

University of Iowa News Release

Oct. 15, 2007

### **NADS researchers develop state-of-the-art portable driving simulator**



Researchers at the National Advanced Driving Simulator (NADS) today announced the release of the first prototype of the MiniSim™ driving simulator.

The arrival of the portable driving simulator means that researchers across the country will have access to a state-of-the-art research tool useful in a variety of studies, including some that determine the effects of various medications on driver skill and reaction time.

Based on eight years of driving simulation and real-time graphics research and development at NADS, the MiniSim™ harnesses the technological sophistication of NADS-1, the world's most advanced driving simulator, in a compact, customizable configuration. Using advanced scenarios typically requiring expensive and large-scale hardware, the fully functional MiniSim™ driving simulator can be rapidly deployed for off-site or multi-sited research, population-specific assessment, or driver training.

"The MiniSim™ has been designed to address our requirements for a low-cost simulation platform that is both configurable and portable," said Omar Ahmad, NADS assistant director. "Portability allows for researchers and clinical investigators anywhere in the United States to conduct human subjects studies and evaluate patients by proxy to NADS."

Earlier versions of the MiniSim™ included a simulator -- commissioned by a major pharmaceutical company -- used to illustrate the effects of antihistamines on driving performance at consumer events and trade shows. Also, a mobile Corvette simulator was commissioned by a region partner in an effort to show area high school students the dangers of impaired driving.

The software technology at the heart of the facility's three simulation platforms -- NADS-1, NADS-2, and the MiniSim™ -- was developed at the University of Iowa. Today, NADS remains the most advanced driving simulator in the world, based on its high level of fidelity (i.e. driving realism) that in turn relies on the sophistication of its suite of software technologies.

The MiniSim™ hardware configuration includes a three plasma displays, providing up to a 180-degree field of view. Actual vehicle steering wheel, pedals, shifter, and virtual instruments provide the driver with the feel of controlling a real vehicle.

"We have had significant demand for integrating the technology at NADS into a portable system that can be customized to meet our sponsor's needs, deployed to off-site locations, as with multi-sited clinical trials, and data can be collected and communicated back to our researchers here in Iowa," said Timothy Brown, senior team lead for Human Factors at NADS.

The MiniSim™ has the capability to simulate different types of vehicles including passenger vehicles, SUVs, heavy semi-trucks with trailers, tractors, construction and military equipment.

Included with the MiniSim™ are scenarios with scenes from rural, highway, urban, sub-urban and mountain areas with different types of roads and a variety of environmental conditions, including wet, dry, and snow-covered roads in daylight, dusk, and night-time driving conditions.

NADS has been at the forefront in advancing the state of the art in driving simulation and conducting human subject studies for government, industry, and pharmaceutical partners. Currently, NADS is conducting studies looking at electronic stability control systems on heavy trucks and driving performance evaluations of participants with obstructive sleep apnea. In the near future, NADS will be conducting studies related to blood alcohol levels, night vision systems, adaptive cruise control, older drivers, and assessment of contact lenses in low visibility driving conditions.

Technical Specifications about the MiniSim™ can be downloaded from the NADS Web site at: [http://www.nads-sc.uiowa.edu/pdf/nads\\_minisim.pdf](http://www.nads-sc.uiowa.edu/pdf/nads_minisim.pdf). Inquiries can be directed to Lisa Leff at [contacts@nads-sc.uiowa.edu](mailto:contacts@nads-sc.uiowa.edu).

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