

RSS2019

ROAD SAFETY
& SIMULATION
INTERNATIONAL
CONFERENCE

Iowa City, Iowa, USA • 14-17 October, 2019
Transformations in Transportation



Day 1 (Monday, 14 October 2019)	
9:00 AM	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Workshop - Simulation Bootcamp 9:00 AM - 12:00 PM</p> </div> <div style="width: 45%;"> <p>Workshop - Automated Vehicles 9:00 AM - 12:00 PM</p> </div> </div>
12:00 PM	Lunch break
1:30 PM	Tours 1:30 - 5:30 PM
5:30 PM	Break
6:00 PM	<p>Welcome Reception 6:00- 10:00 PM Big Grove Brewery Buses leave from The Graduate Hotel</p>
10:00 PM	

Day 2 (Tuesday, 15 October 2019)						
8:30 AM	Keynote - Road User Relationships and Interactions David Yang, PhD Executive Director, AAA Foundation for Traffic Safety					
10:00 AM	Coffee Break					
10:30 AM	Panel Session 1 Using Driving Simulators to Examine User Interactions with Infrastructure Elements Sue Chrysler, Anuj Pradhan, Alexandra Kondyli, Stacy Balk, Richard Romano, David Hurwitz	Lecterns: 10:30 AM - 12:00 PM	Lectern 1: Vulnerable Road Users	140	Relating Recent Binge-Drinking and Frequent Drinking Symptoms to Neural Responses of Secondary Task Engagement in Driving Simulation in a Young Adult Population	Barbara Banz, Jia Wu, Deepa Camenga, Michael Crowley, Linda Mayes and Federico Vaca
137				Licensure Outcome and Screening Tests during Review of Older Driver	Jonathan Davis, Cara Hamann, Brandon Butcher and Corinne Peek-Asa	
139				Brain-Based Limitations in Attention and Secondary Task Engagement During High-Fidelity Driving Simulation Among Young Adults	Barbara Banz, Jia Wu, Deepa Camenga, Michael Crowley, Linda Mayes and Federico Vaca	
130			Development of a non-motorized traffic monitoring program to inform policy and prevention efforts	Steven Spears, Cara Hamann and Fernando de Carvalho Oliveira Neto		
159			Automated Vehicles in Urban Traffic: The Effects of Kinematics and eHMI on Pedestrian Crossing Behavior	Andre Dietrich, Michael Tondera and Klaus Bengler		
18			Should I cross? Evaluating display options for autonomous vehicle and pedestrian interaction	Shuchisnidha Deb, Lesley Strawderman and Daniel Carruth		
99			Interactions with automated vehicles: The effect of drivers' attentiveness and presence on pedestrians' road crossing behavior	J. Pablo Nuñez Velasco, Yee Mun Lee, Jim Uttley, Albert Solernou, Haneen Farah, Bart Van Arem, Marjan Hagenzieker and Natasha Merat		
195			Safety Effectiveness of All-Electronic Toll Collection Systems	Meghna Chakraborty, Mehrnaz Ghamami, Timothy Gates and Steven Stapleton		
213			Increasing traffic flow efficiency at signalized intersections: a driving simulator study	Qinaat Hussain, Wael Alhajjaseen, Kris Brijs, Ali Pirdavani and Tom Brijs		
221			Comparison of Safety Effectiveness between Passing lanes and Conversion to the Four-Lane Divided Highway on Rural Low Volume Two-Lane Two-Way Highways	Irfan Ahmed and Mohamed Ahmed		
12:00 PM	Lunch					
1:00 PM						
1:30 PM	Panel Session 2 Less-Discussed Areas of Safety Among Vulnerable Road Users: Implications for Emerging and Future Research Federico Vaca, Panagiotis Papantoniou, Chiara Ferrante, Barbara Banz	Lecterns: 1:30 - 3:00 PM	Lectern 4: Connected Vehicles	88	Analysis, Modeling and Simulation Framework for Performance Evaluation of the Wyoming Connected Vehicle Pilot Deployment Program	Guangchuan Yang and Mohamed Ahmed
222				Operational Evaluation of Effectiveness of Connected Vehicle Smartphone Technology on Improving Driving Safety: Field Test	Cecilia Kadeha, Festo Mjogolo, Mike Soloka and Thobias Sando	
223				Operational Evaluation of Effectiveness of Connected Vehicle Smartphone Technology on a Signalized Corridor: Field Test	Festo Mjogolo, Cecilia Kadeha and Thobias Sando	
148			Avoidable and inevitable collisions: minimization of risk by ADAS adaptive logic	Dario Vangi, Antonio Virga and Michelangelo-Santo Gulino		
72			The Impact of Vehicle Adaptive Headlamp Systems on Nighttime Bicyclist Safety	Lakshmi Devi Subramanian, Elizabeth O'Neal, Jodie M. Plumert, Joseph Kearney and Rini Sheroni		
110			Using objective parameters as surrogate measures for Road Safety Audits	David Llopis Castelló, Francisco Javier Camacho Torregrosa and Alfredo García		
220			DO DRIVERS CORRECTLY INTERPRET THE SOLID CIRCULAR GREEN FROM AN EXCLUSIVE RIGHT-TURN BAY?	Hisham Jashami, David Hurwitz, Christopher Monsere and Sirisha Kothuri		
69			Cost-effective Safety Improvements and Crash Modification Factors for County Roads	Thomas Hall, Andrew Tarko and Mario Romero		
118			Modeling Crash Risk at Horizontal Curves on Low-volume Highways	Qingyu Ma, Hong Yang, Zhenyu Wang, Kun Xie and Fan Zuo		
3:00 PM			Coffee Break			
3:30 PM	Panel Session 3 Preparing Infrastructure for higher levels of vehicle autonomy Neal Hawkins, Anuj Sharma, Skylar Knickerbocker, Tina Greenfield	Poster Session 1 Poster Sessions: 3:00 - 5:00 PM	24	A simulator study on the impact of driver distraction due to drones based on prior experiences and perspectives of drones	Alyssa Ryan, Cole Fitzpatrick, Michael Knodler and Eleni Christofa	
43			AN EVALUATION OF DOOR ZONE COLLISIONS BETWEEN BICYCLES AND VEHICLES	Cadell Chand and David Hurwitz		
113			Developmental Trajectories of Adolescent Engagement in Riding With an Impaired Driver / Driving While Impaired With Associated Health, Employment and Education	Federico Vaca, Kaigang Li, Deepa Camenga, Barbara Banz, Niyousha Hosseinichimeh, Leslie Curry, Linda Mayes, Ronald Iannotti, James Dziura, Denise Haynie and Bruce Simons-Morton		
10			A review of the interaction between Autonomous Vehicles and Vulnerable Road Users	Apostolos Ziakopoulos, Tova Rosenbloom, Dimosthenis Pavlou and George Yannis		
29			Estimation of Driver's Readiness for Take-over Based on Visual Distractions Detection	Qingkun Li, Lian Hou, Ali Muhammad Hadi, Ying Zou, Wenjun Wang, Shuguang Li, Quan Yuan and Bo Cheng		
178			Investigating the effects of roadside cover on safe speeds for autonomous driving in high-risk deer-vehicle collision areas	Joaquin Font and Alexander Brown		
15			Methodology for upgrading existing, accident-prone, rural highways with the help of driving simulation	Wolfgang Kühn		
74			A NEW METHODOLOGY FOR ESTIMATING SAFETY RISK AT HIGHWAY RAIL GRADE CROSSINGS	Jacob Mathew and Rahim Benekohal		
94			The evaluation of decorated cameras – A driving simulator study	Veerle Ross, Amjad Dehman, Nora Reinolsmann, Karin Van Vlierden, Wim Ectors, Kristof Mollu, Veerle Schoutteet and Tom Brijs		
40			Estimation of Crash Modification Factors with Cross-Section Data: An Investigation Using a Simulated Artificial Realistic Dataset	Bo Lan and Raghavan Srinivasan		
27			A Detailed Investigation of Driver Performance in Rural Two-Lane Roads with Varying Horizontal and Vertical Curvature	Raghavan Srinivasan, Bo Lan, Daniel Carter and Kari Signor		
56			Assessing the Influence of Lead Trucks on Driver's Perception and Response using a Driving Simulator	Umair Durrani and Chris Lee		
61			Association of Expressed Driving Anger with Driving Performance combining Simulator and Survey Data	Orestis Gavalas, Panagiotis Papantoniou, George Yannis and Eleonora Papadimitriou		
102			Evaluation of the effects of fatigue on driving performances: a driving simulator study	Chiara Ferrante, Samyajit Basu, Susanna Seri and Maria Rosaria De Blasiis		
52	To which extent the driving behavior of older drivers with neurological diseases affecting cognition is different after an unexpected incident?	Dimosthenis Pavlou, Panagiotis Papantoniou, George Yannis and Sokratis Papageorgiou				
53	Does driving at night affect the driving performance of young drivers? A driving simulator study.	Dimosthenis Pavlou, Eleftheria Kyriakouli, George Yannis and Panagiotis Papantoniou				
126	Older Drivers' Experiences with Autonomous Vehicle Technology	Sherrilene Classen, Justin Mason, James Wersal and Virginia Sisiopiku				
193	Quantifying the Safety Benefits of Dynamic Message Signs (DMSs) on Florida Freeways	Cecilia Kadeha, Angela Kitali and Priyanka Alluri Alluri				
210	Simulator Evaluation of an Intersection Maneuver Assist System with Connected and Automated Technologies	Anuj Pradhan and Heejin Jeong				
5:00 PM	14	Incorporating Biobehavioral Architecture into Car-Following Models	Vishal Kummetha, Alexandra Kondyli and Steven Schrock			

Day 3 (Wednesday, 16 October 2019)

8:30 AM Panel Session: 8:30 - 10:00 AM Using Simulators in Driving Research Fabrizio D'Amico	Panel Session 5	Poster Session 2 Poster Session: 8:30 - 10:00 AM	112	Comparison of HMD and CAVE pedestrian simulators	Viola Cavallo, Nguyen-Thong Dang, Prashant Pala, Marie-Axelle Granié, Sonja Schneider, Philipp Maruhn and Klaus Bengler
			116	Risk Analysis of Pedestrians Crossing at Signalized and Un-signalized Mid-block section of Road – A Case Study	Ravi Kant, Mukti Advani, Satish Chandra and Sunil Sharma
			13	The driver collides with pedestrian? Evaluation the effect signal countdown timers on driver decision using behavioral data from an instrumented vehicle	Abbas Sheykhfard, Farshidreza Haghighi and Adel Rezaei Tarahomi
			39	A driving simulator study for evaluating driving performance during car-following manoeuvre after a transition from automated to manual control	Fabrizio D'Amico, Alessandro Calvi, Chiara Ferrante, Luca Bianchini Ciampoli and Andrea Benedetto
			156	Simulation of the Impact of Connected and Autonomous Vehicles at a Signalized Intersection	Hamad Almobayedh, Deogratias Eustace and Philip Appiah-Kubi
	104		Comparison of accident prediction models for predicting accident risks on an Italian two lane two-way rural highway	Samyjit Basu, Chiara Ferrante and Maria Rosaria De Blasiis	
	155		Integration and Verification of a Low-Cost Haptic Anti-Lock Braking System in a Driving Simulator	Vishal Kummetha, Alexandra Kondyli, Thomas DeAgostino, Christopher Depcik, Michelle Johnson, Yilin Li, Aaron Pope, Andrea Subirana and Thomas Woodruff	
	169		Traffic Conflict Pattern Analysis under Limited Visibility Condition Using Computer Simulation	Binya Zhang and Essam Radwan	
	44		A Microsimulation based Study to Improve Traffic Safety in School Zones	Md Hasibur Rahman, Mohamed Abdel-Aty, Jaeyoung Lee and Md Sharikur Rahman	
	134		The effect of simulator fidelity on driving performance in intersection crash scenarios	Timothy Brown, Dawn Marshall and Larry Huang	
	123		Effect of data window statistical analysis on driver performance	Tim Brown, Chis Schwarz and Alec LaVelle	
	131		Developing Differential Variable Speed Limits for Car and Truck on Freeways	Anas Abdulghani and Chris Lee	
	151		On the Deep Posture Estimation Methods for In-Vehicle Monitoring	Sehyun Chun, Nima Hamidi Ghalehjeh, Christopher Mitropoulos-Rundus, Daniel McGehee and Stephen Baek	
	84		Ethical Dilemmas in Autonomous Vehicles: A Review of Literature and Direction for Future Research	Sohel Sohrabi, Farinoush Sharifi, Mark Burris and Dominique Lord	
	117		Fast road scenario generation for Road Safety Assessment	Juan Francisco Dols Ruiz, Jaime Molina Pardo, Francisco Javier Camacho Torregrosa, David Llopis Castelló and Alfredo García	
	174		Using driver model in driving simulator for investigating factors on the occurrence of road traffic accidents	Ana Paula C. Laroocca, Maria Izabel Santos and Paulo Tadeu O. M.E Silva	
	202		Statewide Network Screening Using Highway Safety Manual	Riana Tanzen, Eric Green, Reginald Souleyrette and William Staats	
	59		Experimental Analysis of Users' Interaction with Automation in Malfunction Scenarios: A Driving Simulator Study	Haggai Davis, Paul Kornyo, Osama Osman, Peter Bakhit and Divya Kolasani	

10:00 AM Coffee Break
 Keynote - Road User Relationships and Interactions
 John D. Lee, PhD
 Emerson Electric Quality & Productivity Professor, University of Wisconsin

12:00 PM Lunch

1:00 PM 1:30 PM Panel Session: 1:30 - 3:00 PM VR \ AR for Road Safety Research Panel Jason Williams, Brian Phillips, Donald Fisher, Stacy Balk Joseph Kearney, Vijay Kalivarapu	Panel Session 6	Lecterns: 1:30 - 3:00 PM	Lectern 7: Automated Vehicles	142	Exploring the Perceived Safety of Autonomous Vehicles from a Road Users Perspective	V. Dimitra Pyrialakou, Christos Gkartzonikas, Drew Gatlin and Konstantina Gkritza
				46	The impact of automated vehicles on cyclists' safety in urban areas	Pavlos Tafiadis, Ali Pirdavani, Tom Brijs and Haneen Farah
	Lectern 8: Roadway Infrastructure		33	Exploring the Impacts of Intersection and Traffic Characteristics on the Frequency and Severity of Bicycle-Vehicle Conflicts	Brendan Russo, Sirisha Kothuri, Edward Smaglik, Cristopher Aguilar, Emmanuel James, Nolan Levenson and Peter Koonce	
			50	Can structural equation models assess overall driving performance in driving simulator experiments?	Panagiotis Papanтониou, George Yannis, Constantinos Antoniou and Dimosthenis Pavlou	
			173	A Cross-Sectional Comparison of the Safety Performance of Roundabouts versus Intersections with Other Types of Traffic Control	Qiuqi Cai, Bryce Hallmark, Shaodong Wang, Nusayba Megat-Johari, Megat-Usamah Megat-Johari, Timothy Barrette, Trevor Kirsch and Peter Savolainen	

3:00 PM Coffee Break	Lectern 9: Connected Vehicles	Lecterns: 3:30 - 5:00 PM	21	Evaluating the Effectiveness of P2V Connected Vehicle Technologies in a Driving Simulator	Morgan Morris, Yina Wu, Lishengsa Yue and Mohamed Abdel-Aty
			103	Effectiveness evaluation of in-vehicle warning system under reduced visibility conditions: a driving simulation study	Chiara Ferrante, Samyjit Basu and Maria Rosaria De Blasiis
			158	Evaluation of Vehicle-Pedestrian Interactions at Right Turns with FYA	Kelvin Santiago-Chaparro, Madhav Chitturi, Andrea Bill and David Noyce
	Lectern 10: Automated Vehicles		124	Effect of driver mental model on ADAS effectiveness: a driving simulator case study	Riccardo Rossi, Massimiliano Gastaldi, Francesco Biondi, Federico Orsini, Giulia De Cet and Claudio Mulatti
			7	The effects of ACC headway time configuration on drivers' overtaking tendency in a driving simulator	Rotem Duffney, Avinoam Borowsky, Hillel Bar-Gera and Israel Parmet
	Lectern 11: Vulnerable Road Users		128	Simulator Study on the Effects of Adaptive Headlamp Features on Driver Responses to Pedestrians and Bicyclists	Chris Schwarz, Timothy Brown and Rini Sherony
			78	Pedestrian Crash Analysis for Urban and Rural Areas in Louisiana	Ming Sun, Xiaoduan Sun and M. Ashifur Rahman
			77	Bicycle daytime running lights, bicyclist comfort, and vehicle lateral passing distances	Cara Hamann, Steven Spears, Henna McCoy, Zoe Horak, Archana Venkatachalapathy and Anuj Sharma

5:00 PM Break
 6:00 PM Gala Dinner
 Little Lights on the Lane
 Buses to leave from The Graduate Hotel
 10:00 PM

Day 4 (Thursday, 17 October 2019)

8:30 AM				
Lecterns: 8:30 - 10:00 AM	Lectern 12: Connected Vehicles	191	Microscopic Simulation based study of Pedestrian Safety Applications at Signalized Urban Crossings in a Connected-Autonomous Vehicle Environment and Reinforcement Learning based Optimization of Vehicle Decisions	Fan Zuo, Kaan Ozbay, Abdullah Kurku, Jingqin Gao, Hong Yang and Kun Xie
		160	Development of a New Safety Performance Measure – Risk Status: Fusing Crash Data and Surrogates Derived from Connected Vehicle Data Analytics	Di Yang, Kun Xie, Kaan Ozbay and Hong Yang
		54	Evaluating the Predictive Power of a Safety Performance Function Using Random Parameters	Houjun Tang, Vikash Gayah and Eric Donnell
	Lectern 13: Simulation	164	Characterizing Instabilities Induced by a Four Degree-of-Freedom All-Terrain Vehicle Simulator	John Michael, Charles Jennissen, Gereone Denning and Salam Rahmatalla
		199	Sensing Simulation for the Virtual Testing of Autonomous Vehicle Safety and Performance	Asher Elmquist, Dylan Hatch, Radu Serban, David Noyce and Dan Negrut
		119	Pedestrian Behavior in Virtual Reality: Effects of Gamification and Distraction	Sonja Schneider, Madeleine Ratter and Klaus Bengler
	Lectern 14: Law/Other	168	Should Law Subsidize Driving?	Gregory Shill
		34	Development of Trooper Spatial/Crash Database to Quantify Enforcement Countermeasures	Osama Abaza and Muhammad Saif Uddin
		172	Identification of Risk Factors Affecting Crash Frequency and Severity on Horizontal Curves along High-Speed Divided Highways	Amrita Goswamy, Mehrdad Morshedi Shahreabaki, Timothy Barrette, Peter Savolainen, Shauna Hallmark and Michael Pawlovich
10:00 AM Coffee Break				
10:30 AM Keynote - Simulation Past, Present, & Future Richard Romano, PhD Chair in Driving Simulation, University of Leeds Institute for Transport Studies				
12:00 PM Lunch				
1:00 PM				
Lecterns: 1:30 - 3:00 PM	Lectern 15: Roadway Infrastructure	93	Investigating different signalizations of divergence points on driving behavior at the entry of motorway exit lanes.	Veerle Ross, Nora Reinoltsmann, Amjad Dehman, Karin Van Vlierden, Kristof Mollu, Erik De Bisschop, Wim Ectors and Tom Brijis
		125	Transferability and seasonality in extreme value theory applications to road safety: a case study in an Italian motorway	Federico Orsini, Gregorio Gechele, Massimiliano Gastaldi and Riccardo Rossi
		171	Incident Detection by Speed Distribution Pattern: Towards Realizing the Incident Heterogeneity in Detection	Dong Pan, Wei Zhang, Samer Hamdar and Chenhui Liu
	Lectern 16: Distributed Simulation	127	A Distributed Simulation Architecture for Intermodal Safety Research	Wanxin Wang, Soumyajit Chakraborty, David Heitbrink, Chris Schwarz, Joe Kearney and Stephen Baek
		42	Multi-modal Distributed Simulation Combining Cars and Pedestrians	Yuanuan Jiang, Kelvin Santiago-Chaparro, Soumyajit Chakraborty and Joseph Kearney
		45	Developing A Cost-Effective and Need-Specific Simulation Training Platform for Snowplow Drivers	Adekunle Adebisi, Jiaqi Ma, Julian Wang and Niloufar Kioumars
	Lectern 17: Naturalistic Driving Studies	70	Estimating the Expected Number of Crashes with Traffic Conflicts Observed in Naturalistic Driving Studies	Andrew Tarko and Cristhian Lizarazo
		81	Analysis of Human Driver Lane Change Behavior Based on Naturalistic Driving Data	Sehwan Kim, Junmin Wang, Dennis A. Guenther, Gary J. Heydinger and Bingrui Jia
		129	A Naturalistic Data Driven Study Assessing the Impact of Daytime Running Lights on Cyclists' Stress	Archana Venkatachalapathy, Anuj Sharma, Elizabeth Shirliff, Chinmay Hegde, Cara Hamann and Steven Spears
3:00 PM Coffee Break				
Poster Session 3: 3:00 - 5:00 PM	Poster Session 3	135	Factors that Contribute to Delay in Driving Licensure Among U.S. High School Students and Young Adults	Federico Vaca, Kaigang Li, James Fell, Denise Haynie, Bruce Simons-Morton and Eduardo Romano
		177	Real-Time Weather Detection System with Local Binary Pattern based Features using Artificial Neural Network and Random Forest: An	Md Nasim Khan, Anik Das, Ali Ghasemzadeh and Mohamed Ahmed
		25	SAFETY AND DESIGN ANALYSES OF MANAGED TOLL AND CONNECTED VEHICLES' LANES	Moatz Saad, Mohamed Abdel-Aty, Yina Wu and Md Sharikur Rahman
		175	Structural Equation Modeling Approach for Investigating Driver Behavior in Adverse Weather Conditions using Trajectory-level SHRP2 Naturalistic	Anik Das, Md Nasim Khan, Mohamed Ahmed, Ali Ghasemzadeh and Sherif Gaweesh
		176	Does the existence and configuration of protected intersections affect bicycle safety at intersections? A driving simulator approach.	Aikaterini Deliali, Nicholas Campbell, Michael Knodler and Eleni Christofa
		196	Evaluation of Driver Performance and Safety Countermeasures for Schools Located in an Urban Arterial Highway Using a Driving Simulator	Didier Valdes, Alberto Figueroa, Benjamin Colucci, Maria Rojas and Enid Colon
		200	Evaluation of Horizontal Curve Parameters and Bicycle Speed on Jerk using an ADAMS Simulation Model	Abul Mazumder, Upul Attanayake and Mitchel Keil
		152	Safety Evaluation of Connected Vehicle Technology in a Rural Freeway Work zone during Fog Weather Conditions using Microsimulation	Eric Adomah, Mohamed Ahmed and Guangchuan Yang
		111	Application and comparison of different methods for traffic conflict analysis. Case study on 2+1 roads.	Salvatore Cafiso, Calvi Alessandro, Carmelo D'Agostino and Mariusz Kiec
		185	Predicting behavior of professional drivers while text-reading using cluster modeling	Panos D. Prevedouros, Eftithia Nathanail, Md. Mintu Miah and Rafaela De Melo Barros
		188	Strategies for performing overtaking	Mojtaba Moharrer
		57	Influence of Autonomous Vehicles on Freeway Traffic Performance for Oversaturated Traffic Conditions	Osama Elshahly and Akmal Abdelfatah
		60	Impact of Three-dimensional Geometric Properties of Highway Alignments on Driving Stability	Ting Ge, Xuesong Wang and Xinsha Fu
		186	Understanding moral dilemmas in manual versus automated driving	Apurva Misra, Surya Sarada Neti and Siby Samuel
		114	Design and Initial Evaluation of the HIKER Pedestrian Simulator	Richard Romano, Natasha Merat, Richard Wilkie, Yee Mun Lee and Albert Solernou
5:00 PM				