

# 10<sup>th</sup> International Driving Symposium on Human Factors in Driver Assessment, Training and Vehicle Design

## June 24-27, 2019

All events are open to registered participants

### Monday, June 24, 2019

- 12:00 pm – 6:00 pm **Early Registration**  
Concourse
- 1:30 pm – 6:00 pm **Exhibitors Set Up**  
Anasazi Ballroom
- 6:30 pm – 9:00 pm **Welcome Reception- *Taste of New Mexico***  
Cava Lounge

### Tuesday, June 25, 2019

- 7:30 am – 3:30 pm **Registration Open**  
Concourse
- 7:30 am – 8:45 am **Continental Breakfast**  
Concourse
- 7:30 am – 1:30 pm **Poster Session A Set Up**  
Anasazi Ballroom
- 8:00 am – 5:00 pm **Exhibitors Available**  
Anasazi Ballroom
- 8:30 am – 9:30 am **Toyota Distinguished Keynote Speaker**  
**Bryant Walker Smith**  
*(University of South Carolina)*  
**“From Trusted Technologies to Trustworthy Companies” (1)**  
Eldorado Ballroom
- 9:30 am – 10:00 am **Break** (refreshments available by exhibition booth area)  
Anasazi Ballroom
- 10:00 am – 11:45 am **Session 1 – Driver Behavior, Distraction and Crash Risk**  
Moderator: Lana Trick (9)\*  
*(University of Guelph – CANADA)*  
Eldorado Ballroom
- 10:00 am – **In the Context of Whole Trips: New Insights Into Driver Management of Attention and Tasks (2)** Linda Angell, Sean Seaman, Rashmi Payyanadan, Wayne Biever *(Touchstone Evaluations, Inc.)*, Bobbie Seppelt, Bruce Mehler, Bryan Reimer *(Massachusetts Institute of Technology AgeLab, New England University Transportation Center)*
- 10:20 am – **Mind-Wandering and Driving: Comparing Thought Report and Individual Difference Measures (3)** Heather Walker, Lana Trick *(University of Guelph – CANADA)*
- 10:40 am – **Vehicle Familiarity and Relative Risk of Fatal Crash Involvement (4)** Brian C. Tefft, Aaron Benson, William Horrey *(AAA Foundation for Traffic Safety)*



**Design and Evaluation of Adaptive Collision Avoidance Systems (15)**

Husam Muslim, Makoto Itoh (*University of Tsukuba – JAPAN*)

**A Survey Study Measuring People's Preferences Towards**

**Automated and Non-Automated Ridesplitting (16)** Fangda Zhang, Shannon Roberts (*University of Massachusetts Amherst*), Claudia Goldman (*General Motors Israel Advanced Technical Center – ISRAEL*)

**Dark Personality and Road Crashes: Mediating Role of Driver Vengeance and Violations (17)**

Nebi Sümer (*Sabancı University – TURKEY*), Bahar Tümer, Uluğhan Ergin, Seda Merve Şahin (*Middle East Technical University – TURKEY*)

**Is Driving Simulation a Viable Method for Examining Drivers' Ethical Choices? An Exploratory Study (18)** Anuj Pradhan (*University of Massachusetts Amherst*), Heejin Jeong, Brittany Ross (*University of Michigan*)

**Drivers Fail to Calibrate to Optic Flow Speed Changes During Automated Driving, (19)**

Callum Mole, Gustav Markkula, Oscar Giles (*University of Leeds – UNITED KINGDOM*), Yuki Okafuji (*Kobe University – JAPAN*), Richard Romano, Natasha Merat, Richard Wilkie (*University of Leeds – UNITED KINGDOM*)

**The Effects of Chewing Gum on the Driving Performance of Emergency Medicine Residents After Overnight Shift Work (20)**

Maricel Dela Cruz, Muhammad Masood Khalid, Ahmed Mostafa, Jeffrey Foster, Geoffrey Kaump, Rita G. McKeever, & Michael I. Greenberg (*Drexel University*)

**An Investigation of Measuring Driver Anger with Electromyography (21)**

Christopher Saikalis, John Cliburn, Cedric Portea, Yi-Ching Lee (*George Mason University*)

**Effect of Alert Presentation Mode and Hazard Direction on Driver Takeover from an Autonomous Vehicle (22)**

Benjamin Cortens, Blair Nonnecke, Lana M. Trick (*University of Guelph – CANADA*)

**Effects of Inaccurate Gaze Behavior on Young Drivers' Hazard Anticipation (23)**

Sarah Yahoodik (*Old Dominion University*), Nathan Hatfield (*Design Interactive, Inc.*), Yusuke Yamani (*Old Dominion University*), Siby Samuel (*University of Waterloo – CANADA*)

**Spatially Biased Eye Movements in Older Drivers with Glaucoma and Visual Field Defects (24)**

David Anderson, Deepta A. Ghate, Sachin Kedar, Matthew Rizzo (*University of Nebraska Medical Center*)

**Comparing Performance when Using a New Style Large Touchscreen Compared to a Traditional In-Vehicle Touchscreen (25)**

Timothy Brown, Dawn Marshall (*University of Iowa*), Neil Lerner (*Westat*)

4:45 pm – 5:15 pm

**Poster Session A Tear Down**

## **Wednesday, June 26, 2019**

- 7:30 am – 3:30 pm **Registration Open**  
Concourse
- 7:30 am – 8:45 am **Continental Breakfast**  
Concourse
- 7:30 am – 1:30 pm **Poster Session B Set Up**  
Anasazi Ballroom
- 8:00 am – 4:30 pm **Exhibitors Available**  
Anasazi Ballroom
- 8:30 am – 10:15 am **Session 4 – Medical Impairments**  
Moderator: Abiodun Emmanuel Akinwuntan (10)\*  
(*University of Kansas Medical Center*)  
Eldorado Ballroom
- 8:30 am – **Using a Driving Simulator to Create a Visual Search Test for Drivers with Parkinson's Disease (26)** Hannes Devos (*University of Kansas Medical Center*), Maud Ranchet (*IFSTTAR – FRANCE*), John C. Morgan (*Augusta University*), Abiodun E. Akinwuntan (*University of Kansas Medical Center*)
- 8:50 am – **Driving Simulator Performance in the Acute Post-Injury Phase Following a Mild Traumatic Brain Injury Among Young Drivers (27)** Despina Stavrinou (*University of Alabama at Birmingham*), Ginger Yang (*Nationwide Children's Hospital*), Thomas Kerwin (*Ohio State University*), Benjamin McManus, Tyler R. Bell (*University of Alabama at Birmingham*), Alison Newton, Bhavna Singhichetti (*Nationwide Children's Hospital*)
- 9:10 am – **Task Analysis for Measuring Mobility and Recovery Following Right-Sided TKA: Toward Determining Driver Readiness (28)** Bethany Lowndes, Emily Frankel, Haley Kampschnieder, Jennifer Merickel, Kevin Garvin, Matthew Rizzo (*University of Nebraska Medical Center*)
- 9:30 am – **Magnetoencephalography during Simulated Driving: A New Paradigm for Driver Assessment (29)** Elizabeth Walshe (*University of Pennsylvania & Children's Hospital of Philadelphia*), Flaura K. Winston, Chelsea Ward McIntosh (*Children's Hospital of Philadelphia*), Dan Romer (*University of Pennsylvania*), Timothy Roberts, William Gaetz (*Children's Hospital of Philadelphia*)
- 9:50 am – **The Effect of a Concussion on the Hazard Anticipation Ability in Teen Drivers (30)** Atefeh Katrahmani, Matthew Romoser (*Western New England University*)
- 10:15 am – 10:45 am **Break** (refreshments available at exhibition booth area)  
Anasazi Ballroom

10:45 am – 12:30 pm

### Session 5 – Methods and Data Analysis

Moderator: Jim Foley (10)\*

(*CarProf Consulting*)

Eldorado Ballroom

10:45 am – **What You See is What You Get? Correspondence of Video and Interview Data on Secondary Task Engagement While Driving-A Naturalistic Driving Study (31)** Maria Kreusslein (*Chemnitz University of Technology – GERMANY*), Katja Schleinitz (*Chemnitz University of Technology, TÜV / DEKRA arge tp 21– GERMANY*), Markus Schumacher (*Federal Highway Research Institute (BAST) – GERMANY*)

11:05 am – **Predicting a Driver's Personality from Daily Driving Behavior (32)** Yuichi Ishikawa, Akihiro Kobayashi, Atsunori Minamikawa, Chihiro Ono (*KDDI Research, Inc. – JAPAN*)

11:25 am – **German Validation of the Prosocial and Aggressive Driving Inventory (PADI) (33)** Tanja Stoll, Mirjam Lanzer, Martin Baumann (*Ulm University – GERMANY*)

11:45 am – **Using Markov Chains to Understand the Sequence of Drivers' Gaze Transitions During Lane-Changes in Automated Driving (34)** Rafael Gonçalves, Tyron Louw, Ruth Madigan, Natasha Merat (*University of Leeds – UNITED KINGDOM*)

12:05 pm – **The Heterogeneity Principle (35)** Ron Knipling (*Safety for the Long Haul, Inc.*), Anders E. af Wählberg (*Cranfield University – UNITED KINGDOM*)

12:30 pm – 2:00 pm

#### Buffet Lunch

Presidential Patio (outside)

2:15 pm – 3:45 pm

### Session 6 - Poster Session B

Anasazi Ballroom

**Where You Look During Automation Influences Where You Steer After Take-Over (36)** Callum Mole, Oscar Giles, Natasha Merat, Richard Romano, Gustav Markkula, Richard Wilkie (*University of Leeds – UNITED KINGDOM*)

**Mapping Visual Fields in a Panoramic Driving Simulator Under Different Task Loads in Patients with Glaucoma (37)** Deepta Ghate, David Anderson, Jideofor Ndulue, Robin High, Lynette Smith, Matthew Rizzo (*University of Nebraska Medical Center*)

**How Long Does It Take to Relax? Observation of Driver Behavior During Real-World Conditionally Automated Driving (38)** Kamil Omozik (*BMW Group, Technical University of Munich – GERMANY*), Yucheng Yang (*Technical University of Munich – GERMANY*), Isabella Kuntermann, Sebastian Hergeth (*BMW Group – GERMANY*), Klaus Bengler (*Technical University of Munich – GERMANY*)

**Investigating Pedestrians' Crossing Behaviour During Car Deceleration Using Wireless Head Mounted Display: An Application Towards the Evaluation of eHMI of Automated Vehicles (39)** Yee Mun Lee, Jim Uttley, Albert S. Crusat, Oscar Giles, Richard Romano, Gustav Markkula, Natasha Merat (*University of Leeds – UNITED KINGDOM*)

**(40) Withdrawn**

**Driving Simulator Assessment of Fitness-to-Drive Following Traumatic Brain Injury (41)** Benjamin McManus, Tyler R. Bell, Despina Stavrinou (*University of Alabama at Birmingham*)

**The Effect of Turn Signal Onset on Lateral Performance Measures When Overtaking a Lead Vehicle - Using Naturalistic Driving Environment (42)** Brian T.W. Lin (*University of Michigan Transportation Research Institute*), Shan Bao (*University of Michigan Transportation Research Institute, University of Michigan-Dearborn*)

**Effects of Voluntary Handheld vs. Speech-Based Text Entry on Driving Performance in (Un)Predictable Critical Situations (43)** Katja Schleinitz (*Chemnitz University of Technology, TÜV | DEKRA arge tp 21 – GERMANY*), Tibor Petzoldt (*TU Dresden – GERMANY*)

**Improving Driver Engagement During L2 Automation: A Pilot Study (44)** Anuj Pradhan (*University of Massachusetts Amherst*), Jacob Crossman (*Soar Technology*), Adam Sypniewski (*Deepgram*)

**Speed Anticipation Characteristic with Optical Flow for Driver Behavior Assessment of Older Drivers (45)** Hiroshi Yoshitake, Michinobu Nakanishi, & Motoki Shino (*The University of Tokyo – JAPAN*)

**Age and Secondary Task Engagement in Relation to Safe/Unsafe Driving Behavior and Crash/Non-Crash Events (46)** Jose Calvo, Carryl Baldwin (*George Mason University*), Brian Philips (*US DOT Federal Highway Administration Office of Safety R&D*)

**Eye Contact between Pedestrians and Drivers (47)** Dina AlAdawy, Michael Glazer, Jack Terwilliger, Henri Schmidt (*Massachusetts Institute of Technology*), Josh Domeyer (*Toyota Collaborative Safety Research Center*), Bruce Mehler, Bryan Reimer (*Massachusetts Institute of Technology AgeLab & New England University Transportation Center*), Lex Fridman (*Massachusetts Institute of Technology*)

**Posing Questions and Policy Suggestions: Autonomous Vehicles & Climate Change (48)** Melody Barnard, Robert Hitt, Michael Norton, Yi-Ching Lee (*George Mason University*)

**A Methodical Approach to Examine Conflicts in Context of Driver - Autonomous Vehicle - Interaction (49)** Marcel Woide, Dina Stiegemeier, Martin Baumann (*Ulm University – GERMANY*)

3:45 pm – 4:15 pm

**Poster Session B Tear Down**

4:30 pm – 5:15 pm

**Exhibitors Tear Down**

4:15 pm – 4:45 pm

**Load Shuttle Buses for Group 1 Train Ride**  
(Back entrance of Eldorado Hotel on Johnson Street)  
(15 minute ride)

4:45 pm – 5:00 pm

**Group 1 Load Santa Fe Southern Railway Train**  
(REI, 500 Market Street)

- 5:15 pm **Group 1 Train Ride** leaves to Legal Tender Saloon and Eating House, Lamy, NM  
(60 minute ride)
- 5:30 pm – 6:00 pm **Load Shuttle Buses for Group 2** from Eldorado Hotel;  
(Back entrance of Eldorado Hotel on Johnson Street)  
**Travel to Legal Tender Saloon and Eating House, Lamy, NM**  
(40 minute ride)
- 5:00 pm – 10:00 pm **Cash bar available on train and Legal Tender Saloon and Eating House**  
Note: The cash bar on train does NOT accept credit cards for payment
- 7:00 pm – 8:00 pm **Dinner Buffet**  
Legal Tender Saloon and Eating House, Lamy, NM
- 8:30 pm – 9:00 pm **Load Santa Fe Southern Railway Train for Group 2 Train Ride**  
**Travel to Santa Fe, NM**  
(Arrive at REI, 500 Market Street)  
(60 minute ride)
- 9:00 pm – 9:15 pm **Load Shuttle Buses for Group 1; Travel to Eldorado Hotel**  
(Arrive at back entrance of Eldorado Hotel on Johnson Street)  
(40 minute ride)
- 10:15 pm **Shuttle Buses available to take Group 2 to Eldorado Hotel**  
(Arrive at back entrance of Eldorado Hotel on Johnson Street)  
(15 minute ride)

### **Thursday, June 27, 2019**

- 7:30 am – 1:00 pm **Registration Open**  
Concourse
- 7:30 am – 8:45 am **Continental Breakfast**  
Concourse
- 7:30 am – 8:30 am **Hybrid Poster Session Set Up**  
Eldorado Ballroom
- 8:30 am – 10:30 am **Session 7 – Hybrid Presentations**  
Moderator: Linda Boyle (9)\*  
(University of Washington)  
Eldorado Ballroom

**Driving with Foresight - Evaluating the Effect of Cognitive Distraction and Experience on Anticipating Events in Traffic (50)** Kristin Mühl (*Ulm University – GERMANY*), Valentin Koob (*Technische Universität Berlin – GERMANY*), Tanja Stoll, Martin Baumann (*Ulm University – GERMANY*)

**Driver Behavior in Overtaking Accidents as a Function of Driver Age, Road Capacity and Vehicle Speed: A Case Study in Iraq (51)** Husam Muslim, Makoto Itoh (*University of Tsukuba – JAPAN*)

**Are Driving Simulators Suitable to Measure the Driving Competence of Elderly Drivers? (52)** Ramona Kenntner-Mabiala, C. Maag, Yvonne Kaussner, S. Hoffmann (*Würzburg Institute of Traffic Sciences (WIVW) – GERMANY*), Markus Schumacher (*Federal Highway Research Institute (BAST) – GERMANY*)

**Can Virtual Reality Headsets be Used to Measure Accurately Drivers' Anticipatory Behaviors? (53)** Ganesh Pai Mangalore, Yalda Ebadi (*University of Massachusetts Amherst*), Siby Samuel (*University of Waterloo – CANADA*), Michael Knodler, Donald Fisher (*University of Massachusetts Amherst*)

**Driving Simulation as Virtual Reality Exposure Therapy to Rehabilitate Patients with Driving Fear After Traffic Accidents (54)** Stefanie Schoch, Yvonne Kaussner (*Würzburg Institute of Traffic Sciences (WIVW) – GERMANY*), A.M. Kuraszkiewicz (*University of Würzburg – GERMANY*), S. Hoffmann (*Würzburg Institute of Traffic Sciences (WIVW) – GERMANY*), P. Markel, R. Baur-Streubel, P. Pauli (*University of Würzburg – GERMANY*)

**The Dynamic Merge: Using Traffic Volume Based Signing to Improve Workzone Throughput (55)** Starla Weaver (*Leidos*), Michelle Arnold (*US DOT Federal Highway Administration*), Tracy Gonzalez, Stacy Balk (*Leidos*)

**How Demanding is "Just Driving?" A Cognitive Workload - Psychophysiological Reference Evaluation (56)** Bruce Mehler, Bryan Reimer (*Massachusetts Institute of Technology AgeLab & New England University Transportation Center*)

**The Conspicuity Benefits of Bicycle Taillights in Daylight (57)** Darlene Edewaard, Ellen C. Szubski, Richard A. Tyrrell, & Andrew T. Duchowski (*Clemson University*)

**Associations Between Cognitive Distortions in Moral Reasoning and Self-Reported Traffic Violations and Crashes for Different Road User Groups (58)** Erik Roelofs (*Cito – THE NETHERLANDS*), Pierrro Hirsch (*Virage Simulation – CANADA*), Jan Vissers (*Royal HaskoningDHV – THE NETHERLANDS*)

**Comparison of Virtual Driving Test Performance and On-Road Examination for Licensure Performance: A Replication Study (59)** Elizabeth Walshe (*University of Pennsylvania & Children's Hospital of Philadelphia*), Natalie Oppenheimer (*Children's Hospital of Philadelphia*), Venk Kandadai (*Diagnostic Driving, Inc.*), Flora Winston (*Children's Hospital of Philadelphia*)

**Consumer Confusion with Levels of Vehicle Automation (60)** Bobbie Seppelt, Bryan Reimer, Luca Russo, Bruce Mehler (*Massachusetts Institute of Technology AgeLab & New England University Transportation Center*), Jake Fisher, David Friedman (*Consumer Reports*)

10:30 am – 10:45 am

**Break** (refreshments available)  
Concourse

10:45 am – 12:30 pm

**Session 8 – Automation**

Moderator: Paul Green (10)\*

(*University of Michigan Transportation Research Institute*)

Eldorado Ballroom

10:45 am – **Learning and Development of Mental Models during**

**Interactions with Driving Automation: A Simulator Study, (61)** Yannick Forster (*BMW Group, Chemnitz University of Technology – GERMANY*), Sebastian Hergeth, Frederik Naujoks (*BMW Group – GERMANY*), Matthias Beggiato, Josef F. Krems (*Chemnitz University of Technology – GERMANY*), Andreas Keinath (*BMW Group – GERMANY*)

11:05 am – **Understanding Lane-Keeping Assist: Does Control Intervention**

**Enhance Perceived Capability? (62)** John Sullivan, Michael Flannagan (*University of Michigan Transportation Research Institute*)

11:25 am – **Consumer Comfort with Vehicle Automation: Changes Over**

**Time (63)** Chaiwoo Lee, Bobbie Seppelt, Hillary Abraham, Bryan Reimer, Bruce Mehler, Joseph Coughlin (*Massachusetts Institute of Technology AgeLab & New England University Transportation Center*)

11:45 am – **Autonomous Vehicle Interactions with Other Road Users:**

**Conflicts and Resolutions (64)** Michael Heymann (*Israel Institute of Technology – ISRAEL*), Asaf Degani (*General Motors R&D Center – ISRAEL*)

12:05 pm – **Cognitive Load During Automation Affects Gaze Behaviours and**

**Transitions to Manual Steering Control (65)** Richard Wilkie, Callum Mole, Oscar Giles, Natasha Merat, Richard Romano, Gustav Makkula (*University of Leeds – UNITED KINGDOM*)

12:30 pm – 12:45 pm

**Conference Wrap Up**

Eldorado Ballroom

11:45 am – 1:00 pm

**Box Lunches Available**

Concourse