Realtime technologies

RESEARCH SIMULATION FOR AUTONOMOUS VEHICLE (AV) AND ADVANCED DRIVER ASSISTANCE SYSTEMS (ADAS)

FOUR WAYS DRIVING SIMULATORS HAVE INFORMED THE RESEARCH INDUSTRY ARTICLE SERIES

RESEARCH SIMULATION FOR AUTONOMOUS VEHICLE (AV) AND ADVANCED DRIVER ASSISTANCE SYSTEMS (ADAS)

HOW CAN WE MAKE HUMAN INTERACTION WITH AUTONOMOUS AND ASSISTIVE VEHICLES SAFER?

AV/ADAS systems clearly have the potential to both greatly increase public safety and vastly increase the independence for those with limited mobility options. This is especially the case with SAE L2+ through L4 autonomous vehicles. But as these systems hit the roads, high-profile accidents have highlighted our as yet incomplete understanding of how humans and autonomous/assistive vehicle systems interact.

In order to foster broad adoption (and safe use) of these advanced assistive and autonomous systems, more researchers need access to better tools for exploring human-machine interactions (HMI).
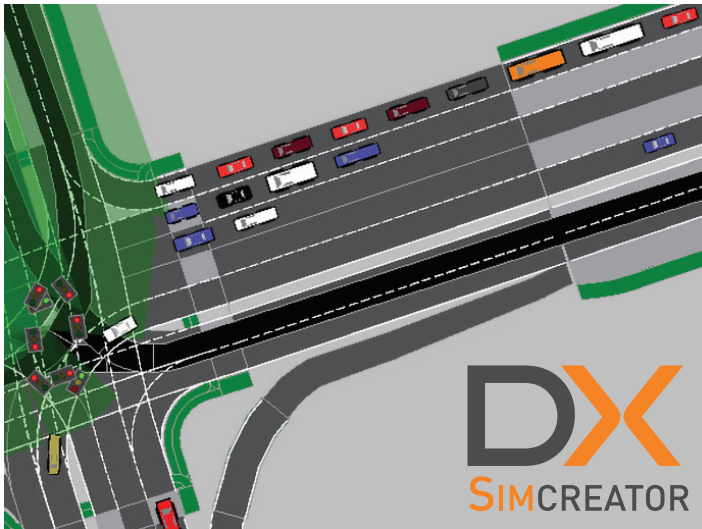

RDS-1000 WITH 205-DEGREE HORIZONTAL FIELD OF VIEW

REALTIME TECHNOLOGIES COMBINE SOFT- WARE AND HARDWARE INNOVATIONS FOR COMPLETE SIMULATION SYSTEMS

Developing new AV/ADAS strategies and exploring in-vehicle HMI require complete simulation systems. These must be able to provide a vivid immersive expe- rience for human participants in addition to completely modeling the AV/ADAS system and directly interfacing with your platforms and peripherals. (i.e., they must handle "human-in-the-loop", "hardware-in-the-loop", and "full simulation" studies, where all aspects of both the driving environment and vehicle operations are modeled in software.)

Simulation platforms from Realtime Technologies (RTI) meet these demands through a combination of their hardware platforms (including full-cab simulators built with genuine OEM components), the SimCreator DX simulation authoring tool, and SimDriver plug-in.

RDS-2000 FULL CAB DRIVING SIMULATOR

SIMCREATOR.COM   1229 Oak Valley Drive • Ann Arbor, MI 48108 • (248) 548-4876

DRIVING SCENARIO IN SIMCREATOR DX

FEATURES

- Quickly design, develop, and debug complete experiments—without writing a line of code

- "Live modify" your scenarios as they run; quickly test or fine-tune new approaches

- See how your AV/ADAS solution performs on your streets with geo specific scenarios

- Test autonomous vehicle programming before creating costly prototypes

- The platform is trusted by Ohio State University, the University of Massachusetts, Georgia Tech University, and others.

SimCreator DX is the latest generation of graphical scenario authoring and development software for rapid research study development. It allows for the creation of completely custom driving environments—including geo specific models, so that you can test your AV systems on a digital twin of your town.

The **SimDriver** and **SimADAS** plug-ins add the technology required to accurately measure driver behavior with a focus on developing a highly accurate driver model for the purposes of improving self-driving cars and other ADAS or connected vehicle technology. It can also model complete algorithmic/machine control of the vehicle, as well as V2V (vehicle-to-vehicle) communications among vehicles within your simulation.

Premier research institutions and automakers worldwide rely on RTI simulation platforms for AV/ADAS research and development. Recent studies include SAE level 3 conditional automation systems, human-automation interaction, and the prototyping of Automatic Emergency Pullover (AEP) strategies for active safety systems in semi-autonomous vehicles.
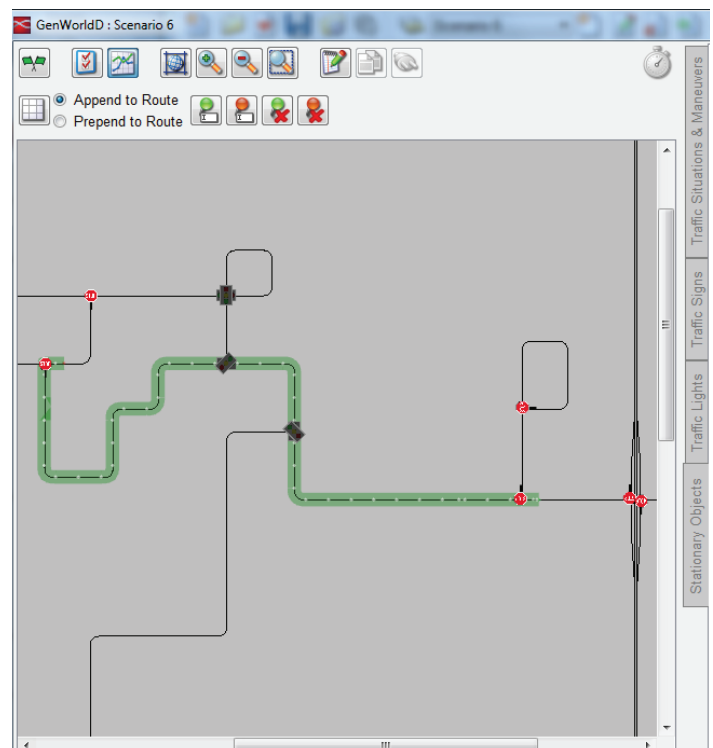
SIMCREATOR DX SCENARIO CREATION

RESEARCH SIMULATION SIMPLIFIED

Realtime technologies

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