



Institute for Transportation Research and Education
North Carolina State University

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Transportation Founders Fund Speaker Lectures on Driving Simulators

Raleigh, N.C. – On October 3, 2005 more than 55 students and transportation professionals from all over North Carolina attended a Transportation Founders Fund (TFF) seminar, which was held at the Monteith Research Center on NC State’s Centennial Campus. The speaker was Dr. Essam Radwan, and the title of his presentation was, “CATSS Driving Simulator: Description and Research Applications.” Dr. Radwan is a professor of civil engineering at the University of Central Florida and is the Executive Director of CATSS (Center for Advanced Transportation Systems Simulation).

Dr. Radwan’s presentation focused on the use and background of the CATSS driving simulator in traffic safety research. The CATSS Driving Simulator is a mid-fidelity simulator housed at the University of Central Florida. Dr. Radwan discussed two recently completed sponsored research projects. The first project focused on a new pavement marking design aimed at reducing the dilemma zone associated with the signal change interval, thereby reducing the occurrence of red light running violations at signalized intersections. With red light running being a topic of concern in North Carolina, Radwan sparked the interest of all attending when he discussed this project. Based on the results obtained from multiple subjects that were exposed to the dilemma zone with and without the marking in place, it was found that the pavement markings reduced simulated red-light running incidents by 74 percent. This result prompted UCF to be the first to implement this roadway marking design on its campus intersections.

The second project assessed the impact of horizontal and vertical visibility blockage caused by light trucks and SUV’s on traffic operations at intersections. The study found that when subjects were exposed to these conditions in the CATSS simulator, there was an increase in the incident of simulated crashes, because drivers followed SUV’s more closely than smaller vehicles, thus reducing their visibility and increasing the chances of a rear-end collision. The simulator was able to collect information about participant’s real life choices and reactions while driving in a reasonably realistic environment, without putting study participants in harm’s way. Driver subjects in the simulation studies control their speed and reactions as they normally would on a real drive. The software collects the data and researchers use this information to make assessments of treatments and driver behavior.

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The CATTS Driving Simulator has been integral to the success of these research topics and others. With the Center focused on Real-Time Simulation, Intelligent Transportation Systems (ITS) and Human Factor/Advanced Learning, the safety and usefulness of this application has been tremendous. “You really are immersed in the road,” Radwan states, admitting that some subjects even experience motion sickness in the simulator.

CATSS is funded by a federal grant, which is matched by funds from the Florida Department of Transportation. Over the past six years, the center has had research expenditures of \$12.7 million and has supported 65 projects, 46 faculty members, and 75 students.

Dr. Radwan received his graduate degrees from Purdue University, and has taught at Virginia Tech and Arizona State University. In 1990, he was appointed as the CEE Department Chair at the University of Central Florida. During his 30-year professional career, he directed and co-directed more than 55 sponsored research projects totaling over \$10 million. He supervised 25 M.S. and Ph.D. students to completion, has published more than 150 technical papers and reports and delivered in excess of 50 presentations at international, national, regional and local meetings.

The TFF is a unique opportunity for transportation students and professionals in North Carolina to interact with top-level transportation executives and academics while supporting the transportation program at N.C. State University (NCSU). It is an outreach activity of the Institute for Transportation Research and Education (ITRE) and the Department of Civil Engineering at NCSU. Visit the TFF Web site for more information on becoming a member and attending future events: www.itre.ncsu.edu/ITREmain/TFF.

The Institute for Transportation Research and Education (ITRE), administered by North Carolina State University, is a non-profit organization that conducts research, education, and technical assistance projects on a wide variety of surface transportation issues with the goals of solving problems and creating new products, better services, and smarter workers. ITRE is located on NCSU’s Centennial Campus. For more information about ITRE, TFF and related programs, please visit our Web site at www.itre.ncsu.edu

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