## Road Safety & Simulation International Conference 2019
### Day 1 (Monday, 14 October 2019)

<table>
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<tr>
<th>Start</th>
<th>End</th>
<th>Session</th>
<th>Duration</th>
<th>Location</th>
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<tbody>
<tr>
<td>9:00AM</td>
<td>12:00PM</td>
<td>Workshops</td>
<td>3:00</td>
<td>Workshop 1: Simulation Boot Camp</td>
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<td>Location: Benson A&amp;B</td>
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<td>10:00AM</td>
<td>11:00AM</td>
<td>Break items available</td>
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<td>Graduate conference meeting space</td>
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<td>12:00PM</td>
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<td>Lunch</td>
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<td>Graduate conference meeting space</td>
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<tr>
<td>1:30PM</td>
<td>5:30PM</td>
<td>Tours</td>
<td>4:00</td>
<td>UI Campus (meet at RSS2019 registration desk area, Graduate hotel)</td>
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<td>Location: UI campus</td>
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<td>Guided by UI staff, buses provided for off-site labs</td>
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<td>5:30PM</td>
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<td>Bus begins shuttle service from Graduate hotel to Big Grove Brewery</td>
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<tr>
<td>6:00PM</td>
<td>10:00PM</td>
<td>Dinner</td>
<td>4:00</td>
<td>Welcome Reception</td>
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<td>1225 S Gilbert St, Iowa City, IA 52240</td>
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Day 2 (Tuesday, 15 October 2019)

Road Safety & Simulation International Conference 2019

Start | End | Session | Location
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3:30PM | 3:30AM | Breakfast Buffet | Graduate conference meeting space
3:30AM | 10:00AM | Welcome & Keynote | Wayne & B&B
10:00AM | 10:30AM | Break | Graduate conference meeting space
10:30AM | 12:00PM | Sessions | 1:30
12:00PM | 1:30PM | Lunch | Wayne & B&B
1:30PM | 3:00PM | Sessions | 1:30
3:00PM | 3:30PM | Break | Wayne B&B
3:30PM | 5:00PM | Poster & Panel Sessions | 1:30

### Lecture 1: Vulnerable Road Users
- **Location**: Wayne A&B
- **Start**: 1:30PM
- **End**: 2:00PM
- **Duration**: 30 minutes
- **Location**: Graduate conference meeting space

#### 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

#### 140 Rating 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 Fitness-to-drive
- **Jonathan Davis**, Cara Hamann, Brandon Butcher and Corinne Peak-Asia

#### 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

### Lecture 2: Automated Vehicles
- **Location**: Wayne D
- **Start**: 2:00PM
- **End**: 3:00PM
- **Duration**: 1 hour
- **Location**: Graduate conference meeting space

#### 159 Automated Vehicles in Urban Traffic: The Effects of Kinematics and eTH on Pedestrian Crossing Behavior
- **André Costa-Dias**, Michael Tondera and Klaus Bengler

#### 141 Should I Cross? Evaluating Display Options for Autonomous Vehicle and Pedestrian Interaction
- **Sun Young Cho**, Lee Yoon and Daniel Carruth

#### 99 Interactions with automated vehicles: The effect of drivers' attentiveness and presence on pedestrians' road crossing behavior
- **J. Pablo Nuñez Velezco**, Yee Mon Lee, Jim Utley, Albert Solerou, Hanwei Fara, Bert Van Areem, Marian Hagmeijer and Natasha Merat

### Lecture 3: Roadway Infrastructure
- **Location**: Hoak
- **Start**: 3:00PM
- **End**: 4:00PM
- **Duration**: 1 hour
- **Location**: Graduate conference meeting space

#### 195 Safety Effectiveness of All-Electronic Toll Collection Systems
- **Megha Chakraborty**, Mehmet Ghamami, Timothy Gates and Steven Stapleton

#### 213 Increasing traffic flow efficiency at signalized intersections: a driving simulator study
- **Qinan Hussain**, Waad Alhajaaem, 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

### Lecture 4: Connected Vehicles
- **Location**: Benson A&B
- **Start**: 4:00PM
- **End**: 5:00PM
- **Duration**: 1 hour
- **Location**: Graduate conference meeting space

#### 38 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**, Feifei Migjolo, Mike Soliska and Thobias Sandro

#### 223 Operational Evaluation of Effectiveness of Connected Vehicle Smartphone Technology on a Signalized Corridor: Field Test
- **Feifei Migjolo**, Cecilia Kadeha and Thobias Sandro

### Panel Session 1
- **Location**: Wayne C
- **Start**: 5:00PM
- **End**: 6:00PM
- **Duration**: 1 hour
- **Location**: Graduate conference meeting space

#### Using Driving Simulators to Examine User Interactions with Infrastructure Elements
- **Sue Chrysler**, Anuj Pradhan, Alexandra Kondyli, Stacy Balk, Richard Romans, David Hurwitz

### Panel Session 2
- **Location**: Wayne C
- **Start**: 6:00PM
- **End**: 7:00PM
- **Duration**: 1 hour
- **Location**: Graduate conference meeting space

#### Low-Discussed Areas of Safety Among Vulnerable Road Users: Implications for Emerging and Future Research
- **Federico Vaca**, Panagiotis Papantoniou, Chiara Ferrante, Barbara Banz

### Panel Session 3
- **Location**: Wayne A&B
- **Start**: 7:00PM
- **End**: 8:00PM
- **Duration**: 1 hour
- **Location**: Graduate conference meeting space

#### Preparing Infrastructure for Higher Levels of Vehicle Autonomy
- **Neal Hawkins**, Anuj Sharma, Skylar Kirschbuecker, Tina Greenfield

### Panel Session 4
- **Location**: Hoak
- **Start**: 8:00PM
- **End**: 9:00PM
- **Duration**: 1 hour
- **Location**: Graduate conference meeting space

#### Infrastructure design for bicyclists and pedestrians
- **Michael Knodler**, Cadell Chand, David Hurwitz, Tara Goddard
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<td>Breakfast Buffet</td>
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<td>8:30AM</td>
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<td>Poster &amp; Panel Sessions</td>
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<td>Wayne A&amp;B</td>
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<td>5:15PM</td>
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<td>Load Buses</td>
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<td>6:00PM</td>
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<td>Dinner</td>
<td>4:00</td>
<td>Little Lights on the Lane</td>
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### Lecture 7: Roadway Infrastructure
- **Exploring the Impacts of Intersection and Traffic Characteristics on the Frequency and Severity of Bicycle-Vehicle Conflicts**
  - Brendan Russo, Srisha Kothuri, Edward Smaglik, Cristopher Aguilar, Emmanuel James, Nolan Levenson and Peter Koonce
- **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

### Lecture 8: Connected Vehicles
- **Evaluating the Effectiveness of P2V Connected Vehicle Technologies in a Driving Simulator**
  - Morgan Morris, Tyno Wu, Lisheng Yue and Mohamed Abdel Aty
- **Effectiveness evaluation of in-vehicle warning system under reduced visibility conditions: a driving simulation study**
  - Chiara Ferrante, Samyajit Basu and Maria Rosaria De Blasius

### Lecture 9: Automated Vehicles
- **Exploring the Perceived Safety of Autonomous Vehicles from a Road Users Perspective**
  - V. Dimitra Przydalski, Christos Gkartzonikas, Drew Gatlin and Konstantina Gkritzta
- **Effect of driver mental model on ADAS effectiveness: a driving simulator case study**
  - Riccardo Rossi, Massimiliano Gastaldi, Francesco Biondi, Federico Orsini, Giulia De Cat and Claudio Mulatti

### Lecture 10: Vulnerable Road Users
- **Simulator Study on the Effects of Adaptive Headlamp Features on Driver Responses to Pedestrians and Bicyclists**
  - Chris Schwarz, Timothy Brown and Rini Sherony
- **How different are children diagnosed with Attention Deficit Hyperactivity Disorder at crossing the road?**
  - Zahra Tabibi, Hamid Zolfaghari, David Schwebel, Joan Severson and Yefei He

### Session
- **Using Simulators in Driving Research**
  - Fabrizio D'Amico, Richard Romano, Panagiotis Papantoniou, Omar Ahmad, Michael Knodler
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<th>Start</th>
<th>End</th>
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<td>8:30AM</td>
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<td>Lectern 11: Connected Vehicles</td>
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<td>8:30AM</td>
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<td>Lectern 12: Simulation</td>
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<td>Location: Wayne C</td>
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<td></td>
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<td>164 Characterizing Instabilities Induced by a Four Degree-of-Freedom All-Terrain Vehicle Simulator John Michael, Charles Jennisse, Gerene Denning and Salam Rahmatala</td>
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<td>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, Kuan Ozbay and Hong Yang</td>
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<td>199 Sensing Simulation for the Virtual Testing of Autonomous Vehicle Safety and Performance Asher Elmoquist, Dylan Hatch, Radu Serban, David Noyce and Dan Negruit</td>
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<td>10:00AM</td>
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<td>Wayne A&amp;B</td>
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<td>1:30PM</td>
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<td>Lectern 13: Law/Other</td>
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<td>Location: Hoak</td>
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<td>168 Should Law Subsidize Driving? Gregory Shill</td>
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<td>34 Development of Trooper Spatial/Crash Database to Quantify Enforcement Countermeasures Osama Abaza, Muhammad Saif Uddin, and Utpal Dulta</td>
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<td>119 Pedestrian Behavior in Virtual Reality: Effects of Gamification and Distraction Sonja Schneider, Madeleine Ratter and Klaus Bengler</td>
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<td>1:30PM</td>
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<td>Lectern 14: Roadway Infrastructure</td>
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<td>123 Transferability and seasonality in extreme value theory applications to road safety: a case study in an Italian motorway Federico Orsini, Gregorio Gecchele, Massimiliano Gastaldi and Riccardo Rossi</td>
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<td>127 A Distributed Simulation Architecture for Intermodal Safety Research Wanxin Wang, Soumyajit Chakraborty, David Heitbrink, Chris Schwartz, Joe Kearney and Stephen Baek</td>
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<td>171 Incident Detection by Speed Distribution Pattern: Towards Realizing the Incident Heterogeneity in Detection Dong Pan, Wei Zhang, Samer Hamdar and Chenhui Liu</td>
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<td>42 Multi-modal Distributed Simulation Combining Cars and Pedestrians Yunnan Jiang, Kelvin Santiago-Chaparro, Soumyajit Chakraborty and Joseph Kearney</td>
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<td>45 Developing A Cost-Effectice and Need-Specific Simulation Training Platform for Snowplow Drivers Adekunle Adebiyi, Ji Qiu Ma, Julian Wang and Niloufar Kizoumars</td>
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<td>3:30PM</td>
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<td>Poster Session 3</td>
<td>1:30</td>
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<td>70 Estimating the Expected Number of Crashes with Traffic Conflicts Observed in Naturalistic Driving Studies Andrew Tarko and Cristhian Lizarrazo</td>
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<td>81 Analysis of Human Driver Lane Change Behavior Based on Naturalistic Driving Data Sehwon Kim, Junmin Wang, Dennis A. Guenther, Gary J. Heydinger and Bingrui Jia</td>
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<td>129 A Naturalistic Data Driven Study Assessing the Impact of Daytime Running Lights on Cyclists’ Stress Archana Venkatachalapathy, Anuj Sharma, Elizabeth Shirtscliff, Chinmay Hegde, Cara Hamann and Steven Spears</td>
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**Poster Session 1**

**Tuesday, 15 October 2019, 3:30-5:00PM**

24 An simulator study on the impact of driver distraction due to drones based on prior experiences and perspectives of drones

Bhavya 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 Hoseinichemshie, Leslie Curry, Linda Mayes, Ronald Iannotti, James Dziura, Denise Hanlon, Rosca Simonis 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 Mohammad Hadi, Ying Zhu, Wenyun Wang, Shuguang Li, Qun Yuan

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 Kuhn

24 A NATIVE ARCHITECTURE OPTIMIZATION FOR SIMULATING SAFETY AT HIGHWAY RAIL GRADE CROSSINGS

Bo Lan and Raghavan Srivarasan

40 Estimation of Crash Modification Factors with Cross Section Data: An Investigation Using a Simulated Artificial Realistic Dataset

Panos D. Prevedouros, Eftihia Nathanail, Md. Mintu Miah and Rafaela De Melo

27 A detailed investigation of Driver Performance in Rural Two-Lane Roads with Varying Horizontal and Vertical Curvature

Raghavan Srivarasan, Bo Lan, Daniel Carter and Keri Signor

56 Assessing the Influence of Lead Trucks on Driver’s Perception and Response using a Driving Simulator

Umut Durrani and Chris Lee

61 Association of Experienced Driving with Driving Performance combining Simulator and Survey Data

Genesis Guealas, Panagiotis Papantoniou, George Yannis and Eleftheria Papageorgiou

102 Evaluation of the effects of fatigue on driving performances: a driving simulator study

Chira Ferrante, Samayajit Basu, Susanna Sen and Maria Rosaria De Biasis

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 Sakratis Papageorgiou

53 Does driving at night affect the driving performance of young drivers? A driving simulator study.

Dimosthenis Pavlou, Eleftheria Kyriakou, George Yannis and Panagiotis Papantoniou

126 Older Drivers’ Experiences with Autonomous Vehicle Technology

Sherillene Classen, Justin Mason, James Wersal and Virginia Ssipliku

173 Quantifying the Benefits of Dynamic Message Signs (DMS) on Florida Freeways

Evelina Kadeha, Agela Kirati and Priyanka Alluri Allum

210 Simulator Evaluation of an Intersection Maneuver Assist System with Connected and Automated Technologies

Anuj Pradhan and Heejin Isang

14 Incorporating Biobehavioral Architecture into Car-following Models

Vishal Kummath, Alexandra Kondyli, Lily Chrysikou, and Steven Schrock

**Poster Session 2**

**Wednesday, 16 October 2019, 8:30-10:00AM**

112 Comparison of HMD and CAVE pedestrian simulators

Viola Cavali, Nguyen-Thong Dang, Prashant Pala, Marie-Axelle Granje, Sonja Schneider, Philipp Maruhn and Klaus Bengle

39 A driving simulator study for evaluating driving performance during car-following manoeuvre after a transition from automated to manual control

Fabio P. de Silva, Alessandro Cai, Chiara Ferrante, Luca Bianchini Ciampoli and Andrea Benedetto

156 Simulation of the Impact of Connected and Autonomous Vehicles at a Signalized Intersection

Hamad Almobaydah, Doegartias Eustace and Philip Appiah-Kubi

104 Comparison of accident prediction models for predicting accident risks on an Italian two lane two-way rural highway

Samayajit Basu, Chiara Ferrante and Maria Rosaria De Biasis

155 Integration and Verification of a Low-Cost Haptic Anti-Lock Braking System in a Driving Simulator

Le Quan Yuan and Alexej A Kondyli, Thomas Dekostinos, Christopher Depick, 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 Eswan Radwan

134 Accurate simulation based study to improve Traffic Safety in School Zones

Mu Hai Rahman, Mohamed Abdel-Aly, Jeyyoung Lee and Md Shairuk

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, Chris Schwarz and Alec Lilje

131 Developing Differential Variable Speed Limits for Car and Truck on Freeways

Anis Abdulghani and Chris Lee

15 Sh the Deep Posture Estimation Methods for In-Vehicle Monitoring

Vishal Kummath, Alexandra Kondyli, Lila Chrysikou, and Steven Schrock

84 Ethical Dilemmas in Autonomous Vehicles: A Review of Literature and Direction for Future Research

Soheil Sohrabi, Farnoush Shariat, Mark Burris and Dominique Lord

117 Fast road scenario generation for Road Safety Assessment

Juan Francisco Dols Ruiz, Jaime Molina Pardo, Francisco Javier Camacho

174 Using driver model in driving simulator for investigating factors on the occurrence of road traffic accidents

Ana Paula C. Laranca, Maria Isabel Santos and Paulo Tadeu D. M.E Silva

202 ARE THE BENEFITS OF ADJUSTMENT FACTORS FOR SAFETY PERFORMANCE FUNCTIONS WORTH THE COST?

Riana Tanan, Eric Green, Reginald Soulsirette and William Staats

59 Experimental Analysis of Users’ Interaction with Automation in Misfunction Scenarios: A Driving Simulator Study

Hajjal Davis, Paul Karnoyh, Osama Oma, Peter Bakih and Diya Kalosani

**Poster Session 3**

**Thursday, 17 October 2019, 3:30-5:00PM**

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 Unsupervised Learning Approach

Mu Nasim Khan, Anik Das, Ali Ghazemzadeh and Mohamed Ahmed

25 SAFETY AND DESIGN ANALYSES OF MANAGED TOLL AND CONNECTED VEHICLES’ LANES

Mosta Saad, Mohamed Abdel-Aly, Yina Wu and Md Shairuk Rahman

175 Structural Equation Modeling Approach for Investigating Driver Behavior in Adverse Weather Conditions using Trajectory-lead SHRP2 Naturalistic Driving Data

Anik Das, Md Nasim Khan, Mohamed Ahmed, Ali Ghazemzadeh and Sherif Gawesh

176 Does the existence and configuration of protected intersections affect bicycle safety at intersections? A driving simulator approach.

Alyssa Ryan, Cole Fitzpatrick, Michael Knodler and Eleni Christofa

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

185 Predicting behavior of professional drivers while text-reading using cluster modeling

Fanos D. Prevedouros, Ethris Nathaniel, Md. Mintu Mah and Rafaela De Malo

57 Influence of Autonomous Vehicles on Freeway Traffic Overload for Oversaturated Traffic Conditions

Osama Elsahly and Akmal Abdelfatah

60 Impact of Three-dimensional Geometric Properties of Highway Alignments on Driving Stability

Ting Ge, Xuesong Wang and Xinhua Fu

186 Understanding moral dilemmas in manual versus automated driving

Aguela Kadeha, Agela Kirati and Priyanka Alluri Allum

114 Design and Initial Evaluation of the HIKER Pedestrian Simulator

Richard Roman, Natasha Merat, Richard Wilkie, Yee Mun Lee and Albert Solernou
Dr. C.Y. David Yang  
AAA Foundation for Traffic Safety  
Dr. C.Y. David Yang became the AAA Foundation for Traffic Safety’s executive director in October 2016. Previously, he worked for the U.S. Department of Transportation and private consulting firms. Dr. Yang has co-authored numerous peer-reviewed journal articles, conference papers and government reports on many transportation topics. He is an associate editor for the *Journal of Intelligent Transportation Systems: Technology, Planning, and Operations* and serves on the editorial board of the *International Journal of Transportation Science and Technology*. Previously, he served as the chair of Transportation Research Board’s Users Performance Section. Dr. Yang attended Purdue University and received his Bachelor of Science, Master of Science, and Doctor of Philosophy degrees in the field of civil engineering.

Dr. John D. Lee  
University of Wisconsin-Madison  
Dr. John D. Lee is the Emerson Electric professor in the Department of Industrial and Systems Engineering and the University of Wisconsin-Madison and director of the Cognitive Systems Laboratory. His research focuses on the safety and acceptance of complex human-machine systems by considering how technology mediates attention. He is a coauthor of the textbook, *An Introduction to Human Factors Engineering*, and he recently helped to edit *The Oxford Handbook of Cognitive Engineering*, *The Handbook of Driving Simulation*, and two books on driver distraction.

Dr. Richard Romano  
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