HUMAN-CENTERED TECHNOLOGY TO ENHANCE SAFETY AND MOBILITY

The ITS Institute's activities are shaped by its theme of using human-centered technology to enhance the safety and mobility of road- and transit-based transportation. To that end, the Institute channels the collective energies of researchers from multiple disciplines to advance the state of the art in the core ITS technologies of computing, sensing, communications, and control systems in order to surmount the significant transportation problems of the day.

Photos: Jonathan Chapman

"The work of the ITS Institute demonstrates some of the truly exciting technology initiatives and how they can contribute to making our transportation system safer and more efficient."

—U.S. Representative James Oberstar, District 8, Minnesota

FOR MORE INFORMATION

Dr. Max Donath
ITS Institute Director
University of Minnesota
Telephone: 612-626-1077 • Fax: 612-625-6381
E-mail: its.@cts.umn.edu • www.its.umn.edu

AFFILIATED LABORATORIES

Intelligent Transportation Systems Laboratory
www.its.umn.edu/labs/itslab.html

Intelligent Vehicles Laboratory
www.its.umn.edu/labs/ivlab.html

HumanFIRST Program
www.humanfirst.umn.edu

Northland Advanced Transportation Systems Research Laboratories
www.d.umn.edu/natsrl

INTELLIGENT TRANSPORTATION SYSTEMS INSTITUTE

A university transportation center advancing technology and expertise in transportation through research, education, and technology transfer

CTS Center for Transportation Studies

University of Minnesota

OUR MISSION

At the Intelligent Transportation Systems (ITS) Institute, we're working to improve the safety and efficiency of transportation systems through a focus on human-centered technology. To accomplish this, we bring together engineers and cognitive psychologists to ensure that Institute-developed technologies become tools that help us understand and overcome human limitations as they relate to transportation.

Institute efforts also address issues related to transportation in a northern climate, investigate technologies for improving the safety of travel in rural environments, and consider social and economic policy issues related to deploying ITS technologies.

In addition, the Institute draws resources from many sources to leverage federal, state, and private funding to focus attention on solving challenging transportation problems.

Our partners include the United States Department of Transportation, the Minnesota Department of Transportation and Department of Public Safety, the Minnesota Local Road Research Board, other government agencies, and private industry.

OUR EXPERTISE

Located on the Twin Cities campus of the University of Minnesota and housed within the Center for Transportation Studies, the Institute connects researchers from varied academic disciplines to meet the complex challenges of improving our transportation system. In addition, the leadership and staff provide connections and access to an extensive transportation research and education network as well as diverse outreach, administration, and communications capabilities.

To aid students, practitioners, researchers, and others investigating ITS-related issues, the Institute supports several research laboratories:

- Intelligent Transportation Systems Laboratory: developing and providing state-of-the-art resources and supporting research in surveillance, monitoring, and management of traffic systems.
- Intelligent Vehicles Laboratory: developing and testing innovative, human-centered technologies that improve the operational safety, mobility, and productivity of vehicles.
- HumanFIRST Program: applying human factors research on understanding driver behavior to the design and evaluation of systems for improving transportation safety.
- Northland Advanced Transportation Systems Research Laboratories (located at the University of Minnesota Duluth): studying comprehensive winter transportation systems and the transportation needs of cities in small urban areas.

OUR PROGRAMS

Institute staff and University researchers help create and communicate knowledge related to ITS systems through research, education, and technology transfer activities.

Research

The Institute's research program joins technologists with those who study human behavior to ensure that new technology adapts to human capabilities, rather than forcing users to adapt to it.

Institute research centers on safety-critical technologies and systems for efficiently moving people and goods in the areas of human performance and behavior; modeling, managing, and operating transportation systems; computing, sensing, communications, and control systems; and social and economic policy issues related to ITS technologies. Recent and ongoing research topics focus on:

- driver behavior
- cold weather operations
- congestion management
- ramp metering
- driver-assistive systems
- bus rapid transit (BRT)
- infrastructure security
- intelligent vehicles
- rural safety
- GPS technologies
- collision avoidance
- traffic surveillance
- transit
- public policy related to ITS

"There has not been a significant decrease in traffic fatalities in over a decade. We are committed to thinking 'out of the box' so that we can change the trend lines and foster significant reductions in fatalities and crashes."

—Max Donath
Director, ITS Institute

Education

The Institute's activities in education encompass a multidisciplinary program of course work and experiential learning. The education program includes the disciplines of computer science and engineering, electrical and computer engineering, civil engineering, mechanical engineering, human factors, public policy, and others. Our educational initiatives include:

- Developing new curriculum and courses for both high school and college students
- Sponsoring advanced transportation technology seminars
- Involving undergraduate and graduate students in research projects
- Funding students to attend national conferences
- Recognizing outstanding students
- Offering research assistantships to help attract more students to the study of transportation

Outreach

Research results and expertise need to reach local, national, and international audiences in order to be used in real-world applications. Some ways we do this are by:

- Providing tours and demonstrations of our research facilities
- Promoting our research findings to, and through, the media
- Publishing printed and electronic material describing our work
- Speaking to legislators at the state and national level
- Maintaining a Web site for accessing information about our work
- Fostering relationships with researchers from throughout the country and the world
- Sending well-educated and prepared graduates out into the workforce

OUR INVITATION

We invite you to contact us to discuss your research needs and interests, as well as collaboration opportunities.