

WORKSHOP ON

Applications of Driving Simulators and VR in Advanced Road Safety Research

Organized by



IIT Roorkee



भारतीय प्रौद्योगिकी संस्थान हैदराबाद
IIT Hyderabad



विद्याधनं सर्वधनं प्रधानम्
IIT Jammu



IIT Bombay



Register at



IIT Roorkee



Oct 25-26, 2024



About the Workshop

The workshop on "Applications of Driving Simulators and Virtual Reality in Road Safety Research" is being jointly organized by IIT Roorkee, IIT Bombay, IIT Hyderabad, IIT Jammu and CSIR-CRRI Delhi. It will be held on 25th and 26th October 2024 at IIT Roorkee. The workshop aims to

- explore effective use of simulators and VR technologies for enhancing road safety,
- encourage meaningful discussions on the diverse applications of simulators in traffic research, particularly for Indian road conditions.
- address the key challenges pertaining to data collection, analysis and interpretation of findings,
- bridging the gap between simulator studies and implementations of suitable solutions in the field.

The event will feature keynote addresses and technical presentations from leading experts in the transportation sector. Distinguished speakers from esteemed IITs, CSIR-CRRI and industry will share their insights on the latest research trends, best practices, and futuristic vision towards the use of these innovative technologies. Participants will get an opportunity to witness live demonstration of the connected simulator setup, enabling dynamic interactions among multiple simulators, including a car, a two-wheeler, a pedestrian, and a bicycle simulator. This workshop promises to be an invaluable platform for professionals, researchers, and policymakers working to advance road safety through the integration of simulators and VR technology.

HIGHLIGHTS

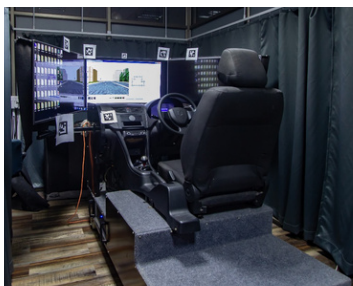
- Exploration of Advanced Technologies
 - Talks from Leading Professionals
 - Industry-Academia Interaction
 - Live Demonstrations of first-of-its-kind Connected Simulator Setup
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Research Highlights of Simulator and VR Studies in India



IIT ROORKEE

Simulator studies at IIT Roorkee primarily focus on comprehending various road user interactions within diverse road network scenarios to improve safety and efficiency. For this purpose, a connected simulator setup is being used which enables interaction motorized and non-motorized road users in the same scenario. Recent research includes understanding impaired pedestrians' behavior within various unsafe traffic scenarios, driver behaviour at mountainous terrains, cyclists' interaction with other users in mixed traffic conditions, etc. The focus remains on development of assistive devices and countermeasures suitable for Indian road users.



IIT BOMBAY

At IIT Bombay's Simulator Lab, research is focused on evaluating driving performance under various psychological conditions, including time pressure, fatigue, alcohol impairment, etc. To capture driver responses, physiological sensors such as eye trackers, chest belts, and neuro caps for EEG monitoring are used. Additionally, research centered on exploring impact of audio warnings on delivery agents and impact of different weather conditions, such as varying intensities of rain and fog, along with ADAS warnings are being done. A low-cost, desktop-based simulator integrated with SUMO has been developed for training and testing.



IIT JAMMU

IIT Jammu is conducting advanced research using motorcycle and truck driving simulators to explore critical aspects of road safety and driver behaviour. Research towards investigating the impact of various roadside configurations, like dedicated two-wheeler lanes on perceived safety is being conducted for enhancing lane design and infrastructure. Additional research to evaluate the impact of smartwatch use on motorcyclists' performance, the effectiveness of variable speed limits on truck drivers' safety is administered. The research seeks to deliver actionable insights for advanced road safety and development of more effective transportation policies.



IIT HYDERABAD

The simulator at IIT Hyderabad is being used to explore the impact of signage for enhancing road safety. The researchers are working on dynamic message signs, hereby evaluating their efficacy at various scenarios, including an unsignalized intersection. Data on drivers' eye movements recorded by an eye tracker and driving performance measures from the driving simulator are investigated to evaluate the impact of dynamic message signs. The research has revealed that drivers are able to perceive dynamic message sign and promptly respond to the hazardous event, thereby avoiding collision at unsignalized intersections.



CSIR-CRRI

The driving simulator at CRRI assesses the driving skills and psychometric behaviours. It consists of an actual car body for testing drivers' behavioural traits, especially for screening unsafe or risk taking drivers for further modulation of behavior through purposive training. Psychomotor trait evaluation is done for evaluating the performance in terms of reaction time, road knowledge test, reactive stress tolerance test, visual acuity and glare Test. The assessments are conducted in varied terrains and weather conditions. The impact of progressive training modules on drivers' skills and behaviours is also investigated.

Speakers



Dr. Manoranjan Parida
CSIR-CRRI, New Delhi



Dr. Digvijay S. Pawar
IIT Hyderabad



Mr. Sanjay Sasane
RTO, Pune



Dr. Archak Mittal
IIT Bombay



Dr. S. Velmurugan
CSIR-CRRI, New Delhi



Dr. Ankit Kathuria
IIT Jammu



Dr. Kirti Mahajan
NIT Hamirpur



Dr. Indrajit Ghosh
IIT Roorkee



Dr. Vinod Karar
CSIR-CRRI, New Delhi



Dr. Pushpa Choudhary
IIT Roorkee

Schedule

Day 1: 25th October 2024					
8:30 - 9:30 a.m	Registration		9:30 - 10:30 a.m	Inauguration and High Tea	
Session 1					
10:30 - 11:00 a.m	Dr. Pushpa Choudhary		11:00 - 11:30 a.m	Dr. S. Velmurugan	
11:30 - 12:00 p.m	Tea Break				
12:00 - 12:30 p.m	Dr. Digvijay S. Pawar	12:30 - 1:00 p.m	Mr. Sanjay Sasane	1:00-1:30 p.m	Industry Talk
1:30 - 2:30 p.m	Lunch				
Session 2					
2:30 - 3:00 p.m	Dr. Vinod Karar	3:00 - 3:30 p.m	Dr. Archak Mittal	3:30 - 4:00 p.m	Dr. Ankit Kathuria
4:00 - 4:15 p.m	Tea Break				
4:15 - 5:15 p.m	Panel Discussion		5:15 - 5:30 p.m	Closing Remarks	
Day 2: 26th October 2024					
9:30 - 11:00 a.m	Demonstration of Simulators	11:00 - 11:15 a.m	Tea Break	11:15 - 12:30 p.m	Sessions on Scenario Creation & Data Handling

Registration

All interested candidates shall register for the workshop before 5th October 2024. The number of participants is limited to 100 on a first-come, first-serve basis. The registration fee is Rs 500.

The participants may pay and register using the following link or QR code.

Registration Link: <https://forms.gle/HBLFGDUASxyGbuyu8>



Note: For in-campus accommodation, 20 rooms are available at the institute guest house (@Rs. 900-1200) on a first-come-first-serve basis. Hostel accommodation may be inquired while registering. Additionally, the details of hotels near IIT Roorkee campus can be found here: <https://rb.gy/0l0gg4>

Patron(s)

Prof. K.K. Pant (Director, IIT Roorkee)

Prof. Manoranjan Parida (Director, CSIR-CRRI)

Convenor

Prof. Praveen Kumar
HoD, Civil Engineering,
IIT Roorkee

Workshop Coordinator

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