create a traffic injury surveillance dataset to understand crash circumstances and related injury outcomes. A deterministic matching approach was used in an attempt to provide a high level of linkage specificity. Data were linked based on patient name, date of birth, and date of crash. The deterministic method was only considered successful for those cases where exact matches were confirmed. SAS v9.4 software was used for matching and analysis of the matched cases.

For 2015, this linkage produced 30,263 records integrating in-patient utilization and crash data, however, there were only 13,179 linked records between crash and EMS data. The preliminary analysis of linked inpatient records showed that the linkage percent was higher among suspected serious (A) injuries (70%) compared to suspected minor (B) injuries (56%). Drivers (74%) dominated the data followed by passengers (23%). The mean length of stay was 1.34 (Range = 0-130 days) and the mean cost of care was \$7,055 (range = 0-1 million).

The CTSRC staff continue the effort of linking the state's motor vehicle related data and discussions are continuing with all state agencies. The CTSRC has received data from Judicial, the Department of Public Health and the state toxicology lab to combine with the existing database of crash and roadway data.



The Connecticut Chief Medical Examiner's office continues to provide fatality data that is used to update our Fatality Ticker. The Fatality Ticker provides current year-to-date figures for motor vehicle related fatalities as well as the prior three years year-end total. The Fatality Ticker can be found on the CTCDR homepage, ctcrash.uconn.edu.

Engineering Projects



The CTSRC engineers and developers achieved several significant goals in 2017 and 2018. The Safety Analysis team worked with CTDOT in assessing data needs and gaps for the state according to the Highway Safety Manual (HSM) and the Model Inventory of Roadway Elements (MIRE). The team also created a series of data visualization dashboards for network screening for CTDOT, using the most recent three-year of crash data and the basic roadway geometric data. To fully implement the HSM's methodology, the safety analysis team and our consultant company VHB worked together in developing a fully customized, modern web-based, user authenticated, and map interactive network-screening tool for CT, using CT-specific data and models. Lastly, the team developed CT-specific SPFs for state road segments (16 sub-types), local road segments (12 sub-types) and freeway ramp segments (4 sub-types). Combined with different crash types and crash severity groups, the team estimated 608 crash count prediction models (SPF) in total. These SPF are crucial in conducting robust network screening and any further diagnosis and evaluations.

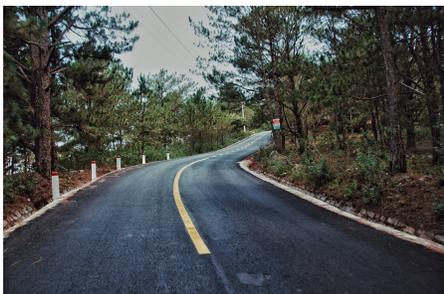
In addition to the ongoing CTDOT sponsored projects, the team also responded to additional research and funding opportunities from AAA and NCHRP. Below, are details for two completed CTDOT funded projects.

CT 170-3360: Expanding the Role of the Connecticut Transportation Safety Research Center to Enhance Connecticut's Safety Analysis Methods and Systems



The Safety Analysis Team is in the second year of this CTDOT and Federal Highway Administrative (FHWA) funded project. The objective is to implement the Safety Techniques Enhancement Plan. The team has developed two useful safety analysis modules - network screening and diagnosis. In the network screening module, users create a wide range of screening scenarios by selecting crash types, severity levels, emphasis areas, facility types, geographical areas, and route numbers. Multiple performance measures and screening methods are offered to meet different needs and validate the results. In the diagnosis module, users are provided with eight different tools, namely the crash map, tabular crash data, summary statistics, test of proportions, viewing supporting documentation, creating collision diagrams, creating crash trees, and viewing site conditions through street views, to help identify crash patterns and contributing factors.

CT 170-3487: Evaluation of Wet Weather Crash Locations and Conducting Pavement Friction Testing in Selected Locations



This project involved developing a methodology to identify the Statewide highway hot spots related to wet pavement crashes, and to conduct pavement friction testing and provide reports to the CTDOT Pavement Management Unit. The crash analysis method "critical crash rate" was used to identify locations with the higher number of wet pavement related crashes, especially those located at highway curves, and experienced safety issues corresponding to vehicle travelling speed. The surface friction of candidate sites were tested to investigate the relationship between pavement condition and wet pavement related crashes.

autonomous vehicles

RESEARCH. TECHNOLOGY.
INNOVATION.



2017 NORTHEAST AUTONOMOUS VEHICLE SUMMIT

The University of Connecticut's School of Engineering and the Connecticut Transportation Institute partnered with the Federal Highway Administration and Connecticut Department of Transportation to host the Northeast Autonomous Vehicle Summit on March 30th and 31st of 2017. The Summit brought together national experts, policy makers, and representatives from transportation agencies, the private sector and academia to discuss a wide range of topics related to this emerging field.



The focus of the summit was to help states plan for the policy, safety, and technology implications of autonomous vehicles.

2018 NORTHEAST AUTONOMOUS VEHICLE SUMMIT

Following the success of the Northeast AV summit the previous year, a second summit was held over June 12th and 13th of 2018. Held at the Hartford/Windsor Marriott Hotel in Windsor, CT, the 2018 summit provided investors, inventors, and various other stakeholders with the opportunity to view and discuss the latest in technology, services and products in transportation safety with professionals throughout the Northeast region.



Federal, state, and local officials were invited to learn about the latest advancements in the connected and autonomous vehicle industry and were also provided unlimited potential to network with AV policy and decision makers. Sessions held during this two-day event covered topics such as pilot programs and 'Smart Cities', infrastructure, and policy issues.

The 3rd annual Northeast Connected and Autonomous Vehicle Summit will be held June 12-13, 2019. More information can be found at: <https://necavsummit.com/>.

NORTHEAST AUTONOMOUS VEHICLE SUMMIT

2017

Speakers:

Dr. Carol Atkinson-Palombo, **UConn Geography**
 Peter Calcaterra, **CTDOT**
 Dan Galves, **Mobileye Inc.**
 Dr. Chris Gerdes, **Stanford University**
 Chuck Harlow, **CT DOT**
 Josh Hartung, **PolySync**
 Jim Hedlund, **Highway Safety North**
 Amy Jackson-Grove, **FHWA**
 Kazem Kazerounian, **UConn Dean**
 C. William Kingsland, **NJ DOT**
 David Kidd, **Insurance Institute for Highway Safety**
 Jane Lappin, **Toyota Research Institute**
 Nino Manes, **United Technologies Research Center**
 Tom Maziarz, **CTDOT**
 James Redeker, **CT DOT Commissioner**
 Cathy Rossi, **AAA Mid-Atlantic**
 Jason Post, **Uber Public Affairs Northeast**
 Art Shulman, **Global Autonomous Vehicle Partnership (GAVP)**
 Dr. Parasara Sridhar Duggirala, **UConn Computer Science**
 Dale Thompson, **FHWA**
 Andrew Zehner, **UConn OVPR**

2018

Speakers:

Anna Barry, **CTDOT**
 Dan Baxter, **Santec**
 Jeffrey Bellone, **US DOT Volpe Center**
 David Benevelli, **Transcore**
 Stephen Buckley, **WSP**
 Kris Carter, **City of Boston**
 Cathie Curtis, **AAMVA**
 Garrett Eucalitto, **Nat. Gov. Assoc.**
 Dan Galves, **Mobileye**
 Julia Gold, **RI DOT**
 Larry Head, **Univ of Arizona**
 Jay Hietpas, **Minnesota DOT**
 C. Zack Hyde, **State of CT OPM**
 Jonathan Koopmann, **US DOT Volpe Center**
 Dailia Leven, **AECOM**
 Virginia Lingham, **VA DOT**
 Hongshen Lu, **Toyota**
 Elizabeth Macheck, **US DOT Volpe Center**
 Laurie Matkowski, **Gannett Fleming, Inc.**
 Carrie Morton, **Mcity**
 Suzanne Murtha, **AECOM**
 Chrissy Nizer, **MD DOT**
 Michelle Orfield, **Stantec**
 Marygrace Parker, **I-95 Corridor Coalition**
 David Periera, **NTSB**
 Eric Plapper, **HDR**
 Kellen Pucher, **Smart Mobility, Panasonic**
 Jennifer Ryan, **AAA**
 Joe Segale, **VT DOT**
 Tim Schock, **NAVYA**
 Drrin Shewchuck, **HARMAN**
 Jan Urbahn, **BMW**
 Kevin Walsh, **US DOT Volpe Center**
 David Woessner, **Local Motors**
 Janine Yoong, **Mapillary**

Major Sponsors:



**United Technologies
Research Center**



TRAFFIC SAFETY DRIVING SIMULATOR



In July of 2018, the CTSRC acquired a traffic safety driving simulator to use in transportation safety research. Developed by Realtime Technologies, the simulator is a full-sized, four door sedan, sans engine and is housed at the CTSRC's Human Factors Lab, located at the University of Connecticut campus in Storrs.

In addition to the vehicle simulator, the Human Factors Lab is also equipped with a desktop driving simulator and accompanying software and equipment to monitor physiological responses to simulations. Utilizing iMotions software, the CTSRC now has the ability to track eye movement, facial expressions, EKG, and GSR of participants of studies that utilize the simulator. Analyzing physiological responses to stimuli in the driving environment can help to expand understanding of driver behavior.

The simulator has attracted a lot of attention from the local media and others. Senator Richard Blumenthal paid the Human Factors lab a visit shortly after the installation of the simulator. The Hartford Courant also featured the driving simulator and all it's capabilities in an article, calling it a "piece of the future"

Funding for the driving simulator was provided by the Connecticut Department of Transportation, various departments within the University of Connecticut.



Views from CTSRC Driving Simulator / UConn, Christopher Larosa



staff highlights

*by Robbin Cabelus, Mario Damata,
Eric Jackson, and Robert Pollack*

Better Information for Better Roadway Safety

Connecticut's journey to modernize its system for crash data collection, reporting, and analysis could serve as a model for other transportation agencies.

(Above) In 2015, Connecticut launched a complete overhaul of its crash reporting system to improve the quality, accessibility, and usefulness of its crash data. Photo: © Kwangmoozaa, iStock.

Public Roads Autumn 2018



The U.S. Department of Transportation's Federal Highway Administration ran a feature article in their Autumn 2018 issue. The article discussed the work that CT DOT and the CTSRC have done over the past several years to develop a fully electronic crash reporting system and the Crash Data Repository. The journey from paper-based reporting to a web-based data repository, containing data visualization dashboards and heat mapping of high density crash areas is provided in great detail. Prior to the system improvement, the backlog of crash reports was up to 14 months. This made data-driven safety efforts difficult to accomplish.

The state used the NHTSA and Governors Highway Safety Association developed data collection guidelines (Model Minimum Uniform Crash Criteria - MMUCC) to update the two-page paper report. The CT crash report is now a five-page minimum electronic document with several appendices for special circumstances, such as commercial vehicle or bicyclist involvement. A MMUCC Best Practice Toolbox of eight clear strategies crucial to the success of the process was also developed by the state. Program accomplishments and road blocks are highlighted for agencies in other states who may want to attempt something similar.

A link to the Public Roads article can be found on the CTSRC homepage under Recent News, located at ctsrc.uconn.edu

"Public Roads is the quarterly magazine of the Federal Highway Administration (FHWA)." - FHWA
<https://www.fhwa.dot.gov/publications/publicroads/>

2017 ATSIP Traffic Records Forum - New Orleans, LA

Dr. Eric Jackson, Director and Dr. Shanshan Zhao, Research Scientist

Drs. Jackson and Zhao presented "Roadway Safety Management Process: CTSRC's Current and Planned Capabilities."

2018 Lifesaver's National Conference - San Antonio, TX

Marisa Auguste, Driver Behavior Analyst and Dr. Sha Mamun, Statistical Analyst

Dr. Mamun and Ms. Auguste presented "Development of Pedestrian Safety Hotspot Analysis Tools and Observational Study" at a pedestrian safety workshop. The focus was to increase awareness and research in the area of pedestrian distraction behavior and to discuss the preliminary findings of a 2017 observational study of pedestrian and driver distraction and risk-taking behavior.

2018 Transportation Review Board Annual Meeting - Washington, D.C.

Dr. Eric Jackson, Director, Dr. Kai Wang, Transportation Safety Engineer, and Dr. Shanshan Zhao, Research Scientist

Drs. Jackson, Wang and Zhao presented three separate papers at the 2018 TRB annual meeting, "Freeway Crash Analysis Considering Monthly Variation in Traffic Volumes and Weather Conditions Using Time Series Random Effect Negative Binomial Models.", "Direct and Indirect Effects of Nebraska Motor Vehicle Drivers' Characteristics on Inattentive Driving at Highway-Rail Grade Crossings." and "Multivariate Poisson Lognormal Modeling of Weather Related Crashes on Freeways."

2018 ATSIP Traffic Records Forum - Milwaukee, WI

Dr. Eric Jackson, Director, Dr. Kai Wang, Transportation Safety Engineer, and Dr. Shanshan Zhao, Research Scientist

Drs. Jackson, Wang and Zhao presented "Roadway Safety Management System in CT: Story of Data Integration, Analysis, Validation and Implementation."

Dr. Eric Jackson, Director, and Dr. Smruti Vartak, Epidemiologist

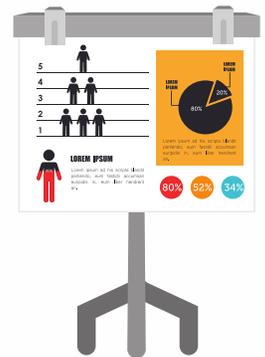
Drs. Jackson and Vartak presented "Cross System Data Linkage: Connecticut's Journey Towards a Traffic Injury Surveillance Dataset".

Other conferences attended by CTSRC staff:

2017 New England Transportation Safety Conference - Cromwell, CT

Rhode Island Distracted Driving and Pedestrian Safety Summit - Providence, RI

Los Angeles Safety Data Peer Exchange - Los Angeles, CA



Conference Presentations



Journal Submissions

The CTSRC research staff submitted several papers to various research journals in 2017 and 2018. Research topics were diverse and included predictive modeling, hot spot identification and driver error and inattention.

Wang, Kai, Shanshan Zhao, John N. Ivan, Ishraq Ahmed, and **Eric Jackson**.

"Evaluation of hot spot identification methods for municipal roads." *Journal of Transportation Safety & Security* (2018).

Wang, Kai, Shanshan Zhao, and Eric Jackson.

"Multivariate Poisson Lognormal Modeling of Weather-Related Crashes on Freeways." *Transportation Research Record* (2018): 0361198118776523.

Cabelus, Robbin, Damiata, Mario, **Jackson, Eric**, & Robert Pollack.

"Better Information for Better Roadway Safety". *Federal Highway Administration. Public Roads: Autumn 2018*. 8-15.

Soyoung Jung, **Kai Wang**, Cheol Oh and Jaenam Chang.

"Development of Highway Safety Policies by Discriminating Freeway Curve Alignment Feature". *KSCE Journal of Civil Engineering* 22 (2018): 1418-1426.

Kai Wang, Shamsunnahar Yasmin, Karthik C. Konduri, Naveen Eluru and John N. Ivan.

"A Copula Based Joint Model of Injury Severity and Vehicle Damage in Two-Vehicle Crashes". *Transportation Research Record* 2514 (2018): 158-166.

Zhao, Shanshan, and Aemal J. Khattak.

"Injury severity in crashes reported in proximity of rail crossings: The role of driver inattention." *Journal of Transportation Safety & Security* 10, no. 6 (2018): 507-524.

Zhao, Shanshan, and Aemal J. Khattak.

"Direct and Indirect Effects of Nebraska Motor Vehicle Drivers' Characteristics on Inattentive Driving at Highway-Rail Grade Crossings." *Transportation Research Record* (2018): 0361198118794067.

Zhao, Shanshan, Amirfarrokh Iranitalab, and Aemal J. Khattak.

"A clustering approach to injury severity in pedestrian-train crashes at highway-rail grade crossings." *Journal of Transportation Safety & Security* (2018): 1-18.

Kai Wang and Xiao Qin.

"Exploring Driver Errors at Intersections: Exploring Key Contributors and Solutions". *Transportation Research Record* 2514 (2018): 1-9.

Kai Wang, John N. Ivan, Amy C. Burnicki and Sha A. Mamun.

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