



3rd International Conference on Road Safety and Simulation

Indiana Government Conference Center
Indianapolis
September 14–16, 2011

Organized by
Purdue University
and
Transportation Research Board

Hosted by
Indiana Department of Transportation

AGENDA AT A GLANCE

Wednesday, September 14

8:00 a.m.–5:30 p.m.	Registration	
9:00 a.m.–10:00 a.m.	Plenary Session	<i>Auditorium</i>
10:00 a.m.–10:20 a.m.	Break	
10:20 a.m.–noon	Keynote Speeches	<i>Auditorium</i>
Noon–1:20 p.m.	Lunch Break	
1:20 p.m.–2:55 p.m.	Driving Simulators—Behavior I	<i>Auditorium</i>
	Surrogate Measures of Safety I	<i>Room B</i>
	Distraction, Stress, and Fatigue	<i>Room A</i>
	Simulation of Crashes and Risk	<i>Room C</i>
	Safety Policy and Management	<i>Rooms 4 and 5</i>
2:55 p.m.–3:25 p.m.	Break	
3:25 p.m.–5:00 p.m.	Driving Simulators—Behavior II	<i>Auditorium</i>
	Surrogate Measures of Safety II	<i>Room B</i>
	Distracted and Impaired Driving	<i>Room A</i>
	Statistical Modeling of Crashes—Methodological Considerations	<i>Room C</i>
	Safety Planning and Management	<i>Rooms 4 and 5</i>

Thursday, September 15

8:00 a.m.–9:35 a.m.	Driving Simulators—Performance I	<i>Auditorium</i>
	Safety Evaluation with Surrogate Measures I	<i>Room B</i>
	Driver Performance and Behavior	<i>Room A</i>
	Statistical Modeling of Crashes	<i>Room C</i>
	Modern Safety Management	<i>Rooms 1 and 2</i>
9:35 a.m.–10:05 a.m.	Break	
10:05 a.m.–11:40 a.m.	Driving Simulators—Performance II	<i>Auditorium</i>
	Safety Evaluation with Surrogate Measures II	<i>Room B</i>
	Behavior-Focused Safety Improvements	<i>Room A</i>
	Crash Data Modeling and Analysis	<i>Room C</i>
	Regional Safety Consideration	<i>Rooms 1 and 2</i>
11:40 a.m.–1:20 p.m.	Lunch Break	
1:20 p.m.–2:55 p.m.	Naturalistic Driving I	<i>Auditorium</i>
	Road Design and Safety	<i>Room B</i>
	Risk Perception and Aggressive Behavior	<i>Room A</i>
	Statistical Analysis of Crashes I	<i>Room C</i>
	High-Crash Locations	<i>Rooms 1 and 2</i>
2:55 p.m.–3:25 p.m.	Break	

Wednesday, September 14, and Thursday, September 15, 2011



3:25 p.m.–5:00 p.m.	Naturalistic Driving II	<i>Auditorium</i>
	Microsimulation for Safety Modeling	<i>Room B</i>
	Modern Technologies	<i>Room A</i>
	Statistical Analysis of Crashes II	<i>Room C</i>
	Safety Management	<i>Rooms 1 and 2</i>
6:30 p.m.–9:30 p.m.	Dinner at Indiana State Museum	<i>O'Bannon Great Hall</i>
Friday, September 16		
8:00 a.m.–9:35 a.m.	Naturalistic Driving III	<i>Auditorium</i>
	Traffic Flow Elements	<i>Room B</i>
	Bicycle Safety	<i>Room A</i>
	Safety at Intersections	<i>Room C</i>
	Road Pavement and Safety	<i>Rooms 1 and 2</i>
9:35 a.m.–9:55 a.m.	Break	
9:55 a.m.–11:30 a.m.	Image-Based Safety Analysis	<i>Room B</i>
	Vehicle-Focused Analysis	<i>Room A</i>
	Case Studies	<i>Room C</i>
11:30 a.m.–noon	Closing Session	<i>Auditorium</i>
Noon–1:30 p.m.	Lunch Break	
2:00 p.m.–5:30 p.m.	Technical Tour	

Thursday, September 15, and Friday, September 16, 2011



WELCOME

Welcome to Indianapolis and the 3rd International Conference on Road Safety and Simulation! May you find the conference pleasant and rewarding. The inaugural conference was organized by the Inter-Universities Research Centre on Road Safety and took place in 2007 at the University of Roma Tre in Rome; and the 2009 conference was organized by INRETS and held in Paris.

Following the original plan of conference founder Carlo Benedetto, this conference will provide researchers from various disciplines the opportunity to share their expertise on modern methods of safety analysis such as surrogates of crashes, driving simulators, computer simulation, naturalistic driving, and advanced statistical modeling. The program's content will be facilitated by 173 conference papers to be presented in five parallel tracks of sessions during the three days of the conference. These papers were developed by 439 authors from 35 countries and represent the state of the art in road safety.

Thanks go to the Indiana Department of Transportation (DOT) for providing this impressive venue and to the Transportation Research Board for managing the financial and information technology aspects of the conference. It is impossible to overstate the value of the help provided by TRB staff Rick Pain, Bruce Millar, Mary Kissi, and Brie Schwartz; by Indiana DOT's Brad Steckler, who was instrumental in securing the conference venue and organizing the technical trip; by members of the Road Safety and Simulation Permanent Oversight Committee; and by the conference Organizing Committee, Panos Anastasopoulos, Mario Romero, Javier Camacho, Tino Etienne, Matt Karlaftis, and Karen Hatke. Special thanks also go to the reviewers, authors, and session chairs for their remarkable contributions to the quality of the conference program and its execution. And, thanks go to the guest speakers, whose presentations and speeches add greatly to the value of the conference; to Jim Stark of Indiana DOT, Karen Bobo of the Indiana Division of Federal Highway Administration, and Kathy Banks of Purdue University, for welcoming remarks at the opening session; to Indiana DOT Commissioner Mike Cline, featured speaker at the conference dinner; and to David Shinar and Fred Mannering for keynote presentations.

—Andrew P. Tarko
Chair, Conference Organizing Committee
Professor of Civil Engineering, Purdue University

In memory of Carlo Benedetto, Chair of the Inaugural Conference

My father, Carlo Benedetto, organized and chaired the first International Conference on Road Safety and Simulation in 2007—the last great and enthusiastic effort of his life. He passed away several months later on May 25, 2008.

He was a founder and editor-in-chief of *Advances in Transportation Studies*, director of the Inter Universities Research Centre for Road Safety, and full professor at the University of Roma Tre. His early research was in the field of road materials and new technologies for road construction. His later career was dedicated to saving human lives by contributing to the field of road safety.

The 2007 conference was an extremely successful event, thanks to his innovative ideas and their successful implementation. His new concept of creating a forum for scholars from various disciplines working on road safety resonated widely. More than 360 authors from more than 40 countries contributed to the inaugural meeting. We received many congratulatory letters for the scientific quality of the 150 papers presented and the flawless organization.

I believe that his spirit of novelty and exploration is present in this third conference and will linger in all those to come.

—Andrea Benedetto
Indianapolis, September 2011



Benedetto



CONFERENCE AGENDA

Wednesday, September 14

8:00 a.m.–5:30 p.m.

Registration

9:00 a.m.–10:00 a.m., *Auditorium*

Plenary Session

Opening Remarks

Andrew Tarko, Purdue University, *Chair*

Welcoming Remarks

Jim Stark, Indiana Department of Transportation
Kathy Banks, Purdue University School of Civil Engineering
Karen Bobo, Indiana Division, FHWA

Conference Announcements

Rick Pain, Transportation Research Board
Andrew Tarko, Purdue University

10:00 a.m.–10:20 a.m.

Break

10:20 a.m.–noon, *Auditorium*

Keynote Speakers

Kumares Sinha, Purdue University, *Chair*

The Things We Measure, the Things We Can and Cannot Measure, and the Things We Should Measure in Driving Simulation

David Shinar, Ben Gurion University of the Negev, Israel

Current Methodological Issues Associated with the Analysis of Traditional Crash Data and Their Implications for Emerging Data Sources

Fred Mannering, Purdue University

Noon–1:20 p.m.

Lunch Break

1:20 p.m.–2:55 p.m., *Auditorium*

Driving Simulators—Behavior I

Andrea Benedetto, University Roma Tre, Italy, *Chair*

Measuring Aggressive Driving Behavior Using a Driving Simulator: An Exploratory Study

Maya Abou-Zeid, Isam Kaysi, and Hani Al-Naghi, American University of Beirut, Lebanon

Car Driver Behavior During Precrash Situation: Analysis with the Benefit–Cost–Deficit Model

M. P. Pacaux-Lemoin, H. Morvan, and F. Vanderhaegen, University of Lille—Nord de France; M. Itoh, University of Tsukuba, Japan

Drivers' Speed Behavior at Rural Intersections: Simulator Experiment and Real-World Monitoring

Afonso Montella and Filomena Mauriello, University of Naples Federico II, Italy

Wednesday, September 14, 2011



How Traffic Conditions Affect Driver Behavior in Passing Maneuver

Francesco Bella, University Roma Tre, Italy

Methodology to Introduce Accident Scenarios in Driving Simulators for the Analysis of Drivers' Behavior

Catherine Berthelon, Isabelle Aillerie, Christophe Perrin, and Stéphane Espié, French Institute of Sciences and Technology for Transport, Development, and Networks

1:20 p.m.–2:55 p.m., *Room B*

Surrogate Measures of Safety I

Gary Davis, University of Minnesota, *Chair*

Profiling Based Approach to Safety Surrogate Data Collection

Lakshmi Peesapati, Michael Hunter, Michael Rodgers, and Angshuman Guin, Georgia Institute of Technology

Defining, Screening, and Validating Crash Surrogate Events Using Naturalistic Driving Data

Kun-Feng Wu and Paul Jovanis, Larson Institute, Pennsylvania State University

Comparison of Theoretical- and Observation-Based Probability of Conflict Curves

Nathaniel Burnett and Anuj Sharma, University of Nebraska–Lincoln

Collection of Microlevel Safety and Efficiency Indicators with Automated Video Analysis

Åse Svensson, Aliaksei Lareshyn, and Thomas Jonsson, Lund University, Sweden; Håkan Ardö, Centre for Mathematical Sciences, Sweden; and Anna Persson, Traffic and Roads, Sweden

1:20 p.m.–2:55 p.m., *Room A*

Distraction, Stress, and Fatigue

David Shinar, Ben Gurion University of the Negev, Israel, *Chair*

Predicting Patterns of Potential Driver Distraction Through Analysis of Eye-Tracking Data

Wei Zhang, FHWA; Mark Peterson, Virginia Polytechnic Institute and State University

In-Vehicle Physiological Signal Monitoring System for Driver Fatigue Detection

Ye Sun, Xiong Yu, Jim Berilla, Zhen Liu, and Guangxi Wu, Case Western Reserve University

Research on Heart Rate and Eye Movement as Indicators of Drivers' Mental Workload

Rui Fu, Yingshi Guo, Yang Chen, Wei Yuan, Yong Ma, Jinshuan Peng, Qiong Zhang, and Chang Wang, Chang'an University, China

Analysis of Visual Fixation Areas and Visual Transition Characteristics During the Driving Process

Wei Yuan, Rui Fu, Yingshi Guo, Chuanliang Xue, and Fuwei Wu, Chang'an University, China

1:20 p.m.–2:55 p.m., *Room C*

Simulation of Crashes and Risk

Hani Mahmassani, Northwestern University, *Chair*

Simulation-Based Approach to Assess the Safety Performance of Road Locations

Amir Sobhani, William Young, and Majid Sarvi, Monash University, Australia

Simulation-Based Concept for Assessing the Effectiveness of Forgiving Roadside Treatments

Matthias Helfert, Philippe Nitsche, and Rainer Stuetz, Austrian Institute of Technology, Austria

Trucks with Different External Frontal Frames: Comparing Vulnerable Road User's Injury Severities Using Madymo

K. S. V. Lakshmi Narayana, Sudeshna Mitra, and Nilanjan Mitra, Indian Institute of Technology, Kharagpur, India



Analyzing Bicycle–Car Mixed Traffic Flow by Social Force Model for Collision Risk Evaluation
Maosheng Li, Feng Shi, and Dafei Chen, Central South University, China

Modeling Road Accidents Using Compound Road Environments
Ana Fernandes and José Neves, Centre for Urban and Regional Systems, Technical University of Lisbon, Portugal

1:20 p.m.–2:55 p.m., *Rooms 4 and 5*

Safety Policy and Management

Carlos Moncada, National University of Colombia, *Chair*

Generating Safety-Performance Pareto Frontiers for Trade-Off Analysis in Highway Asset Management Using the Extreme Points NSGA-II Technique
Qiang Bai, Samuel Labi, and Kumares Sinha, Purdue University

European Union Methodologies and Tools for Vulnerable Road User Safety: Transferability to Emerging Economies
Luca Persia, Maria Vittoria Corazza, Paola Di Mascio, Antonio Musso, and Antonino Tripodi, Sapienza University of Rome

Safety-Based Incentives in Public–Private Partnerships: The Spanish Case
Thais Rangel, José Manuel Vassallo, and Blanca Arenas, Polytechnic University of Madrid, Spain

Analysis of Traffic Crash Characteristic and Safety Policies
Xiaoming Zhong, Jian Zhang, and Jia Jia, Chelbi Engineering Consultants, Inc., China; Liande Zhong, Ministry of Transport, China

2:55 p.m.–3:25 p.m.

Break

3:25 p.m.–5:00 p.m., *Auditorium*

Driving Simulators—Behavior II

Michael Lenné, Monash University, Australia, *Chair*

Relationship Between Road Design and Driving Behavior: A Simulator Study
Liva Abele and Mette Møller, DTU Transport, Denmark

Lateral Control Assistance and Driver Behavior in Emergency Situations
Arnaud Mas and Andras Kemeny, Renault Center for Simulation, France; Frédéric Merienne, LE2I, National Center for Scientific Research, France

Simulator Study: Impact of Traffic Calming Measures in Urban Areas on Driving Behavior and Workload
Caroline Ariën, Ellen Jongen, Tom Brijis, and Geert Wets, Transportation Research Institute, Belgium; Kris Brijis, Transportation Research Institute, XIOS University College, Belgium

Driving Tests on the New Sapienza Driving Simulator
Giuseppe Cantisani and Michele Di Vito, Sapienza University of Rome

3:25 p.m.–5:00 p.m., *Room B*

Surrogate Measures of Safety II

Åse Svensson, Lund University, Sweden, *Chair*

Analyses of Headways for Assessment of Risk Rear-End Collision
Stanisław Gaca, Mariusz Kieć, and Arkadiusz Zielinkiewicz, Cracow University of Technology, Poland

Wednesday, September 14, 2011



Connecting Gap Acceptance Behavior with Crash Experience

Steven Tupper and Michael Knodler, Jr., University of Massachusetts, Amherst; David Hurwitz, Oregon State University

Fusion of Risk Indicators Aiming to Predict Near-Future Traffic Crash Risks on Motorways

Minh-Hai Pham and André-Gilles Dumont, Swiss Federal Institute of Technology, Lausanne, Switzerland

Delta-V as Measure of Traffic Conflict Severity

Steven Shelby, Econolite Control Products, Inc.

Use of Driver Vehicle Module Output from Interactive Highway Safety Design Model as Surrogate Measures for Departure Crashes

Mohamadreza Banihashemi and Michael Dimaiuta, Genex Systems, Virginia

3:25 p.m.–5:00 p.m., *Room A*

Distracted and Impaired Driving

David Noyce, University of Wisconsin–Madison, *Chair*

Young Drivers and Alcohol-Impaired Driving: A Driving Simulator Experiment

Zoi Christoforou, Matthew Karlaftis, and George Yannis, National Technical University of Athens, Greece

Relationship Between Drivers' Reported Frequency of Cell Phone Use and Actual and Self-Reported Highway Behavior

Bryan Reimer, Bruce Mehler, Lisa D'Ambrosio, and Joseph Coughlin, Massachusetts Institute of Technology (MIT) AgeLab and the New England University Transportation Center (UTC); Nan Zhao, Chinese Academy of Sciences, MIT AgeLab and the New England UTC

Effects of Mobile Telephone Tasks on Driving Performance: A Driving Simulator Study

Andrea Benedetto, Alessandro Calvi, and Fabrizio D'Amico, University Roma Tre

Is It Risky to Talk, Eat, or Smoke While Driving? Findings from a Driving Simulator Experiment

George Yannis, Eleonora Papadimitriou, Charalambos Bairamis, and Vassilios Sklias, National Technical University of Athens, Greece

Development of a Driving Simulator for Virtual Experience and Training on Drunk Driving

Il-Ki Hong, Innosimulation, Inc., and S&T Research Center, Korea; Jun-Hee Cho, Innosimulation, Inc., Korea; Jun-Beom Ryu and Kohn-Ho Lee, Road Traffic Authority, Korea; Woon-Sung Lee, Kookmin University, Korea

3:25 p.m.–5:00 p.m., *Room C*

Statistical Modeling of Crashes—Methodological Considerations

Fred Mannering, Purdue University, *Chair*

Using Complimentary Set Analysis to Validate the Underlying Assumptions of Quasi-Induced Exposure

Xinguo Jiang, Yanjun Qiu, Haitao Zheng, and Lishang Liu, Southwest Jiaotong University, China; Richard Lyles, Michigan State University

Crash Prediction: Evaluation of Empirical Bayes and Kriging Methods

Uday R. R. Manepalli and Ghulam H. Bham, Missouri University of Science and Technology

Factor Complexity of Accident Occurrence: Empirical Demonstration Using Boosted Regression Trees

Yi-Shih Chung, Kainan University, Taiwan



Goodness-of-Fit Testing for Accident Models with Low Means

Zhirui Ye, Western Transportation Institute, Montana State University; Yunlong Zhang and Dominique Lord, Texas A&M University

Direct Spatial Correlation in Crash Frequency Models

Jonathan Aguero-Valverde, Universidad de Costa Rica

3:25 p.m.–5:00 p.m., *Rooms 4 and 5*

Safety Planning and Management

Matthew Karlaftis, National Technical University of Athens, Greece, *Chair*

All Accidents Are Not Equal: Using Geographically Weighted Regressions Models to Assess and Forecast Accident Impacts

Libing Zheng, China Railway Siyuan Survey and Design Group Co., LTD, China; R. Michael Robinson, Virginia Modeling, Analysis, and Simulation Center; Asad Khattak and Xin Wang, Old Dominion University

Assessing the Safety of Routes in a Regional Network

Atze Dijkstra, Institute for Road Safety Research (SWOV), Netherlands

Categorical Modeling to Evaluate Road Safety at the Planning Level

Sara Ferreira and António Couto, University of Porto, Portugal

Explorative Spatial Analysis of Traffic Accidents Using Geographically Weighted Poisson Regression Model for Urban Safety Planning

Ali Akbar Matkan, Babak Mirbagheri, and Matin Shahri, Shahid Beheshti University, Iran; Afshin Shariat Mohaymany, Iran University of Science and Technology

Indiana's Safety Management System Software Package—A Review

Godfrey Lamptey, engineer; Ashish Jain Samdariya, Samuel Labi, and Kumares Sinha, Purdue University



Thursday, September 15

8:00 a.m.–9:35 a.m., *Auditorium*

Driving Simulators—Performance I

Francesco Bella, University Roma Tre, *Chair*

Headlight Glare Simulator for a Driving Simulator 2.0

Alex Hwang and Eli Peli, Harvard Medical School

Investigating the Relationship between Pavement Roughness and Heart-Rate Variability by Road Driving Test

Jinxi Zhang, Yanhua Du, and Ruiwei Su, Key Laboratory of Traffic Engineering, Beijing University of Technology, China

Virtual Road Safety Audits Using Driving Simulators: A Framework

Kelvin Santiago-Chaparro, Michael DeAmico, Andrea Bill, Madhav Chitturi, and David Noyce, University of Wisconsin–Madison

Driving Simulator Potentialities for Engineering Applications to Formula 1

Andrea Benedetto, Alessandro Calvi, and Michele Messina, University Roma Tre, Italy

Open Road Tolling Signing Studies

John Benda, Illinois State Toll Highway Authority; Jeff Hochmuth, Raghu Kowshik, and Laszlo Medgyesy, Wilbur Smith Associates

8:00 a.m.–9:35 a.m., *Room B*

Safety Evaluation with Surrogate Measures I

Anuj Sharma, University of Nebraska–Lincoln, *Chair*

New Geometric Design Consistency Model Based on Operating Speed Profiles for Road Safety Evaluation

F. Javier Camacho, Ana Pérez, and Alfredo García, Universitat Politècnica de València, Spain

Assessment of Surrogate Safety Benefits of an Adaptive Traffic Control System

Aleksandar Stevanovic, Florida Atlantic University; Cameron Kergaye and John Haigwood, Utah DOT

Safety Assessment of Cooperative Vehicle Infrastructure System–Based Urban Traffic Control

Joyoung Lee, Byungkyu (Brian) Park, and Jaehyun (Jason) So, University of Virginia; Kristin Malakorn, Vanasse Hangen Brustlin, Inc.

Decision Supporting System for Highway Safety Management

Rodolfo Grossi, Vittorio De Riso Di Carpinone, and Alfonso Montella, University of Naples Federico II, Italy

8:00 a.m.–9:35 a.m., *Room A*

Driver Performance and Behavior

Michael Knodler, University of Massachusetts, Amherst, *Chair*

Linking Behavioral Indicators to Safety: What Is Safe and What Is Not?

Marieke Martens, Organization for Applied Scientific Research (TNO) and University of Twente, Netherlands; Rino Brouwer, TNO, Netherlands

Longitudinal Study to Evaluate Riding Trainer Effectiveness in Teenagers

Giulio Vidotto, Alessia Bastianelli, Francesco Del Prete, and Mariaelena Tagliabue, University of Padua, Italy

Exploratory Study Assessing Driver Behavior at Highway–Rail Grade Crossings Using On-Road Test Vehicles

Michael Lenné, Paul Salmon, and Kristie Young, Monash University, Australia



Pilot Study for Integrating Driving Simulation into Rhode Island Teen Driver Education

Grisel García, Valerie Maier-Speredelozzi, Jyh-Hone Wang, and Charles Collyer, University of Rhode Island

8:00 a.m.–9:35 a.m., *Room C*

Statistical Modeling of Crashes

Satish Ukkusuri, Purdue University, *Chair*

Modeling Two-Vehicle Crash Severity Using a Bivariate Generalized Ordered Probit Approach

Yu-Chiun Chiou, Cherng-Chwan Hwang, Chih-Chin Chang, and Chiang Fu, National Chiao Tung University, Taiwan

Modeling the Safety Effect of Advisory Speed Signs: A Bivariate Multiplicative Factor on Number of Crashes Based on the Speed Differential and the Side Friction Demand

Raul Avelar and Karen Dixon, Oregon State University

Differences in Motorcycle Conspicuity–Related Factors and Motorcycle Crash Severities in Daylight and Dark Conditions

Mohammad Saad Shaheed, Konstantina Gkritza, and Zach Hans, Iowa State University; Wei Zhang, FHWA

Approach to Predict Road Accident Frequencies: Application of Fuzzy Neural Network

Lai Zheng, Harbin Institute of Technology, China; Xianghai Meng, School of Transportation Science, China

8:00 a.m.–9:35 a.m., *Rooms 1 and 2*

Modern Safety Management

Samuel Labi, Purdue University, *Chair*

Detecting Secondary Accidents in Freeways

Foteini Orfanou, Eleni Vlahogianni, and Matthew Karlaftis, National Technical University of Athens, Greece

Quantifying the Safety Performance of Rural Roadways Using Two Models

Mehdi Hossein Pour, Joewono Prasetyo, and Seyed Mohammad Reza Ghadiri, University of Science Malaysia

Automated Crash Notification Algorithms: Evaluation of In-Vehicle Principal Direction of Force Estimation Algorithms

Kristofer Kusano, Stephanie Kusano, and Hampton Gabler, Virginia Polytechnic Institute and State University

An Integrated Dynamic Traffic Assignment–Bayesian Belief Networks Methodology to Assess Traffic Safety

Andreas Gregoriades, European University Cyprus; Kyriacos Mouskos and Neville Parker, City University of New York; Natalia Ruiz-Juri, University of Texas at Austin

Evaluating Roadway Safety Improvement in a Traffic Assignment Framework

Jay Przybyla, Richard Porter, Xuesong Zhou, and Jeffrey Taylor, University of Utah; Brandon Nevers, Kittelson & Associates, Inc.

9:35 a.m.–10:05 a.m.

Break

10:05 a.m.–11:40 a.m., *Auditorium*

Driving Simulators—Performance II

Isam Kaysi, American University of Beirut, Lebanon, *Chair*

Comparing Simulated Road Safety Performance to Observed Crash Frequency at Signalized Intersections

Janailson Souza, Marcos Sasaki, and Flávio Cunto, Federal University of Ceará, Brazil

Thursday, September 15, 2011



New Approach to Forward Collision Avoidance

Woon-Sung Lee, Ji-Yong Lee, and Sang-Soo Park, Kookmin University, Korea

Advanced Driving Simulators as Tool in Early Development Phases of New Active Safety Functions

Martin Fischer and Hakan Sehammar, Swedish National Road and Transport Research Institute, Sweden; Mikael Ljung Aust, Martin Nilsson, and Nenad Ladic, Volvo Cars, Sweden; Henrik Weiefors, Viktoria Institute, Sweden

Performance of Drivers with Parkinson's Disease Under the Effect of Cognitive Overloading: Insinuation for Assessment and Training

Hoe Lee, Torbjorn Falkmer, and Derserri Chee, Curtin University, Australia

Development of a Driving Simulator for the Driving Precision Aptitude Test

Jun-Hee Cho and Young-Sam Kim, Innosimulation, Inc., Korea; Young-Woo Sohn, Su-Ae Park, Kyung-Soo Lee, Eung-Kyung Chung, and Hyun-Kuk Sohn, Yonsei University, Korea; Jae-Yeong Kwon, Korea Transportation Safety Authority

10:05 a.m.–11:40 a.m., *Room B*

Safety Evaluation with Surrogate Measures II

Alfonso Montella, University of Naples Federico II, Italy, *Chair*

Urban Road Safety—Assessment of a Road Safety Measures Tool

Carmen Carvalheira, High Institute of Engineering of Lisbon, Portugal; Luís de Picado Santos, Technical University of Lisbon, Portugal

Use of Speed Profile as Surrogate Measure: Effect of Traffic Calming Devices on Crosstown Road Safety Performance

Ana Tsui Moreno and Alfredo García, Universitat Politècnica de València, Spain

Effectiveness of Using Cat-Eye Reflectors as Warning and Traffic Calming Devices in Local Roads and Highways

Hamdy Faheem, Minia University, Egypt

Crosswalk Safety Evaluation Using a Pedestrian Risk Index as Traffic Conflict Measure

Salvatore Cafiso and Rosario Cavarra, University of Catania, Italy; Alfredo García, Universitat Politècnica de València, Spain; Mario Alfonso Romero, Purdue University

Evaluation of the Impact of Two Countdown Pedestrian Signal Displays on Pedestrian Behavior in an Urban Area

Stephen Arhin and Errol Noel, Howard University; Mesfin Lakew, District DOT

10:05 a.m.–11:40 a.m., *Room A*

Behavior-Focused Safety Improvements

Marieke Martens, TNO and University of Twente, Netherlands, *Chair*

Can Education and Enforcement Affect Behavior of Car and Truck Drivers on Urban Freeways?

Andrew Tarko and Panagiotis Anastasopoulos, Purdue University; Ana María Pérez Zuriaga, Universitat Politècnica de València, Spain

Investigation of Older Driver Road Safety Perceptions and Driving Performance on Freeways

Sophia Vardaki and Matthew Karlaftis, National Technical University of Athens, Greece

Helmet Law and Other Factors Contributing to Motorcycle Fatalities at the State Level

Sunanda Dissanayake and Saad Shaheed, Kansas State University

Assessing the Slow-Down Effects Caused by Active Dynamic Message Signs and Exploring Means to Ease the Slow-Down

Miao Song, Valerie Maier-Sperdelozzi, and Jyh-Hone Wang, University of Rhode Island; Sam Cheung, U.S. Coast Guard Academy; Merve Akdemir, Murata Power Solutions



Understanding the Impact of Driver Attitudes and Behavior on Sign Comprehension: Experiences with Clearview Font

Charlotte Frei, Mead Saberi, and Hani Mahmassani, Northwestern University

10:05 a.m.–11:40 a.m., *Room C*

Crash Data Modeling and Analysis

Andrew Tarko, Purdue University, *Chair*

Investigating Positive and Negative Utilities of Red Light Cameras Through a Binary Probit Analysis

Manoj Jha, Morgan State University; Sabyasachee Mishra, University of Maryland; Yohannes Weldegiorgis, Baltimore City Community College

Safety Countermeasures at Rural Two-Lane Roads: Does Their Effectiveness Differ by Functional Class?

Bismark Agbelie and Samuel Labi, Purdue University

Evaluation of the Locations of Kentucky's Traffic Crash Data

Eric Green and Kenneth Agent, University of Kentucky

Identification of Crash Causal Factors: Effects of Sample Data Size

Uday R. R. Manepalli and Ghulam H. Bham, Missouri University of Science and Technology

Crash Prediction on Rural Roads

Cheng Zhong and Virginia Sisiopiku, University of Alabama at Birmingham; Khaled Kaibati, University of Wyoming; Tao Zhong

10:05 a.m.–11:40 a.m., *Rooms 1 and 2*

Regional Safety Consideration

Paul Jovanis, Pennsylvania Transportation Institute, Pennsylvania State University, *Chair*

Evaluating the Impact of Mining and Construction Employment on Highway Crashes

Burton Andreen and Khaled Ksaibati, University of Wyoming; Matt Carlson, Wyoming DOT

Fatal Road Traffic Accidents with Massive Casualties in China from 2005 to 2009

Tao Chen and Lang Wei, Chang'an University, China; Biao Gong, Traffic Management Research Institute, Ministry of Public Security, China

Severe Traffic Injuries Across Central Midwestern States: Comparison of State Data to Regional Estimates

Mahtab Ghazizadeh, University of Wisconsin–Madison; Linda Boyle, University of Washington

Contribution of the Trunk Highway System to Road Safety in China over the Past 18 Years

Xianghai Meng, School of Transportation Science, China; Xiangshen Hou, Harbin Institute of Technology, China

11:40 a.m.–1:20 p.m.

Lunch Break

1:20 p.m.–2:55 p.m., *Auditorium*

Naturalistic Driving I

Kyriacos Mouskos, City University of New York, *Chair*

Car-Following Driver Behavior Simulation Using Fuzzy Rule-Based Neural Network

Linsen Chong, Montasir Abbas, and Bryan Higgs, Virginia Polytechnic Institute and State University; Alejandra Medina, Virginia Tech Transportation Institute

Bayesian Trajectory-Based Reconstruction of Rear-Ending Events Using Naturalistic Driving Data

Indrajit Chatterjee and Gary Davis, University of Minnesota

Thursday, September 15, 2011



Gap at Start of Passing Maneuver as Function of Lead Vehicle Size and Posted Speed Limit for Freeways

Kay Fitzpatrick, Susan Chrysler, James Robertson, Eun Sug Park, and Vichika Iragavarapu, Texas Transportation Institute

Microscopic Driver Attention Allocation Model

Jinn-Tsai Wong and Shih-Hsuan Huang, National Chiao Tung University, Taiwan

Driver Inattention Allocation Detection Using a Panel Data Approach

Jianhua Guo and Wei Huang, Intelligent Transportation System Research Center, Southeast University, China

1:20 p.m.–2:55 p.m., *Room B*

Road Design and Safety

Alfredo García, Universitat Politècnica de València, Spain, *Chair*

Disaggregate Speed Consistency Measure for Safety Evaluation of Freeway Diverging Areas

Tangyi Guo and Yingshun Liu, Nanjing University of Science and Technology, China; Wei Deng, Southeast University, China

Analysis and Comparison Between Two-Lane Roundabouts and Turbo Roundabouts: Based on a Road Safety Audit Methodology and Microsimulation—A Case Study in Urban Area

Lenin Bulla, Univesidad Militar Nueva Granada, Colombia; William Castro, Universidad Nacional de Colombia

Model for Sight Distance Calculation and Three-Dimensional Alignment Evaluation in Divided and Undivided Highways

Fotis Mertzanis and Viviana Hatz, National Technical University of Athens, Greece

Evaluation of the Safety Impacts of Median Openings in Six-Lane Divided Urban Arterials

Mohamed Kaseko and Timur Mauga, University of Nevada, Las Vegas

1:20 p.m.–2:55 p.m., *Room A*

Risk Perception and Aggressive Behavior

Valerie Maier-Speredelozzi, University of Rhode Island, *Chair*

Subjective Safety Based on Simulated Road View Perception

Lidia Zakowska, Cracow University of Technology, Poland

Actual Skill Versus Perceived Skill: A New Method for Assessing Overconfidence Among Drivers

Mojtaba Moharrer, University of Leeds, United Kingdom

Risk Attitude, Perception, Behavior, and Personality as Indicators of a Driver's Risk Awareness in China

Qiong Zhang, Yingshi Guo, Wei Yuan, Chang Wang, Fuwei Wu, and Yong Ma, Chang'an University, China; Yuxi Guo, Beijing Normal University, China; Rui Fu, Ministry of Transport and Chang'an University, China

Research Between Aggressive Driving Behavior and Type-A Behavior

Li Hui, Luo Yong, Zhang Shibo, Liu Xiaohan, and Liu Jian, Xihua University, China; Luo Xia, Southwest Jiaotong University, China; Sui Yanfei, University of Wyoming

Individual Driver Risk Analysis Using Naturalistic Driving Data

Feng Guo and Youjia Fang, Virginia Tech Transportation Institute

1:20 p.m.–2:55 p.m., *Room C*

Statistical Analysis of Crashes I

Andrew Tarko, Purdue University, *Chair*

Empirical Analysis of Fatality Rates for Large Truck-Involved Crashes on Interstate Highways

Mouyid Islam and Salvador Hernandez, University of Texas at El Paso



Investigation of Injury Severities of Truck Drivers on Rural Highways

Feng Chen and Suren Chen, Colorado State University

Impact of Geometric Conditions on Wyoming's Rural Crashes

Zebulun Coulter and Khaled Ksaibati, University of Wyoming

Patterns of Anatomical Injury Severity to Different Types of Road Users in Road Crashes

Hizal Hanis Hashim, Rohayu Sarani, Sharifah Allyana Syed Mohamed Rahim, Norlen Mohamed, Jamilah Mohd Marjan, and Ahmad Farhan Mohd Sadullah, Malaysian Institute of Road Safety Research, Malaysia; Sabariah Faizah Jamaluddin, Sungai Buloh Hospital, Malaysia; Jamaiah Haniff, Clinical Research Center, Malaysia

Accident Risk—Measuring Model for Urban Arterials

Shu-Fang Lai, Takming University of Science and Technology, Taiwan

1:20 p.m.–2:55 p.m., *Rooms 1 and 2*

High-Crash Locations

Brad Steckler, Indiana DOT, *Chair*

Case-Control Analysis in Highway Safety: Accounting for Sites with Multiple Crashes

Frank Gross, Vanasse Hangen Brustlin, Inc.

Evaluation of Hot-Spots Identification Using Kernel Density Estimation and Getis-Ord on I-630

Uday R. R. Manepalli, Ghulam H. Bham, and Srinadh Kandada, Missouri University of Science and Technology

Comparative Analysis of Hot-Spot Identification Methods in the Presence of Limited Information

Ranja Bandyopadhyaya and Sudeshna Mitra, Indian Institute of Technology Kharagpur, India

Using Geographical Information Systems to Effectively Organize Police Patrol Routes by Grouping Hot Spots of Crash and Crime Data

Pei-Fen Kuo and Dominique Lord, Texas A&M University; Troy Duane Walden, Texas Transportation Institute

2:55 p.m.–3:25 p.m.

Break

3:25 p.m.–5:00 p.m., *Auditorium*

Naturalistic Driving II

Andrea Benedetto, University Roma Tre, Italy, *Chair*

Discriminant Analysis of Driver Behavior During Safety-Critical Events

Montasir Abbas and Bryan Higgs, Virginia Polytechnic and State University; Alejandra Medina, Virginia Tech Transportation Institute; C. Y. David Yang, FHWA

Naturalistic Longitudinal and Lateral Risk-Taking Driving Behavior Modeling During Safety-Critical Events

Linsen Chong, Montasir Abbas, and Bryan Higgs, Virginia Polytechnic and State University; Alejandra Medina, Virginia Tech Transportation Institute

Individual Driver's Undesirable Driving Events—A Temporal Analysis

Oren Musicant, Tel Aviv University, Israel; Hillel Bar-Gera and Edna Schechtman, Ben-Gurion University of the Negev, Israel

Assessing the Likelihood of a Lane Departure Event Using Naturalistic Driving Study Data

Shauna Hallmark and Yu Qiu, Iowa State University; Linda Boyle, University of Washington

Car Following Under Reduced Visibility

Sudeshna Mitra and Kumar Utsav, Indian Institute of Technology Kharagpur, India

Thursday, September 15, 2011



3:25 p.m.–5:00 p.m., *Room B*

Microsimulation for Safety Modeling

Panagiotis Anastasopoulos, Purdue University, *Chair*

Simulation Design of an Integrated GNSS/INU, Vehicle Dynamics, and Microscopic Traffic Flow Simulator for Automotive Safety

George Dedes, DGNSS Solutions, LLC; Sage Wolfe, Dorota Grejner-Brzezinska, Dennis Guenther, Charles Toth, and Xiankun Wang, Ohio State University; Gary Heydinger, SEA Limited; Kyriacos Mouskos, City University of New York; Byungkyu (Brian) Park, University of Virginia

Microsimulation Modeling of the Impact of Infrastructure Provision and Vehicle and Pedestrian Behaviour on Road Crash Risk

Rahul Jobanputra, University Of Cape Town, South Africa

Methodology for Modeling the Distribution of Turning Vehicle Paths at Signalized Intersections

Wael Alhajyaseen, Miho Asano, Hideki Nakamura, and Dang Tan, Nagoya University, Japan

Calibration of Microsimulation Models to Account for Safety and Operation Factors for Traffic Conflict Risk Analysis

Hong Yang and Kaan Ozbay, Rutgers University

Effects of Microscopic Traffic Platform Calibration on Errors in Safety and Traffic Metrics

David Duong, Frank Saccomanno, and Bruce Hellinga, University of Waterloo, Canada

3:25 p.m.–5:00 p.m., *Room A*

Modern Technologies

Michael Hunter, Georgia Institute of Technology, *Chair*

Intelligent Speed Adaptation: Results of Pre-Test in Penang, Malaysia

Sayed Mohammad Reza Ghadiri, Joewono Prasetyo, Ahmad Farhan Sadullah, and Mehdi Hossein Pour, University of Science Malaysia

Impact Evaluation of a Driving Support System on Traffic Flow by Microscopic Traffic Simulation

Makoto Okamura, Almec Corporation, Japan; Atsushi Fukuda, Hirohisa Morita, and Masatoshi Nakazawa, Nihon University, Japan; Hironori Suzuki, Nippon Institute of Technology, Japan

In-Vehicle Pedestrian Detection Using Stereo Vision Technology

Wei Zhang, FHWA

Evaluating Communications and Intelligent Driver Models in Context of Chain Collision Avoidance Application for VANETs

Juan-Bautista Tomas-Gabarron, Esteban Egea-Lopez, and Joan Garcia-Haro, Department of Information and Communications Technologies, Spain

3:25 p.m.–5:00 p.m., *Room C*

Statistical Analysis of Crashes II

Manoj Jha, Morgan State University, *Chair*

On-Scene Determination of Driver Crash Causation and Avoidance Maneuvers in Rear-End Collisions

Kristofer Kusano and Hampton Gabler, Virginia Polytechnic and State University

Temporal Variation of Road Accident Data Caused by Road Infrastructure

Amirhossein Ehsaei, University of Louisville; Harry Evdorides, University of Birmingham, United Kingdom

Application of Spatial Crash Analyses and Road Safety Investigations to Increase Older Driver Safety

Deanna Peabody and Michael Knodler, Jr., University of Massachusetts, Amherst



Analysis of Factors Associated with Fatal Truck Crashes

Sunanda Dissanayake and Nishitha Bezwarda, Kansas State University

3:25 p.m.–5:00 p.m., *Rooms 1 and 2*

Safety Management

Francisco J. Camacho, Universitat Politècnica de València, Spain, *Chair*

Utilizing Safety and Speed Analysis to Establish Default Speed Limits on Gravel Roads

Burton Andreen and Khaled Ksaibati, University of Wyoming

Application of System Dynamic Simulation Modeling in Road Safety

Naveen Kumar and G. Umadevi, Guindy Anna University, India

Optimizing Signal Timings to Improve Safety of Signalized Arterials

Aleksandar Stevanovic, Florida Atlantic University; Jelka Stevanovic, independent consultant; Cameron Kergaye, Utah DOT

Evaluation of Lane-Reversal Plans for I-65 in Alabama

Virginia Sisiopiku, University of Alabama at Birmingham; Kyriacos Mouskos, City University of New York; Curtis Barrett, VISTA Transport Group, Inc.

Dinner at Indiana State Museum

Feature presentation by Michael Cline, Indiana DOT Commissioner

Thursday, September 15, 6:30 p.m.–9:30 p.m.

Governor Frank O'Bannon Great Hall

Indiana State Museum, 650 W. Washington St., Indianapolis

Discover Indiana's secrets at this world-class institution, where you will find a hands-on overview of the best Indiana has to offer. Constructed completely from Indiana materials, including limestone, sandstone, steel, brick, and glass, the building itself is a work of art. Discover icons representing each of Indiana's 92 counties on the exterior, then step inside to explore Indiana's past, present, and future through scientific, cultural, historical, and art exhibits.

Located in White River State Park in downtown Indianapolis, the Indiana State Museum brings the best of the museum world to Indiana. Filled with three floors of core galleries that tell the story of Indiana as well as fascinating changing exhibits, the museum explores art, science, and culture. Learn about Indiana and its place in the world.

Thursday, September 15, 2011



Friday, September 16

8:00 a.m.–9:35 a.m., *Auditorium*

Naturalistic Driving III

Montasir Abbas, Virginia Polytechnic and State University, *Chair*

New Measure Quantifying Drivers' Decision Making Behavior while Facing Amber Light

Lai Yin Tse, Agachai Sumalee, and Wing Tat Hung, Hong Kong Polytechnic University, China

Using Momentary Derivative Estimates to Gauge Driver Performance

Pascal Deboeck, Paul Atchley, Mark Chan, John Geldhof, and Chelsie Fries, University of Kansas

Naturalistic Driving Studies: Challenges and Opportunities for Such Studies in South Africa

Karien Venter, Kobus Labuschagne, and Semira Mohammed, Council for Scientific and Industrial Research, South Africa; Marion Sinclair, University of Stellenbosch, South Africa; Christo Venter, University of Pretoria, South Africa

Navisection: A Novel Method Joining Naturalistic Driving Data Collection with Expert Witness Event-Logging for Enhanced Assessment of Driver Safety

Nahom Beyene, Amy Lane, Katherine Seelman, Thomas Songer, and Rory Cooper, University of Pittsburgh; Aaron Steinfeld, Carnegie Mellon University

Perceiving Traffic Environmental Information Based on Driving Scene Computational Model

Yuren Chen, Ruoyu Liao, Yongxin Ye, and Zuxing Liao, Tongji University, China

8:00 a.m.–9:35 a.m., *Room B*

Traffic Flow Elements

Konstantina Gkritza, Iowa State University, *Chair*

Impact of Distracted Driving on Traffic-Flow Parameters

Despina Stavrinos, Annie Garner, Crystal Franklin, David Ball, Karlene Ball, Virginia Sisiopiku, and Philip Fine, University of Alabama at Birmingham

Estimation of Car-Following Model Parameters Distribution Using Bootstrap Method

Fan Wu, Jian Lu, and Jun Jiang, Southeast University, China

Analysis of the Wiedemann Car-Following Model Over Different Speeds Using Naturalistic Data

Bryan Higgs and Montasir Abbas, Virginia Polytechnic and State University; Alejandra Medina, Virginia Tech Transportation Institute

Estimation of Critical Headways at Unsignalized Intersections: A Microscopic Approach

Luís Vasconcelos, Polytechnic Institute of Viseu, Portugal; Ana Bastos, Alvaro Seco, and Gilberto Rouxinol, University of Coimbra, Portugal

8:00 a.m.–9:35 a.m., *Room A*

Bicycle Safety

Sean Brennan, Pennsylvania State University, *Chair*

Study on Cyclists' Safety Knowledge and Its Association with Bike Accident Occurrence

Evelyn Wu, National Taiwan Ocean University, Taiwan

Characteristics and Insecurity of Violation Behavior of Nonmotorists at Signalized Intersections in China

Xing Zhao, Gang Ren, Xuan Du, and Weijie Wang, Southeast University, China



Empirical Tool to Evaluate the Safety of Cyclists: Community Based, Macrolevel Collision–Prediction Models Using Negative Binomial Regression

Feng Wei and Gordon Lovegrove, University of British Columbia, Canada

Bicycle Collision Analysis Using Vehicle Driving Simulator Movic-T4

Mio Suzuki, Kei Miyanoue, and Tetsuo Yai, Tokyo Institute of Technology, Japan; Tsuyoshi Takagawa, Simulation Research Laboratory, Inc., Japan

8:00 a.m.–9:35 a.m., *Room C*

Safety at Intersections

Xiaoduan Sun, University of Louisiana, *Chair*

Can High-Resolution Detectors and Signal Data Support Intersection Crash Identification and Reconstruction?

Indrajit Chatterjee and Gary Davis, University of Minnesota

Prediction Under Bayesian Approach of Car Accidents in Urban Intersections

Oscar Rosas-Jaimes, Araceli Campero-Carmona, and Oscar Sánchez-Flores, Autonomous University of the State of Mexico

Gap Acceptance Models for Left-Turning Vehicles Facing Pedestrians at Signalized Crosswalks

Wael Alhajyaseen, Miho Asano, Hideki Nakamura, and Nan Kang, Nagoya University, Japan

Improving Safety at High-Speed Rural Intersections

Samuel Leckrone, Andrew Tarko, and Panagiotis Anastasopoulos, Purdue University

Modeling Speed Profiles of Turning Vehicles at Signalized Intersections

Axel Wolfemann, Wael Alhajyaseen, and Hideki Nakamura, Nagoya University, Japan

8:00 a.m.–9:35 a.m., *Rooms 1 and 2*

Road Pavement and Safety

Samuel Labi, Purdue University, *Chair*

Engineering Safer Road Surfaces to Help Achieve U.S. Highway Safety Goal

Kelly Smith and Roger Larson, Applied Pavement Technology, Inc.

Effect of Asphalt Pavement Texture on Braking Distance

Weiguang Zhang, Jun Yang, and Ling Cong, Southeast University, China

Global Approach to Warning Drivers of Curves by Considering Skid-Resistance Caused by Rain

Veronique Cerezo, CETE of Lyon, France; Minh-Tan Do, IFSTTAR, France; Eric Violette, CETE Normandie Centre, France

Accelerated Laboratory Testing Protocol to Measure Asphalt Mixture Friction Characteristics

Michael Heitzman, National Center for Asphalt Technology; Srikanth Erukulla, Auburn University

9:35 a.m.–9:55 a.m.

Break

9:55 a.m.–11:30 a.m., *Room B*

Image-Based Safety Analysis

Despina Stavrinou, University of Alabama at Birmingham, *Chair*

Vision-Based Approach to Study Driver Behavior in Work Zone Areas

Yichang Tsai, Chieh Wang, and Yiching Wu, Georgia Institute of Technology



Influential Evaluation of Data Sampling Techniques on Accuracy of Motorway Crash Risk Assessment Models

Minh-Hai Pham and André-Gilles Dumont, Swiss Federal Institute of Technology in Lausanne, Switzerland

Identifying Riding Profiles Parameters from High Resolution Naturalistic Riding Data

Eleni Vlahogianni, George Yannis, and John Golias, National Technical University of Athens, Greece; Nikos Eliou and Panos Lemonakis, University of Thessaly, Greece

Computer Animation of Traffic Accidents: Hindsight Bias and Judgments of Blame

Michael Dilich and John Goebelbecker, Foresight Reconstruction, Inc.; Florian Fessel, Union College; Neal Roese, Northwestern University

First Steps Toward Evaluation of Efficiency of Three-Dimensional Visualization Tools for Detecting Shortcomings in Alignments Coordination: A Geometric Highway Project

Ana Larocca, Aurenice Figueira, José Quintanilha, and Felipe Kabbach, Jr., University of Sao Paulo, Brazil

9:55 a.m.–11:30 a.m., Room A

Vehicle-Focused Analysis

Mario Romero, Purdue University, *Chair*

Building the Model and Environment for Validation of a Class 8 Truck

Mitchel Keil, Upul Attanayake, Pavel Ikononov, and Richard Hathaway, Western Michigan University

Refined Calculation and Simulation System of Local Large Deformation for Accident Vehicle

Wangfang Yuan, Lang Wei, and Tao Chen, Chang'an University, China; Chunjun Yu, Traffic Management Research Institute, Ministry of Public Security, China

Multibody Vehicle Dynamics Simulation Based on Measured 3-D Terrain Data

Tejas Varunjikar, Pramod Vemulapalli, and Sean Brennan, Pennsylvania State University

Articulated Vehicles Jackknifing Warning Based on a Detection and Prediction System

Mohamed Bouteldja and Veronique Cerezo, CETE of Lyon, France

9:55 a.m.–11:30 a.m., Room C

Case Studies

Frank Saccomanno, University of Waterloo, Canada, *Chair*

Accessibility of Pedestrians Affected by Non-Access Control Multilane Highway: Case Study of NH-8, India

Mukti Advani, B. Kanagadurai, and S. Gangopadhyay, Central Road Research Institute, India

Observation-Based Evaluation of Fuel Economy and Speed Measures for City Bus Drivers

Kai-Hsiang Chuang and Ming-Chang Jeng, National Central University, Taiwan; Chun-Chia Hsu and Ji-Liang Doong, Lunghwa University of Science and Technology, Taiwan; Shih-Hsiang Yu and Kai-Kuo Chang, Ministry Of Transportation and Communications, Taiwan

Traffic Safety Development Modeling in Duhok City Road Network Using GIS Technique

A. M. Al-Taei and A. Abdulmawjoud, Mosul University, Iraq; Ziyad Aldoski, Duhok Roads Administrat, Iraq

Road Safety Audit for Four-Lane National Highways

S. S. Jain, Pradeep Singh, and M. Parida, Indian Institute of Technology Roorkee, India

Relationship Between Traffic Flow and Safety of Freeway in China:

A Case Study of Jingjintang Freeway

Liande Zhong, Ministry of Transport of China; Xiaoduan Sun, University of Louisiana



11:30 a.m.–noon, *Auditorium*
Closing Session

Noon–1:30 p.m.
Lunch Break

2:00 p.m.–5:30 p.m.
Technical Tour

Technical Tour to Indianapolis Traffic Management Center

After an introductory presentation on Indiana Department of Transportation (DOT) traffic management, participants will visit the following three areas:

Traffic Management Center (TMC) Tour

The TMC dispatchers will be viewed in action, with a description of the technology at their fingertips and a description of how they coordinate with the Indiana State Police. We'll also visit the Hoosier Helper garage area, take a look at a vehicle, and have a more in-depth discussion about what the Hoosier Helpers do and how they help improve safety and reduce congestion.

Intelligent Transportation System Demonstration

This demonstration will include a more in-depth discussion on the field infrastructure used to manage traffic at the Indiana DOT as well as a demonstration of public information websites and a 511 traveler information system. There will also be a hands-on demonstration of one of the freeway camera sites, allowing participants to control a field camera in real-time.

Signal Systems Demonstration

See state-of-the-practice equipment, share field deployment practices, and discuss research initiatives that Indiana DOT is using to develop industry-leading performance measures for arterial signal systems. Participants also will see Web tools used by Indiana DOT engineers to gather and report performance measure results from the field equipment.

Friday, September 16, 2011



SPEAKERS

David Shinar

David Shinar received a BA in psychology from the Hebrew University of Jerusalem in 1969 and a PhD in human performance and human factors engineering from the Ohio State University in 1973. He is currently a George Shrut Professor of Human Performance Management at the Department of Industrial Engineering and Management, Ben Gurion University of the Negev, Israel, where he founded the Driving Behavior Laboratory and created the graduate program in highway traffic safety. Until the end of last year, he was also the chief scientist of Israel's National Road Safety Authority. He is a member of the TRB Committee on Simulation and Measurement of Vehicle and Operator Performance, a member of the TRB Strategic Highway Research Program Technical Coordinating Committee for Safety Research, and a member of the TRB Task Force on Highway Safety Workforce Development. He is an honorary fellow of the Human Factors and Ergonomics Society and a recipient of their A.R. Lauer Award for his "outstanding contributions to human factors aspects of highway traffic safety." He is also the recipient of the Israeli Ergonomics Society award for his "scientific contributions to ergonomics." Shinar has served on the editorial advisory board of various journals, including *Accident Analysis and Prevention*, *Journal of Safety Research*, *Human Factors*, and *Transportation Research F*. His research has been sponsored by the U.S. government, the European Commission, the Israeli government, public foundations, and private industry. He has given more than 30 invited talks in international conferences and has published more than 150 articles and scientific reports, including the book *Traffic Safety and Human Behavior*.

Fred Mannering

Fred Mannering is currently the Charles Pankow Professor of Civil Engineering at Purdue University, with a courtesy appointment in the Department of Economics. He received a BSCE from the University of Saskatchewan; a MSCE from Purdue University, and a PhD from the Massachusetts Institute of Technology. Mannering's expertise is in the application of statistical and econometric methods to study a variety of subject areas, including highway safety, transportation economics, automobile demand, and travel behavior. His work has been highly influential and has been cited more than 2,100 times in the Institute for Scientific Information databases. Mannering has published 105 refereed journal articles, two textbooks, 61 other publications (conference proceedings, project reports, book reviews, and commentaries), and has given more than 120 invited lectures and presentations at professional conferences. His undergraduate textbook, *Principles of Highway Engineering and Traffic Analysis*, is now in its fourth edition and has sold more than 35,000 copies. He has been principal investigator on 38 funded research projects and has supervised 21 PhD students and 43 MS students. Mannering has been editor-in-chief of *Transportation Research Part B: Methodological* since 2003. The Journal's citation impact factor is currently first among transportation journals (Social Science Edition) and sixth highest among 106 civil engineering journals (Institute for Scientific Information, 2009). Mannering's awards include: Arthur M. Wellington Prize; American Society of Civil Engineers, best paper in the *Journal of Transportation Engineering* (2010); James Laurie Prize, American Society of Civil Engineers (2009) "for his outstanding contribution to the advancement of transportation engineering through his influential research and publication in the area of highway safety"; Wilbur S. Smith Award, American Society of Civil Engineers (2005) "for outstanding contributions to the enhancement of the role of the civil engineer in highway engineering through excellence in teaching and research"; National Highway Safety Award (2001) for "a new method for prioritizing intersection improvements"; Harold Munson Award for outstanding teaching, Purdue University (2007); *CHOICE* Magazine's Outstanding Academic Books Award (1991) for *Principles of Highway Engineering and Traffic Analysis*, first edition.

Michael B. Cline

Governor Mitch Daniels appointed Michael Cline Commissioner of the Indiana Department of Transportation (DOT) June 13, 2010, entrusting him with overseeing all aspects of one of the state's largest agencies, which employs more than 3,800 people, and the state's highway system that includes more than 11,000 centerline miles and nearly 6,000 bridges. Indiana DOT has a \$400 million annual operating budget and an annual construction budget in excess of \$1 billion. Cline has 22 years of surface transportation industry management and engineering experience in both the public and private sectors. From 2007 to 2010, he was Deputy Commissioner of Operations for the Indiana DOT, where he provided executive leadership for the department's six regional district offices, the state construction director, the maintenance director, and the traffic management director. From 1999 to 2006, Cline was an engineering consultant who successfully developed, designed, and managed complex transportation projects for public and private clients. He generated company sales, solved client problems, and fostered long-standing relationships. Cline worked nine years for the City of Indianapolis, serving as the city's traffic administrator. During his tenure with the city, he was responsible for the planning, design, maintenance, and operation of its traffic and parking meter infrastructure. Cline was Assistant City Engineer in Terre Haute, Indiana, from 1989 to 1990. Cline holds a BS degree in Civil Engineering from Purdue University and is a registered professional engineer in Indiana and a board-certified professional traffic operations engineer. He is an active member of the Institute of Transportation Engineers and was a member of its International Board of Directors from 2006 to 2008.



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September 14–16, 2011



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