Cross-Modal Distributed Simulation Workshop (HF-F)

ABSTRACT

The typical research simulation paradigm involves one lab operating one simulator, designing their own scenarios, and testing potential solutions to single-mode problems from one operator's viewpoint. This workshop investigates the feasibility and practicality of implementing progressively more inter-connected simulation capabilities across modes; e.g., sharing scenarios, enabling distributed simulation, and investigating autonomous/non-autonomous vehicle interactions.

AGENDA

Sunday, January 10, 2016

9:00	Welcoming remarks	Dr. Don Fisher, Volpe Center
9:30	Introductions	Ms. Maura Lohrenz, Volpe Center
9:45	Distributed and cross modal simulation: teleology, technology, and techniques	Dr. Mike Manser Texas Transportation Institute
10:40	Break	
11:00	Streamlining the scenario creation process to support multi-site research projects	Mr. Kelvin Santiago University of Wisconsin
11:30	Challenges in multi-site simulation	Dr. Thomas Kerwin Ohio Supercomputer Center
12:00	Lunch	
1:30	Cross-platform simulation and the NADS MiniSim	Dr. Chris Schwartz University of Iowa
2:00	Cross-modal simulation: Single and multiple operators (case study)	Mrs. Heather Stoner Realtime Technologies, Inc. (RTI)
2:30	Cross-platform simulation: Manned and unmanned aviation simulation	Dr. Kenneth Allendoerfer FAA Tech Center
3:00	Discussion and Wrap-up	
4:30	Adjourn	

PANELISTS' BIOGRAPHIES

Dr. Kenneth Allendoerfer, FAA Tech Center

Dr. Kenneth Allendoerfer is the manager of the Human Factors Branch at the Federal Aviation Administration William J. Hughes Technical Center in Atlantic City, NJ. His main research area is the development of integrated user interfaces for air traffic control systems, especially in the approach control domain. Among many significant projects, Kenneth has served as a principal human factors engineer on the Standard Terminal Automation Replacement System (STARS) and the Future Terminal Workstation (FTWS) projects, where he led efforts to integrate controller-pilot data communications, satellite-based navigation, and decision-support tools onto the primary controller workstation. Since joining the Technical Center in 1995, he has been involved with the design or evaluation of nearly every major air traffic control system used today in the National Airspace System. Kenneth holds a Ph.D. in Information Science from Drexel University, a master's degree in Psychology from the State University of New York at Buffalo, and bachelor's degree in Psychology from Carleton College.

Dr. Donald Fisher, US DOT Volpe Center

Dr. Donald Fisher joined the University of Massachusetts Amherst in the fall of 1982. He was head of the Department of Mechanical and Industrial Engineering from 2009 until August 2015. Over the past two years, he has served as a faculty fellow at Volpe and was recently appointed as a principal technical advisor in the Surface Transportation Human Factors Division. Dr. Fisher received his bachelor's degree from Bowdoin College, master's degree from Harvard, and PhD from the University of Michigan. He is the principal investigator or co-principal investigator on over $31 million in research funding. Dr. Fisher's current research interests are in human factors and surface transportation, especially automated vehicles, distraction, and training. He is editor of the recently published Handbook of Driving Simulation for Engineering, Medicine, and Psychology and has over 450 scientific publications and presentations. He has served on the editorial boards of the leading journals in human factors, has been a member of the National Academy of Sciences Human Factors Committee, and currently serves on a number of TRB committees as both a member and co-chair. Dr. Fisher has been asked to speak as an expert on transportation safety to state and federal officials (MassDOT, U.S. Congress, National Institutes of Health, National Transportation Safety Board, Volpe National Transportation Systems Center), to foundations (AAA Foundation for Traffic Safety), to nationally convened expert panels (State Farm), and to international conventions as a keynote speaker (Saudi Arabia, the Netherlands).

Dr. Thomas Kerwin, Ohio Supercomputer Center

Dr. Thomas Kerwin is a research scientist at the Interface Lab at the Ohio Supercomputer Center. His research topics of interest in computer visualization include surgical simulation, volume visualization, educational games, and novel human-computer interaction. He completed his Ph.D. in Computer Science at the Ohio State University in 2011.

Ms. Maura Lohrenz, US DOT Volpe Center

Ms. Maura Lohrenz is Chief of the Aviation Human Factors Division and an Operations Research Analyst at the Volpe Center. Maura manages a division of 15 scientists performing research investigating the human factors and safety implications in new and evolving aviation technologies, such as controller-pilot data link communications, instrument procedures, electronic flight bags, low-visibility operations, surface moving maps, and various flight deck displays. She also serves as Executive Agent for the DOT Human Factors Coordinating Committee, whose mission is to enhance awareness, understanding and application of human factors in transportation.

Prior to joining Volpe in September 2011, Maura was manager of the Geospatial Human-Computer Interaction section at the Naval Research Laboratory, where she had worked for 25 years directing and conducting human factors research related to military aircraft mission planning, cockpit moving-map display design, visual search and target detection. Maura earned her bachelor's degree from Middlebury College and a masters' degree in Aeronautics and Astronautics (emphasis on Humans and Automation) from MIT.

Dr. Mike Manser, Texas A&M Transportation Institute

Dr. Mike Manser is a Senior Research Scientist and Human Factors Program Manager in the Center for Transportation Safety (CTS) at the Texas A&M Transportation Institute (TTI). He has more than 19 years of professional experience in the area of transportation human factors research. In his role as Program Manager, he is responsible for managing program finances, managing programmatic resources such as the driving environment simulator, and providing a strategic research direction for the Program staff. As a scientist, he examines the behavioral and cognitive factors contributing to crashes that result in injuries and fatalities and, based on this information, develops/evaluates potential technological countermeasures to improve safety.

Recently, Mike was the director of the Human Factors Interdisciplinary Research in Simulation and Transportation at the ITS Institute at the University of Minnesota. In that role, he worked closely with multidisciplinary teams of engineers (e.g., civil, mechanical, industrial, electrical), public health researchers, and policy development professionals to develop safety initiatives to increase transportation safety in the state of Minnesota. These efforts included evaluating training protocols for partially automated buses, conducting studies on warnings and information provided to drivers by advanced connected vehicle technology, and co-developing smartphone-based software to provide real-time feedback to teens about risky behaviors.

Dr. Manser holds a PhD from the University of Minnesota, is active with the Human and Ergonomics Society and the Transportation Research Board, and has written book chapters and professional journal articles within the domain of human factors and transportation.

Mr. Kelvin Santiago, University of Wisconsin-Madison

Mr. Kelvin Santiago is an Assistant Researcher in the Traffic Operations and Safety Laboratory (TOPS Lab) at University of Wisconsin-Madison, where he focuses on technology and driving simulation. Kelvin received his Master of Science in Civil Engineering from the University of Wisconsin-Madison and his Bachelor of Science in Civil Engineering from the University of Puerto Rico-Mayaguez in 2007. At the TOPS Lab, Kelvin has developed procedures to streamline the process of scenario creation and collaboration across different simulator sites and platforms. Kelvin has over 10 years of computer programming experience, which he has applied to the driving simulator scenario creation process as well as to traffic engineering data collection and analysis. In addition to his work at the TOPS Lab Kelvin is also an Adjunct Instructor at Madison College where he teaches computer programming and computer-aided drafting and design.

Dr. Chris Schwartz, University of Iowa

Dr. Chris Schwartz is a Senior Research Engineer and Research Program Manager for Intelligence Transportation Systems with the National Advanced Driving Simulator at the University of Iowa. His research has involved all types of advanced driver assistance systems, connected vehicles, warning systems, automated vehicles, and driver impairment modeling. Dr. Schwarz is a member of the Society of Automotive Engineers (SAE) as well as the Institute of Electrical and Electronics Engineers (IEEE). He serves on the SAE on-road autonomous vehicles committee as well as the committee on automated vehicles in the Transportation Research Board (TRB). He received the B.S. degree from the University of Illinois at Urbana-Champaign in 1990 and the Ph.D. degree from the University of Iowa in 1998, both in electrical and computer engineering.

Mrs. Heather Stoner, Realtime Technologies, Inc. (RTI)

Mrs. Heather Stoner serves as the Division Manager for Realtime Technologies, Inc., a position she recently acquired after nine years as Senior Program Manager. With over 15 years' experience in the simulation industry, Heather is responsible for RTI's strategic vision regarding research, simulator development, and training curriculums. In this role, Mrs. Stoner will oversee multiple business areas while directing a simulation program valued at over 5 million dollars. As a human factors engineer, her driving research has included the development of training curriculums and driver support systems for leading transit authorities. Heather is an active participant in the research community and professional member of multiple Technical Societies.