The \textit{Road Safety and Simulation Conferences} were established in Rome in 2007, with the aim to create a meeting ground for scholars, scientists and road safety professionals with different backgrounds and to encourage and facilitate the exchange of know-how. The main goal that brought to the launch of the Conference was and still remains to investigate and understand the issues related to road safety, through novel perspectives.

Right away it becomes self-evident that Roma Tre University had to be the obvious host and organizer of the event, due to the specific skills of its research team, internationally acknowledged as one of the first who have approached the geometric design of roads combined with the study of human behaviour within different traffic and environmental conditions.

Through all the past years, great research efforts have focused on this field. Furthermore, in the last decade a dedicated driving simulation laboratory has proved to be an advanced and valuable tool to generate improvements in the studies on transportation.

Starting from 2007, driving simulation studies have increased and many researchers have approached this novel tool for their specific scopes. In addition, researchers involved in other fields have focused their attention to driving simulation as a very promising and interesting tool for their investigations. Within this area, naturalistic driving concepts studying surrogate measures of safety or safety modeling are currently being developed as well as some very innovative topics regarding, for instance, highway design engineering or the assessment of new projects through public participation.

This 4\textsuperscript{th} edition of Road Safety and Simulation involves more than 500 authors from 200 Universities, Research Centers and Industries of 40 countries all over the world. 200 papers will be presented during the Conference days.

\textbf{RSS Conferences Permanent Steering Committee}

Andrea Benedetto (Roma Tre University, Italy)
Andrew Tarko (Purdue University, USA)
Åse Svensson (Lund University, Sweden)
Michael Manore (Applied Innovation, MasterGraphics, Inc, USA)
Stéphane Espié (Université Paris-Est, Ifsttar, IFSTTAR, France)
Wade Allen (STI, USA)
Nikiforos Stamatiadis (University of Kentucky, USA)
Matthew Karlaftis (National Technical University of Athens, Greece)

\textbf{RSS2013 Organizing Committee}

Andrea Benedetto, Francesco Bella, Alessandro Calvi, Spartaco Cera, Fabrizio D’Amico, Maria Rosaria De Blasiis, Claudia Guattari, Marco Santoni, Fabio Tosti, Andrea Umiliaco, Valerio Veraldi
Wednesday 23

1:00 P.M. – 6:00 P.M.

AUDITORIUM

Registration
1:00 p.m. - 3:00 p.m.

Plenary Session
3:00 p.m. - 4:00 p.m.
- Opening Remarks
- Welcoming Remarks
- Conference Announcements

4:00 p.m. - 6:00 p.m.
- Keynote Speakers
  - Matthew G. Karlaftis - National Technical University of Athens, Greece
    *Road safety data analysis: conflicting objectives and modeling implications*
  - Elias M. Choueiri - LAPS, WSO, Lebanon
    *An overview of the transport sector in MENA*
  - Essam Radwan - CATSS, University of Central Florida, USA
    *Discrete event and human-centered simulation*
  - Hoe Lee - Curtin University, Australia
    *Can driving simulator measure the driving performance of individuals with Parkinson’s Disease, Cerebral Vascular Accident and Alzheimer’s Disease*

Welcome Cocktail
6:00 p.m.
Matthew G. Karlaftis - National Technical University of Athens, Greece

Professor Karlaftis has long and significant research experience in a variety of research areas related to transportation operations and quantitative methods. He has participated in many national and European research projects and is the co-author of an international best selling book on transportation statistics and econometrics, book chapters, peer reviewed journal papers and papers in conference proceedings. He is Editor-in-Chief for Transportation Research part C, European Editor of ASCE’s Journal of Transportation Engineering, Associate Editor of ASCE’s Journal of Infrastructure Systems, and an editorial board member for ten other journals. He has received the Fulbright Scholar Grant (2006-2007), the Walter L. Huber Civil Engineering Innovative Research Prize (2005, by the American Society of Civil Engineers), the ABJ80 Best Paper Award for 2009 by TRB, and the 2011 ASCE State-of-the-art Award.

Road safety data analysis: conflicting objectives and modeling implications

Analyzing road safety data forms the basis upon which regulatory policies are decided. Over time, improvements in analytical approaches have enabled researchers to build more realistic representations and improve policy recommendations. However, three important limitations when making recommendations remain: i. barriers in modeling, ii. Availability of new — yet complex — data sources, iii. conflicting objectives set by policy makers. In his presentation he discusses the conflicts that exist in decision making and which affect road safety policies, examines the opportunities given to researchers by new sources of data, and discusses challenges and innovations related to modeling.

Elias M. Choueiri - LAPS, WSO, Lebanon

Prof. Dr. Choueiri is a High-Ranking Executive Officer in both Public and Private Institutions in Lebanon. He is the author/co-author of 20 books and booklets, and over 300 refereed publications, technical reports, conference presentations. His research interests are mainly in the areas of safety education, safety management, highway design, traffic safety, driving dynamics, driver behavior, and railway transportation. He has won 20 awards for his scholarship and has held faculty and managerial positions at several universities in the US and Lebanon. He serves (and served) on the editorial boards of a number of scientific journals. He is the President of Lebanese Association for Public Safety (LAPS), Lebanon. He sits on the board of directors of the World Safety Organization (WSO), chairs the WSO Highway Transport Committee, chairs the WSO Transportation of Dangerous Goods Committee, and serves as WSO Liaison Officer to the United Nations.

An overview of the transport sector in MENA

The transport sector in general and road transport in particular in MENA (Middle East & North Africa) countries are facing a critical impediment, related to dysfunctions in the transport system. Other problems, such as safety problems and pollution, are consequences. Specifically, transport-related problems include a lot of specific issues that are addressed in the presentation. Whilst road crashes are a global problem, the MENA region has it worse than most. In the MENA region, accidents kill between 12 and 45 people per 100,000 inhabitants every year, compared with an OECD average of about 6 per 100,000 inhabitants. By all means, the MENA region must urgently tackle the road safety situation.
Essam Radwan - CATSS, University of Central Florida, USA

Professor Essam Radwan is the Executive Director of the Center for Advanced Transportation Systems Simulation (CATSS). Professor Radwan research interest is traffic characteristics and traffic signal control of freeway and street intersections. Included in this area are theoretical and applied models, discrete event simulation models, and largescale databases developed to describe traffic behavior. He was instrumental in bridging the gap between human factors researchers, computer engineers, and transportation engineers. The “Human Centered Transportation Simulation Program” that he created under CATSS auspices has been viewed as a unique and one of the leading programs in the US. He directed and co-directed close to 55 research projects and published more than 250 technical papers and reports. He is fellow and member of several associations, societies and committees all over the world. Professor Radwan received numerous honors and awards along his career.

Discrete event and human-centered simulation

Over the last two decades, the applications of simulation to traffic operations and safety have witnessed rapid improvements. Fast data processing coupled with superb quality of visualization, enhanced realism of mimicking the real world. Applications of discrete events simulation to different transportation applications allowed researchers and practitioners to test different design concepts without taking the risk of implementing these concepts in the field. Driving simulators are more powerful and affordable than before and if utilized properly can add a new dimension and that is human in the loop. Augmented reality has been explored in different fields and its potential application to the transportation field is promising.

Hoe Lee - Curtin University, Australia

Dr. Lee is the senior research fellow of the Curtin University Driving Rehabilitation Laboratory, Curtin Health Innovation Research Institute. He is also a full time faculty member in the School of Occupational Therapy and Social Work, Faculty of Health Science. Hoe Lee has been involved in research, education and clinical practice in Occupational Therapy for over 26 years. Accident prevention and driving is one line of his research that greatly benefits the safety of drivers with special needs. Hospitals have incorporated his successful research outcomes into their clinical pathways to help patients to achieve independence in community mobility. He is extensively involved in national and international education related to occupational therapy and transportation safety. He is an internationally recognized clinician and researcher in occupational therapy and has published extensively in transportation journals.

Can driving simulator measure the driving performance of individuals with Parkinson’s Disease, Cerebral Vascular Accident and Alzheimer’s Disease

In countries like Australia, driving has become a symbol of freedom and independence, offering convenience and timeliness. Hence losing a driving license may affect the driver’s perceived roles in relation to family obligations and expectations as well as having serious occupational repercussions. Driving is a complex task that requires well-integrated cognitive, psychomotor and visuo perceptual functions. Driving performance may be affected by medical conditions however the effects of risk factors on individual drivers vary considerably. The utility of driving simulator technology to assess unsafe and risky behaviours of drivers with special needs is the topic of this presentation into Parkinson’s Disease drivers.
# Thursday 24

8:30 A.M. – 12:30 A.M.

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<th>Time</th>
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<tr>
<td>8:30 a.m. – 10:15 a.m.</td>
<td>Human Factors I</td>
<td>Safety Modeling I</td>
<td>Applications and Case Studies I</td>
<td>Applications and Case Studies (Short Oral Presentations)</td>
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<td>10:45 a.m. – 12:30 a.m.</td>
<td>Driving Simulators I</td>
<td>Naturalistic Driving I</td>
<td>Safety Modeling II</td>
<td>Driving Behavior (Short Oral Presentations)</td>
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Coffee Break
Thursday 24
8:30 a.m. – 10:15 a.m.
Auditorium

Chairman:
Rainer Höger
Leuphana University of Lueneburg - Germany

Human Factors I

Alcohol effects on simulated driving and mechanisms of self-regulation in DUI offenders
M. Fillmore, N. Van Dyke
University of Kentucky - USA

A study of the effect of executive dysfunction on driving performance after stroke
K. Motta, H. Lee
Curtin University - Australia

The effects of energy drinks and a short rest in a resting area on driving fatigue
A simulator study on professional drivers
A. Ronen, T. Oron-Gilad, P. Gershon
Ben Gurion University of the Negev - Israel; Carnegie Mellon University - USA

Investigating the effect of different navigation voices on drivers’ attitudes and behaviour during route-following in a driving simulator
D.R. Large, G.E. Burnett
University of Nottingham - UK

Secondary driving tasks experiments with use of eye tracking device
P. Bouchner, S. Novotný
Czech Technical University in Prague - Czech Republic

Self-reported measures and risk-taking behavior observed in a driving simulator experiment with young cannabis users
J. Bergeron, M. Paquette
Université de Montréal - Canada
Thursday 24
10:45 a.m.– 12:30 a.m.
Auditorium

Chairman:
David Shinar
Ben Gurion University of the Negev - Israel

Driving Simulators I

Effect of alcohol and divided attention task on simulated driving performance of young drivers
C. Freydier, C. Berthelon, M. Bastien-Toniazzo, G. Gineyt
IFSTTAR, CNRS, Centre Hospitalier de Salon, Hospital center, Aix-Marseille University - France

Drivers’ risk attitude correlation with driving safety
R. Harb, E. Radwan
Center for Advanced Transportation Systems Simulation (CATSS),
University of Central Florida - USA

Simulation of texting impact on young drivers’ behaviour and safety in urban and rural roads
G. Yannis, A. Laiou, P. Papantoniou, C. Christoforou
National Technical University of Athens - Greece

The use of meta-analysis or research synthesis to combine driving simulation or naturalistic study results on driver distraction
J.K. Caird, K. Johnston, C. Willness, M. Asbridge
University of Calgary, University of Saskatchewan, Dalhousie University - Canada

Effects of texting in foggy conditions on driving performance
S. Bendak
University of Sharjah - UAE

Driver behavior approaching road tunnels and safety impact of LED lighting
L. Domenichini, T. La Torre, D. Vangi, V. Branzi, C. Cialdai, M. Meocci, A. Virga
University of Florence - Italy
Thursday 24  
8:30 a.m. – 10:15 a.m.  
Room A  

Chairman:  
Matthew G. Karlaftis  
National Technical University of Athens - Greece  

Safety Modeling I  

A behaviour based framework for assessing nonmotorized exposure for safety and security analysis  
D. Kwon, V. Shankar, J. Blum, J. Oh, N. Venkataraman  
Pennsylvania State University, Penn State Harrisburg - USA; Yonsei University - Korea; University of Iceland - Iceland  

Application of surrogate safety measures for assessment of pedestrian versus left-turning vehicle conflict at signalized crosswalks  
P. Chen, H. Nakamura, M. Asano  
Nagoya University - Japan  

Crash involvement and injury severity differences of male and female young drivers  
N. Amarasingha, S. Dissanayake  
Kansas State University - USA  

Powered two-wheelers riders’crash injury risk on urban arterial streets  
N. Clabaux, J.-Y. Fournier, J.-E. Michel  
IFSTTAR-MA - France  

Contributing factors associated with distracted driving and teens  
A. Maistros, M. Pekersoy, W. Schneider IV, P.T. Savolainen  
The University of Akron, Wayne State University - USA  

Evaluate driving risks of long scaled bridge traffic under snowy weather conditions using a multi-ordered discrete choice model  
S. Chen, J. Lu  
Shanghai Jiao Tong University, Shanghai Maritime University - China
Thursday 24
10:45 a.m. – 12:30 a.m.
Room A

Chairman:
Marco Pasetto
University of Padua - Italy

Naturalistic Driving I

Driver’s gaze transfer characters during lane change and straight driving
Chang’an University - China

Naturalistic traffic data collection using Stereo Vision Systems
S. Cafiso, A. Di Graziano
University of Catania - Italy

Assessment of the impact of different lighting conditions on drivers’ behaviour
N. Eliou
University of Thessaly - Greece

Real-world driver crash avoidance maneuvers in rear-end collisions using Event Data Recorders
K.D. Kusano, H.C. Gabler
Virginia Tech - USA

Direct and spillover effects of adverse winter weather conditions on operating speed: a time-series analysis
T. Fu, S. Heydari, L.F. Miranda-Moreno, L. Fu
McGill University, University of Waterloo - Canada

Comparison of field measurements of vehicle dynamics to simulations using both design plans and LIDAR-scanned road geometry
A. Brown, S. Brennan
Penn State University - USA
Applications and Case Studies I

Rural two-lane highway safety improvement programming using constrained network-level optimization
P. Makwana, N. Athigakunagorn, J. Murillo Hoyos, S. Labi, K. Sinha
Purdue University - USA

The effectiveness of road safety campaign through community-based programme in Precinct 8, Putrajaya, Malaysia
N. Ali Haidzir, Y. Ghani, M. Musa
Malaysian Institute of Road Safety Research (MIROS) - Malaysia

A Study on the compensation of road traffic crashes: an approach using civil court verdicts
T.-Y. Chen, R.-C. Jou, Y.-C. Chiou, C.-W. Kuo, Y.-T. Lin
National Chi Nan University, Aletheia University, National Chiao Tung University - Taiwan

Assessing the transferability of Highway Safety Manual predictive method for urban roads in Fortaleza City/Brazil
F. Cunto, L. Pereira Sobreira, S. Ferreira
Porto University - Portugal; Universidade Federal do Ceará - Brazil

Exploitation of wireless sensor data in virtual reality for the provision of comprehensive support to tunnel safety training and emergency management
SWARCOMIZAR, IES Solutions, Simudyne, SISTRA, Ministero dell’Interno,
Dipartimento dei Vigili del Fuoco - Italy

The methodology of road safety analysis in road network development in Poland
W. Dźwigoni, A. Szarata
Cracow University of Technology - Poland
Thursday 24
10:45 a.m. – 12:30 a.m.
Room B

Chairman:
Roberto Arditi
SINA Spa - Italy

Safety Modeling II

Incorporating spatial dependence in simultaneously modeling crash frequency and severity
Y.-C. Chiou, C. Fu, C.-W. Hsieh
National Chiao Tung University - Taiwan

Measuring the potential to reduce crash frequency of urban segments by a probabilistic approach
S. Ferreira, A. Couto
Porto University - Portugal

Modelling likelihood of at-fault and not-at-fault carshare users
T. Hossein Rashidi, V. Dixit
University of New South Wales - Australia

A safety evaluation of an Adaptive Traffic Signal Control system using Computer Vision
A. Tageldin, T. Sayed, M.H. Zaki, M. Azab
University of British Columbia - Canada

Time to Line Crossing (TLC) in computer simulation of the movement of a car equipped with the lane departure avoidance system
A. Reński
Warsaw University of Technology - Poland

Linking observed crashes and simulated traffic conflicts in safety analysis
U. Shahdah, F. Saccomanno, B. Persaud, V. Gallelli
University of Waterloo, Ryerson University - Canada
Thursday 24
8:30 a.m. – 10:15 a.m.
Room C

Chairman:
Maria Rosaria De Blasiis - Roma Tre University, Italy
Gaetano Di Mino - University of Palermo, Italy

Applications and Case Studies (Poster and Short Oral Presentation)

Posters should be installed between 6 p.m. of Wednesday 23 and 8 a.m. of Thursday 24.
Posters should be removed no later than 6 p.m. of Thursday 24.

Typology of road accidents related to the default of signaling: a case study of the Yaoundé-Douala highway, Southern Cameroon
S.A. Zogo Tsala, V. Makomra, L.M. Ayina Ohandja
University Institute of Technology, University of Douala - Cameroon

Causes and impacts of axle overloads on road traffic crashes in Ghana
P. Agyekum
National Road Safety Commission - Ghana

A joint model of relative risk of exposure and pedestrian flow measures
V. Shankar, D. Kwon, J. Blum, N. Venkataraman
Pennsylvania State University, Penn State Harrisburg - USA; University of Iceland - Iceland

Time varying variance prediction based outlier detection and investigation in traffic characteristics series
J. Guo, W. Huang, B.M. Williams
Southeast University - China; North Carolina State University - USA

Crash characteristics of pedestrian fatalities in China and the United States
Z. Zhou, G. Ren, S. Zhang
Nanjing University of science and technology, Southeast University, Ningbo University of Technology - China

Vehicular traffic counting for Indian road traffic through image processing
M. Singh, M. Advani
Central Road Research Institute - India

Identifying locations with high rates of alcohol related traffic crashes in Ohio
D. Eustace, S. Ponnada, S.-Y. Wu
University of Dayton - USA

Trends and causes of traffic accidents in Dubai
A. Abdelfatah, M. Al-Zaffin, W. Hijazi
American University of Sharjah, Dubai Police Department - UAE

Avoiding rear-end collisions by low-cost inter-vehicular communications
F. Benedetto, A. Calvi, F. D'Amico, G. Giunta
Roma Tre University - Italy
Estimation of pedestrian risk exposure in urban areas - case studies in the US and in France
M.-T. Do, O. Grembek, V. Cerezo
LUNAM Université, IFSTTAR, AME-EASE - France; University of California at Berkeley - USA

The effect of incorporating temporal correlations into negative binomial count data models
M. Ale Mohammadi, V.A. Samaranayake, G.H. Bham
Missouri University of Science and Technology, University of Alaska Anchorage - USA

Identification and analysis of a sensitivity parameter of a microscopic traffic model
O.A. Rosas-Jaimes, O. Luckie-Aguirre, J.C. López-Rivera
Autonomous University of the State of Mexico - Mexico

A method to analyze truck safety: deducing State level data from National data
S.S. Nambisan, M. Ozen
Iowa State University - USA; Middle East Technical University - Turkey

Exploratory analysis of large truck safety: a comparative study of crash data from the USA
M. Ozen, S.S. Nambisan
Middle East Technical University - Turkey; Iowa State University - USA

Development of simulated scenarios for training and evaluation of driver in quadricycles
S. Cafiso, G. Pappalardo, G. Spampinato
University of Catania - Italy

The effects of automatic speed photo-radar enforcements on Taiwanese freeway systems
M.-H. Wang, W.-C. Chen, C.-C. Kou
Kainan University - Taiwan

Investigating car-following behavior on Italian highways
F. Bella, A. Calvi, F. D’Amico
Roma Tre University - Italy

Road Safety Audit at pre-opening stage of National highways in India - a case study
R. Kayitha, N. Jakkula, B. Kanagadurai
CSIR-Central Road Research Institute - India

Application of surrogate safety assessment model to estimate crash reduction factor in Indonesia
A. Fitra
Ministry of Public Works - Indonesia
Thursday 24
10:45 a.m. – 12:30 a.m.
Room C

Chairman:
Hoe Lee - Curtin University, Australia
Marialisa Nigro - Roma Tre University, Italy

Driving Behavior (Poster and Short Oral Presentation)

Posters should be installed between 6 p.m. of Wednesday 23 and 8 a.m. of Thursday 24.
Posters should be removed no later than 6 p.m. of Thursday 24.

Operating speed prediction for Italian two-lane rural roads using speed profiles from GPS data
F. Bella, A. Calvi, F. D’Amico
Roma Tre University - Italy

Modelling driver speed behavior using day and night tests in a driving simulator
F. Bella, A. Calvi, F. D’Amico
Roma Tre University - Italy

A validation study of driving errors using a driving simulator
L. Meuleners, H.-Y. Chen, M. Fraser, F. Chambers
Curtin Monash Accident Research Centre, Curtin University - Australia

Complex interactions of brain signals when driving the car
J. Faber, M. Novák, Z. Votruba
Czech Technical University in Prague - Czech Republic

Isolating stationary and temporal sources of driver distraction through eye tracking study
W. Zhang, E. Kontou
Federal Highway Administration, Virginia Polytechnic Institute and State University - USA

Can a driving simulator assess the effectiveness of Hazard Perception training in young novice drivers?
T. Oron-Gilad, Y. Parmet
Ben-Gurion University of the Negev - Israel

Investigation of the affecting factors on drivers’ perceiving information derived from traffic signs
C. Wu
National Taiwan Ocean University - Taiwan

Assessment of driving simulator studies on driver distraction
P. Papantoniou, E. Papadimitriou, G. Yannis
National Technical University of Athens - Greece

A review of driving performance assessment in simulators with focus to cognitive impairments related to age or caused by neurodegenerative disorders
S. Vardaki, G. Yannis, S.G. Papageorgiou
National Technical University of Athens - Greece
Extracting kinematic data for calibration of microsimulation models using smartphone probes
G. Guido, F. Saccomanno, A. Vitale, V. Gallelli, D. Rogano
University of Calabria - Italy; University of Waterloo - Canada

Assessing the impact of information provision on driving behavior
E. Nathanail, G. Adamos
University of Thessaly - Greece

The analysis of the changing driver's heart rate and heart rate variability
at the period of the car meeting prairie highway landscape
X. Li, S. Zhu
Henan Polytechnic University, Inner Mongolia Agriculture University - China

Augmented and mixed reality as a tool for evaluation of vehicle active safety systems
B. Blissing, F. Bruzelius, J. Ölvander
Swedish National Road and Transport Research Institute (VTI), Linköping University - Sweden

Cost-effectiveness analysis of shoulder widening using real options
N. Athigakunagorn, S. Labi, H. Murillo Hoyos, K. Sinha
Purdue University - USA

A new scientific visualization-based method for three dimensional road design, surface feature analysis, and driving simulation
C.G. Thomas, M.K. Jha
Morgan State University - USA

The effects of traffic flow conditions on the pollutants emissions: a driving simulator study
Roma Tre University, Institute of Research for Eco-Sustainable Engineering (I.R.I.D.E.) - Italy
Thursday 24
2:00 P.M. – 6:00 P.M.

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<td>Road Design I</td>
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<td>Applications and Case Studies II</td>
<td>Human Factors II</td>
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<td>Traffic Microsimulation</td>
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Driving Simulators II

Selective enhancement of road delineation under reduced visibility conditions compromises safety
D. Shinar, T. Sharfi
Ben Gurion University of the Negev – Israel, Private Consultant - Canada

Realism of overtaking situations in motion based driving simulators
F. Bruzelius, I. Karlsson, B. Augusto
Swedish National Road and Transport Research Institute (VTI),
Chalmers University of Technology - Sweden

Prediction of lane changes: a mathematical model using steering wheel angle
K. Schmidt, M. Beggiato, K.H. Hoffmann, J.F. Krems
Chemnitz University of Technology - Germany

Using driving simulation to investigate the behavioural mechanisms underpinning real world crash risk due to roadside parking
K. Stephan, M.G. Lenné, S. Newstead, J. Edquist, C. Rudin-Brown
Monash University Accident Research Centre, Monash Injury Research Institute,
Monash University - Australia

Development of cycling simulator "MoriCS" replicated unintentional weaving and leaning behavior during cycling
M. Suzuki, K. Miyano, T. Yai, T. Takagawa
Tokyo Institute of Technology, Simulation Research Laboratory Inc. - Japan

Evaluation of driving behaviour on horizontal curves of two- lane rural highways: driving simulator experiment
A. Montella, F. Galante, L.L. Imbriani, F. Mauriello, M. Pernetti
University of Naples Federico II, Second University of Naples - Italy
Thursday 24
4:15 p.m. – 6:00 p.m.
Auditorium

Chairman:
Elias M. Choueiri
LAPS, WSO - Lebanon

Applications and Case Studies II

Factors influencing freeway traffic upstream of an incident
E.I. Vlahogianni, M.G. Karlaftis, N. Papageorgiou
National Technical University of Athens - Greece

An application of ITS devices for powered two-wheelers safety analysis: the Rome case study
V. Sgarra, P. Di Mascio, M.V. Corazza, A. Musso
University of Rome Sapienza - Italy

Is VISION ZERO realistic in Poland?
K. Jamroz
Gdansk University of Technology - Poland

Evaluation of the effectiveness of police road safety initiatives:
an intervention time series analysis
M.O. Haque
The University of Melbourne - Australia

A priori evaluation of policy measures against alcohol impaired driving: a French case study
Z. Christoforou
Ecole des Ponts-ParisTech - France

Composite road environment risk index
I.S. Razelan, H. Hussain
Universiti Putra Malaysia - Malaysia
Thursday 24
2:00 p.m. – 3:45 p.m.
Room A

Chairman:
Hampton C. Gabler
Virginia Tech - USA

Road Design I

Speed behaviour and design parameters of two-lane rural roads: modelling and experiments
F.G. Praticò, M. Giunta
University Mediterranea of Reggio Calabria - Italy

Restricted crossing U-turn intersection design for improving safety and mobility at high-speed stop controlled intersections
W. Zhang, N. Kronprasert, J.G. Bared
Federal Highway Administration, National Research Council - USA

Analytical method for three-dimensional Stopping Sight Distance adequacy investigation
F. Mertzanis, A. Boutsakis, I.-G. Kaparakis, S. Mavromatis, B. Psarianos
Technological Educational Institute of Athens, National Technical University of Athens - Greece

Simulation of a bus transit signal priority scheme
O. Abaza, J. Knowles
University of Alaska Anchorage - USA

Road Safety Audit: a comparative review of current guidelines and designers’ approach
M. Karantanos, S. Vardaki
Imperial College - UK; National Technical University of Athens - Greece

Enhanced geometric Design Consistency model based on operating speed profiles for road safety evaluation
F.J. Camacho-Torregrosa, A.M. Pérez-Zuriaga, J.M. Campoy-Ungría, A. García
Universitat Politècnica de València - Spain
**Human Factors II**

Drivers’ road accident risk perception. A comparison between face-to-face interview and web-based survey
A.S. Cardamone, L. Eboli, G. Mazzulla
*University of Calabria - Italy*

Exploratory compliance rate for HAWK signal in a dense urban area: a case study in Washington DC
S. Arhin, E. Noel, G. Branyan
*Howard University, District Department of Transportation - USA*

Human factors for engineering: a South African study
K. Venter, F.J.J. Labuschagne, M. Le Roux, G. Cloete
*Transport Systems and Operations, CSIR Built Environment, N3TC Toll Concession - South Africa*

Design of a large driving simulator experiment on performance of drivers with Cerebral Diseases
*National Technical University of Athens, National and Kapodistrian University of Athens - Greece*

Association of driving behavior with implicit and explicit measures of driving attitudes
M. Masini, F. Bracco, C. Chiorri
*University of Genova - Italy*

What driving looks like when it is and isn’t the driver’s primary goal
R.J. van Loon, M. Martens
*TNO - The Netherlands*
Thursday 24
2:00 p.m. – 3:45 p.m.
Room B

Chairman:
Ernesto Cipriani
Roma Tre University - Italy

Traffic Microsimulation

Apply the Toll Plaza Simulation to find allocation criteria of electric-toll-collection gates
Central Police University, Ministry of Transportation and Communication,
National Taiwan Ocean University, Tamkang University - Taiwan

Evaluating the impact of fog on freeway safety using VISSIM
A. Abdelfatah, M. Marzouk, A. Garib, H. Al-Harthei
American University of Sharjah, AECOM, Abu Dhabi Police - UAE (Qatar)

Challenges in simulation of pedestrians and motorised traffic
E. Papadimitriou, J.-M. Auberlet, G. Yannis, S. Lassarre
National Technical University of Athens - Greece; IFSTTAR, LEPSIS - France

Evaluation of micro simulation model output for mobile source air quality modeling
N. Oneyear, S.L. Hallmark
Institute for Transportation at Iowa State University - USA

Operational analyses of varied Toll Plaza configurations
I. McKinnon, M. Knodler, E. Christofa
University of Massachusetts Amherst - USA

City bus route analysis using GIS
A. Suharyanto
University of Brawijaya - Indonesia
Thursday 24
4:15 p.m. – 6:00 p.m.
Room B

Chairman:
Essam Radwan
University of Central Florida - USA

Driving Simulators III

A detailed description of user-centered user-interface to model scenarios on driving simulators
OKTAL SA, LEPSIS/IFSTTAR, Paris-Est University, IRIT, Paul Sabatier University - France

Speed and time headway selection among users of Adaptive Cruise Control (ACC) and regular drivers
G.F. Bianchi Piccinini, C.M. Rodrigues, M. Leitão, A. Simões
ISEC UNIVERSITAS, Universidade do Porto, Instituto Politécnico do Porto, Instituto Superior de Gestão - Portugal

Methodology for transferability of driver simulator results in real traffic conditions
M. Gemou
Centre for Research and Technology Hellas-Hellenic Institute of Transport - Greece

Quantifying aggressive driving behavior at signalized intersections using a driving simulator
M. Danaf, M. Abou-Zeid, I. Kaysi
American University of Beirut - Lebanon

Scenario for practicing steering in a driving simulator
J. Jenkins, B. Moran
Cleveland State University - USA

Operationalization of DBQ measures in the driving simulation environment
M. Niezgoda, M. Kruszewski, T. Kamiński, A. Tarnowski
Motor Transport Institute, University of Warsaw - Poland
### Friday 25

**8:30 A.M. – 12:30 A.M.**

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<td>Human Factors III</td>
<td>Crash Causality I</td>
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<td>Driving Simulators IV</td>
<td>Crash Causality II</td>
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Coffee Break
Naturalistic Driving II

Observation experiment and risk assessment of driving behaviour in highway tunnel and tunnel group
D. Su, Z. Guo, B. LIU, Y. Dai
Tongji University, The Key Laboratory of Road and Traffic Engineering of Ministry of Education, Guangzhou Expressway Ltd. - China

Identification of critical events in motorcycle rider behavior using GPS data
S. Cafiso, A. Di Graziano, O. Giudice, G. Pappalardo
University of Catania - Italy

Application of naturalistic driving data for two-fluid model estimation
A. Pande, J. Loy, V. Dixit, K. Spansel, B. Wolshon
Cal Poly State University - Canada; University of new South Wales - Australia; Louisiana State University - USA

An on-road study of driver and rider situation awareness at urban intersections
M.G. Lenné, P.M. Salmon, A. Filtness, G. Walker
Monash University Accident Research Centre, Monash University, University of the Sunshine Coast - Australia; Heriot-Watt University, University of Southampton - UK

Driver response to road departures in the 100-car naturalistic study
K.D. Kusano, H.C. Gabler
Virginia Tech - USA

Naturalistic study of scooterists' behaviour: the lane sharing situation
S. Espié, A. Della Valle, F. Delgehier, S. Aupetit
IFSTTAR, Université Paris-Sud - France
Road Design II

Safety in high-speed urban work zones: a super 70 study
A.P. Tarko, J. Thomaz, M.B. Islam
*Purdue University - USA*

Evaluation of the vehicle/safety barrier/sign support interaction by means of FEM simulations
F. La Torre, L. Domenichini, A. Nocentini, M. Meocci, S.G. Morano
*University of Florence - Italy*

Identification of safety hazards on existing road network regarding road geometric design: implementation in Greece
K. Apostoleris, S. Vardaki, F. Mertzanis
*National Technical University of Athens - Greece*

Analysis of simulation model complexity for predicting vehicle skidding for 3D geometric design of roadways
A. Brown, S. Brennan
*Penn State University - USA*

Multiple passing maneuvers: new design and marking criteria to improve safety
C. Llorca-García, A.T. Moreno-Chou, A. García, A.M. Pérez-Zuriaga, F.J. Camacho Torregrosa
*Universitat Politècnica de València - Spain*

The effect of a temporary work zone on traffic flow and driving speed in a rural two-lanes road
M. Pasetto, S.D. Barbati, G. Giacomello
*University of Padua - Italy*
Friday 25  
8:30 a.m. – 10:15 a.m.  
Room A

Chairman:  
Petr Bouchner  
*Czech Technical University in Prague - Czech Republic*

**Human Factors III**

*Complexity of traffic scenes and EEG-measures of processing workload in car driving*  
R. Höger, M. Wiethof, T. Rheker  
*Leuphana University of Lueneburg - Germany*

*A model to predict drivers’ visual strategy*  
G. Bosurgi, A. D’Andrea, O. Pellegrino  
*University of Messina - Italy*

*Simulator adaptation syndrome (SAS) and the vestibular system: an exploratory study*  
A. Akinwuntan, R. Chong, G. Daniel, J. Fleming, K. Lokey  
*Georgia Regents University - USA*

*Driving simulator: validating the experimental environment for workload research*  
G.N. Bifulco, F. Bracco, C. Chiorri, F. Galante, L. Pariota, M. Russo Spena  
*University of Naples Federico II, University of Genova - Italy*

*Measuring the emotional validity of driving simulators*  
R.A. Donkor, G.E. Burnett, S. Sharples  
*University of Nottingham - UK*

*Driver workload analysis using an interactive 3D driving simulator*  
S. Christodoulou, D. Michael, A. Gregoriades, M. Pampaka, P.F. Vicuna Franco, K. Mouskos  
*European University Cyprus, Cyprus University of Technology - Cyprus; The University of Manchester - UK*
Friday 25
10:45 a.m. – 12:30 a.m.
Room A

Chairman:
Alessandro Calvi
Roma Tre University - Italy

Driving Simulators IV

Effects on lateral position of perceptual measures in affecting driver’s perceived speed
R. Rossi, M. Gastaldi, F. Biondi, C. Mulatti
University of Padova - Italy

The influence of clear zone size and roadside vegetation on driver behavior
C. Fitzpatrick, M. Knodler, M. Romoser
University of Massachusetts Amherst - USA

Does talking with a fellow passenger affect everybody the same while driving?
An impact assessment on driving performance and behavior
E. Nathanail, G. Adamos, P. Kapetanopoulou, E. Efraimidou
University of Thessaly, Aristotle University of Thessaly - Greece

Warnings designed to prevent accidents caused by wrong-way drivers on motorways in Germany
T. Volkenhoff, M. Oeser
RWTH Aachen University - Germany

Does the effect of traffic calming measures endure over time?
A simulator study on the influence of gates
C. Ariën, K. Brijs, W. Ceulemans, G. Vanroelen, E.M.M. Jongen, S. Daniels, T. Brijs, G. Wets
Hasselt University, XIOS University College - Belgium

Driving simulator validation of driver behavior in work zones
G.H. Bham, M.C. Leu, M. Vallati, D.R. Mathur
University of Alaska, Missouri University of Science and Technology - USA
Friday 25
8:30 a.m. – 10:15 a.m.
Room B

Chairman:
George Yannis
National Technical University of Athens - Greece

Crash Causality I

Identify factors influence injury severity of pedestrians in rural crashes
M. Saffarzadeh, S. Seyedabrishami, S. Sahebi
Tarbiat Modares University - Iran

The impact of road and site characteristics on the crash-injury severity of pedestrian crashes
M. Shawky, A. Garib, H. Al-Harthei
Ain Shams University - Egypt; Abu Dhabi Traffic Police - UAE

Comparison of factors affecting injury severity in angle collisions by fault status using a bivariate ordered Probit model
B.J. Russo, P.T. Savolainen, W. Schneider IV
Wayne State University, The University of Akron - USA

Application and comparison of classification tree analysis with ordinal discrete choice models to study severity of cross-median crashes
G. Khan, A. Bill, D.A. Noyce
University of Wisconsin-Madison, Traffic Operations and Safety (TOPS) Laboratory - USA

Assessing the risk of secondary crashes on highways
H. Yang, K. Ozbay, K. Xie
The State University of New Jersey - USA

Overview of harmonized European crash investigations - from focused studies to a holistic approach
H. Fagerlind, K. Holmqvist, G. Giustiniani, L. Persia, J. Hill
Chalmers University of Technology - Sweden; University of Rome Sapienza - Italy; Loughborough University - UK
Crash Causality II

Modeling the effects of interchange configuration on heterogeneous influences of interstate geometrics on crash frequencies
N. Venkataraman, V. Shankar, G.F. Ulfarsson, D. Deptuch
Pennsylvania State University - USA; University of Iceland - Iceland

Examination the influence of drugged driving on driver injury severity in rural crashes
S. Seyedabrishami, S. Sahebi, M. Qorbani
Tarbiat Modares University - Iran

Investigating injury severity models in single and multi-vehicle collision on partial access controlled highways in India
R. Bandyopadhyaya, S. Mitra
Indian Institute of Technology - India

Analysis of road safety hazards at pedestrian crossing areas
S. Gaca, M. Kiec
Cracow University of Technology - Poland

Crash frequency modeling for signalized intersections in a high-density urban road network
K. Xie, X. Wang, K. Ozbay, H. Yang
The State University of New Jersey - USA; Tongji University - China

A comparison of contributing factors between alcohol related single vehicle motorcycle and car crashes
A. Maistros, W. Schneider IV, P.T. Savolainen
The University of Akron, Wayne State University - USA
Friday 25  
8:30 a.m. – 10:15 a.m.  
Room C

Chairman:  
Francesca La Torre - University of Florence, Italy  
Flávio Cunto - Universidade Federal do Ceará, Brazil

Road Design and Applications (Poster and Short Oral Presentation)
Posters should be installed between 6 p.m. of Thursday 24 and 8 a.m. of Friday 25.  
Posters should be removed no later than 6 p.m. of Friday 25.

Quantifying pedestrian safety using surrogate safety measures for intersection alternatives  
N. Agarwal, N. Stamatiadis  
University of Kentucky - USA

Simulation-based guidelines for road “diets”  
N. Stamatiadis, A. Kirk  
University of Kentucky, Kentucky Transportation Center - USA

Road safety targets and future perspective in road systems management  
F. Annunziata, A.M. Atzori, B. Bianchini, T. Caraffa, G. Cossale, F. Pilia  
University of Cagliari, Ministero delle Infrastrutture e dei Trasporti, ANAS - Italy

Using a left-turn waiting area at a signalized intersection  
V. Pitale, D. Sun, L. Ren, M. Faruqi, J. Sai  
Texas A & M University - USA; Shanghai Maritime University - China

Accessibility and safety issues of pedestrians on rural highways - a case study  
B. Kanagadurai, M. Advani, S. Gangopadhyay  
Central Road Research Institute - India

How MAP-21 reauthorization by United States congress advances opportunities for human factors in geometric highway design safety evaluations  
M. Manore  
Applied Innovation, MasterGraphics, Inc - USA

Evaluating the effects of a simple precaution system on pedestrian safety and driving behavior at crosswalks of roundabouts  
K. Suzuki, J. Zheng, K. Morimoto  
Nagoya Institute of Technology - Japan

Safer roads for developing Countries by optimized Road Marking Management System (RMMS)  
V. Wickramasinghe, S. Dissanayake  
University of Peradeniya - Sri Lanka; Kansas State University - USA

New concepts in soil characterisation for safety barriers  
V. Giavotto, S. Cantoni, M. Pittofrati, M. Pezzucchi  
Politecnico di Milano, LIRA - Italy; Statens vegvesen Vegdirektoratet - Norway
A management technique aimed at design optimization and choice of infrastructure interventions for the improvement of road safety in a road network
R. Grossi, V. de Riso di Carpinone, A. Tocchetti
*University of Naples Federico II - Italy*

Operating speed profiles approaching a roundabout: experiments and micro-simulation
F.G. Praticò, R. Vaiana, V. Gallelli
*University of Calabria, University Mediterranea of Reggio Calabria - Italy*

Analyzing speeding behavior in two-lane rural roads
A.M. Pérez-Zuriaga, F.J. Camacho-Torregrosa, A. García, C. Llorca-García, A.T. Moreno-Chou
*Universitat Politècnica de València - Spain*

Simulation modelling of traffic disruption on rural roads passing through small towns
R. Bak, M. Kiec, R. Wojtal
*Cracow University of Technology - Poland*

Effect of skid resistance on road geometry
F. Maltinti, S. Portas, M. Coni
*University of Cagliari - Italy*

A comparison of the safety performance of single- and multi-lane roundabouts
A.M. Fawaz, P.T. Savolainen, T.J. Gates
*Wayne State University - USA*

A new approach for road accident data acquisition: the K_Road App
F. Galatioto, T. Campisi, P. Franco, R. Barone, T. Giuffré
*University of Enna KORE - Italy; Newcastle University - UK*

Safety road design upgrade at a provincial road
D. Catalfamo, C. Lanciano, G. Amante
*Provincia di Reggio Calabria - Italy*

Safety improvements on provincial roads: signalling plan
D. Catalfamo, C. Lanciano, G. Amante
*Provincia di Reggio Calabria - Italy*

Highway safety training within the international master course highway design and management
A. Montella, C. Antoniou, H. Farah, H. Koutsopoulos, A. Nissan, B. Psarianos
*University of Naples Federico II - Italy; National Technical University of Athens - Greece; The Royal Institute of Technology - Sweden*

Simulation for metropolitan road transport sustainability
L. Zakowska, S. Pulawska
*Cracow University of Technology - Poland*
Friday 25
10:45 a.m. – 12:30 a.m.  
Room C

Safety Modeling (Poster and Short Oral Presentation)
Posters should be installed between 6 p.m. of Thursday 24 and 8 a.m. of Friday 25.
Posters should be removed no later than 6 p.m. of Friday 25.

Analysis of accident rate prediction in overtake maneuvers: an hazard analysis application
M.R. De Blasiis, C. Guattari, V. Veraldi
Roma Tre University - Italy

Aggregate crash prediction model using Poisson-Gamma-CAR model
M. Shahri, A. Shariat Mohaymany, A. Naderan
Arak University of Technology, Iran University of Science & Technology - Iran

Crash prediction models for freeways in mountainous and rolling areas based on geometric alignments
X. Meng, Y. Shi, L. Zheng
Harbin Institute of Technology - China

Typology of bicycle crashes based on a survey of a thousand of injured cyclists from a road trauma registry
A. Billot-Grasset, V. Viallon, E. Amoros, M. Hours
IFSTTAR – UMRESTTE - France

Interval analysis for road safety calibration
A. D’Andrea, O. Pellegrino
University of Messina - Italy

Identification and analysis of factors influencing road safety in regions
J. Wachnicka, K. Jamroz
Gdansk University of Technology - Poland

The complex system of traffic accidents: a geomatic tool to establish a road safety territorial strategy
T. Saint-Gérard, E. Propeck, M. Medjkane, D. Fleury
Université de Caen Basse-Normandie, Université de Strasbourg, IFSTTAR - France

Probability model for vehicle-bicycle conflict in the section where motor vehicles and bicycles are isolated by traffic marking
S. Zhang, R. Yang, Z. Zhou, K. He
Ningbo University of Technology, Nanjing University of science and technology - China
Using Empirical Bayes to estimate the safety impact of transit improvements in Latin America
N. Duduta, L.A. Lindau, C. Adriazola-Steil
EMBARQ – World Resources Institute - USA; EMBARQ Brazil - Brazil

Age factor in road safety: young drivers versus experienced drivers
N. Amarasingha, S. Dissanayake
Kansas State University - USA

A latent class Logit analysis of single-vehicle motorcycle crash severity outcomes in Iowa
M.S. Shaheed, K. Gkritza, D. Bilionis
Iowa State University - USA

Developing a road safety index to assess safety performance of intersections
A. Sobhani, W. Young, M. Sarvi, S. Bahrololoom
Monash University, La Trobe University - Australia

A multidisciplinary approach using LCCA and micro-simulation model for the management of the urban pavements
G. Di Mino, G. Salvo, S. Noto
University of Palermo - Italy

Driver risk assessment model: a case study on the logistics industry
S.-F. Lai, Y.-H. Chang
Takming University of Science and Technology - Taiwan

Investigation of police and hospital crash data: similarities and differences
H. Hashim, R. Sarani
Malaysian Institute of Road Safety Research (MIROS) - Malaysia

Comparison of logistic regression and ensemble machine learning algorithms injury risk models for advanced automated crash notification algorithms
K.D. Kusano, H.C. Gabler
Virginia Tech - USA

Examination of factors associated with safety belt and cell phone use by drivers using a bivariate Probit model
B.J. Russo, J.J. Kay, P.T. Savolainen, T.J. Gates
Wayne State University - USA

Analysis of the crash characteristics of senior motorcyclists in serious accidents in straight lanes
Tamkang University - Taiwan

Preventing the risk of accidents through the simulation of GPR-based pavements damage inspection
F. Tosti, A. Umiliaco
Roma Tre University - Italy

A simulation approach to prevent the hydroplaning risk
A. Umiliaco, F. Tosti
Roma Tre University - Italy
**Friday 25**

2:00 P.M. – 5:30 P.M.

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|                  | **AUDITORIUM**          |
Friday 25
2:00 p.m. – 3:45 p.m.
Auditorium

Chairman:
Lorenzo Domenichini
University of Florence - Italy

Safety Modeling III

Effects of left-side merging and diverging areas on crash frequency on urban freeway segments
D. Eustace, W.Y. Mergia, A. Aylo
University of Dayton, Geotest Engineering, Inc. - USA; Aylo Engineering - Lebanon

A sequential model of driver reaction, crash kinetic energy and occupant injury severity
A. Sobhani, W. Young, D. Logan, S. Bahrololoom, M. Sarvi
Monash University, Monash Injury Research Institute, La Trobe University - Australia

A modeling approach on run-off-road crashes in the Netherlands
J.W.H. van Petegem
SWOV - Institute for Road Safety Research - The Netherlands

Predicting red light running at signalized intersections using nested Logit models
T.J. Gates, P.T. Savolainen, H. Maria
Wayne State University - USA

How to specify priors for full Bayes road safety studies?
S. Heydari, L.F. Miranda-Moreno, L. Fu, D. Lord
McGill University, University of Waterloo - Canada

Identification of areas needing attention for improving motorcycle safety in the United States
S. Dissanayake, S. Shaheed
Kansas State University - USA
Friday 25  
2:00 p.m. – 3:45 p.m.  
Chairman:  
Fabrizio D’Amico  
*Roma Tre University - Italy*

*Applications and Case Studies III*

**Effect of bypass road on traffic and habitants – a case study**  
N. Gupta, M. Advani, N. Mittal  
*Central Road Research Institute - India*

**Predicting Malaysian road fatalities for year 2020**  
R. Sarani, S.M.R. Allyana, S.V. Wong  
*Malaysian Institute of Road Safety Research (MIROS) - Malaysia*

**Road safety in the MENA region in general and in Lebanon in particular**  
E. Choueiri, G. Choueiri, B. Choueiri  
*Lebanese University, WSO National Office for Lebanon - Lebanon*

**A comparative analysis of identification of hazardous locations in regional rural road network**  
V. Valentová, J. Ambros, Z. Janoška  
*Centrum dopravního výzkumu - Czech Republic*

**A new approach on analysing road safety data and improving road safety planning performance – a case study in the Province of Arezzo, Italy**  
M. Giuliani, T. Hoffmann, P. Vadi  
*TPS srl, PTV Group - Germany; Province of Arezzo - Italy*

**Dynamic macroscopic simulation in urban networks with flow discontinuities**  
O.A. Rosas-Jaimes, M.A. Mercado-Martínez, J.C. López-Rivera  
*Autonomous University of the State of Mexico - Mexico*
### 4th International Conference on Road Safety and Simulation

**October 23rd - 25th, 2013**  
**Rome, Italy**

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**Posters Exhibition**  
Applications and Case Studies  
Driving Behavior  
Traffic Microsimulation  
Safety Modeling  

**Posters Exhibition**  
Road Design and Applications  
Safety Modeling  

**CRISS**  
Inter Universities Research Center for Road Safety

**ROMA TRE**  
Università degli Studi