



Researchers featured at ITS Minnesota annual meeting

Three University of Minnesota researchers presented their work with intelligent transportation systems (ITS) technology at the ITS Minnesota 17th Annual Meeting and Information Exchange on March 8.

Associate Professor **Xun Yu** (electrical and computer engineering, Duluth) discussed his work with intelligent pavement, which eliminates the need for external sensors by enabling the pavement itself to detect vehicles. Yu creates the pavement by incorporating carbon nanotubes—cylindrical molecules that exhibit changes in electrical resistance in response to mechanical stress—in cement. The resulting pavement has a longer service life and lower maintenance costs than those of traditional vehicle sensors. Yu said the pavement has performed well in preliminary studies.

Professor **Cathy French** (civil engineering) described her work monitoring the data collected from the new St. Anthony Falls I-35W bridge. The bridge is equipped with a network



Xun Yu



Cathy French



Benjamin Schooley

of more than 500 sensors monitoring strain, load distribution, torsion, changes in temperature, corrosion, and the overall movement of the bridge. The University of Minnesota is collecting and interpreting the data for the first three years to investigate changes in the bridge, evaluate design assumptions, and determine the effectiveness of the sensors for long-term monitoring.

Center for Excellence in Rural Safety researcher **Benjamin Schooley** outlined the CrashHelp system, which allows emergency responders to collect information about crash victims on-scene and send it directly to

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CTS assists with Mn/DOT visioning

CTS is assisting the Minnesota Department of Transportation (Mn/DOT) in the development of a 50-year vision for transportation in Minnesota. The visioning initiative—known as Minnesota GO—is intended to better align the transportation system with what Minnesotans expect for their quality of life, economy, and natural environment.

Through Minnesota GO, Mn/DOT will engage Minnesotans from all walks of life in both online and in-person activities. Visioning will help Mn/DOT and its partners prioritize among the multiple goals, objectives, and expectations for the transportation system and will directly shape an updated Statewide Multimodal Transportation Plan by early 2012. Minnesota GO was launched in March and will conclude in August 2011.

In its work for the initiative, CTS has prepared a public participation and outreach plan that includes a variety of workshops as well as outreach to groups traditionally underserved by planning processes. Eight public workshops will be held throughout the state in May.

Working with University faculty and research staff, CTS

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Career Expo sets another record

The 2011 Transportation Career Expo drew more than 100 students eager to learn about transportation-related careers, receive job-hunting tips, and network with potential employers.

The event, held March 1 on the east bank campus in Minneapolis, featured a general-session panel discussion with transportation industry experts presenting career alternatives and preparation strategies.

After opening remarks from CTS assistant director **Gina Baas**, the panel was moderated by **Shannon Tyree** of the City of St. Paul, who also chairs the CTS Education and Outreach Council. Panelists were **Jim Grube** (director of transportation and county engineer, Hennepin County), **John Dillingham** (president, Alliant Engineering), **Amy Vennewitz** (deputy director of transportation, planning,



Shannon Tyree



Don Lawrence



Fay Cleaveland



Jim Grube, John Dillingham, Amy Vennewitz

and finance for the Metropolitan Council), **Don Lawrence** (LTL operations manager, Koch Logistics), and **Fay Cleaveland**

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'Un-paving' featured at TERRA pavement conference

A session at this year's TERRA Pavement Conference was devoted to "un-paving"—the practice of converting an asphalt-surfaced pavement to a gravel-surfaced pavement.

The pavement conference, the second under the TERRA label and the 15th overall, was held February 10 in St. Paul. TERRA, the Transportation Engineering and Road Research Alliance, is a research governance structure formed in 2004 to foster a comprehensive road research program.

TERRA co-chair **Dan Wegman** of Road Science LLC gave welcoming remarks.

Ken Skorseth of the South Dakota Local Technical Assistance Program (LTAP) said a combination of two factors—increasingly heavier loads and pavement design standards that have not kept up with those loads—is driving interest in un-paving. But the life-cycle cost of gravel-surfaced roads increases sharply with average daily traffic (ADT), he said, so such roads are only suitable up to about 170 ADT. He presented findings from a South Dakota DOT study of paving alternatives.

In a session on sustainability in

transportation, **Mark Seeley**, professor of meteorology and climatology at the University of Minnesota, spoke about trends in climate change and their impact on road construction and maintenance. Since 1997 there have been more freeze-thaw cycles statewide than at any other time in the state's climate record going back to 1880, he said—with resulting impacts on pavements.

Summer trends have also changed. Since the 1980s, the state gets about 70 to 75 percent of its total annual precipitation from thunderstorms, up from about 60 percent. "This is a problem for farmers, for road building and maintenance, and for storm sewer runoff systems," Seeley said.

Other conference speakers discussed innovative construction practices, best practices for in-place recycling, and pavement rehabilitation.

Another highlight was the presentation of the Gerald Rohrbach Award for Excellence in Pavement Research. **Mike Robinson**, the 2010 recipient, presented the 2011 award to **Rick West**, county



Mark Seeley



Mike Robinson, Rick West

engineer in Otter Tail County. West is also the current chair of the Minnesota Local Road Research Board (LRRB).

TERRA sponsored the conference in cooperation with CTS, the Minnesota Department of Transportation, the Department of Civil Engineering (CE) at the University of Minnesota, Minnesota LTAP, and several other organizations.

University members of the planning committee were **Lev Khazanovich**, **Mihai Marasteanu**, and **Gene Skok** of CE; **Jim Grothaus** and **Stephanie Malinoff** of CTS; and **Lori Graven** of the College of Continuing Education.

A video recording of the un-paving session, along with PowerPoint slides for all presentations, are available at www.terraroadalliance.org/events. **CTS**

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hospital emergency rooms. The system enables emergency medical services personnel to capture pictures, audio recordings, video, and basic patient data and incident information in the field using a mobile smartphone. The information is then transmitted to the destination hospital, providing doctors and nurses with advanced notification that can be used to prepare for the patient's arrival.

Minnesota Department of Transportation (Mn/DOT) commissioner **Tom Sorel** gave the keynote presentation, which highlighted how ITS technology can improve Minnesota's transportation system. In-vehicle signing, integrated corridor management, intelligent work zones, and intersection warning systems all have great potential for increasing safety and mobility, Sorel said. In particular, Sorel cited the Cooperative Intersection Collision Avoidance Systems—Stop

Sign Assist (CICAS-SSA) project currently being conducted by ITS Institute researchers as an example of ITS technology's potential for improving safety. The CICAS-SSA intersection warning system alerts drivers of oncoming traffic at rural unsignalized through-stop intersections.

ITS technology could also help close funding gaps and create new jobs, according to Sorel. "Now is the time to consider ITS technology as a mainstream solution. It will play a key role in what our future looks like," he said.

Linda Preisen, ITS Minnesota chapter president and CTS director of research administration, gave opening remarks and moderated the keynote presentation.

The event was sponsored by ITS Minnesota in cooperation with CTS and was facilitated by the College of Continuing Education at the University of Minnesota.

CTS is a founding member of ITS Minnesota, the state chapter of the Intelligent Transportation Society of America—a national organization that coordinates the development and deployment of ITS in the United States. **CTS**



The CICAS-SSA system warns drivers of oncoming traffic at rural unsignalized through-stop intersections.

U of M student receives national award

Avital Barnea, a candidate in the Master of Urban and Regional Planning Program at the Humphrey School of Public Affairs, has been selected by the Eno Transportation Foundation to participate in the 19th annual Eno Leadership Development Conference in Washington, D.C., in June.



Avital Barnea

She was nominated by her advisor, **Yingling Fan**, assistant professor in the Humphrey School.

Barnea is also an intern in the Transit Control Center at Metro Transit and the Region IV Student Representative with the American Planning Association.

The Eno Foundation is a private foundation dedicated to improving all modes of transportation. Each year the conference gives 20 of the nation's top graduate

students in transportation a first-hand look at how national transportation policies are developed. Students meet with top government officials, leaders of associations, and members of Congress and their staff.

"This conference will provide a pivotal opportunity for me to begin my career in the transportation field," Barnea says.

CTS is providing assistance to underwrite the trip expenses. **CTS**

Awards presented at ITSO paper conference

The Interdisciplinary Transportation Student Organization (ITSO) held its annual paper conference on March 2. Six winners of the ITSO student paper competition gave presentations covering disciplines such as structural science, transit operation, and signal operation.

Following the paper sessions, ITS Minnesota and the North Central chapter of the Institute of Transportation Engineers (NCITE) presented the following student scholarships and awards:

- *ITS Minnesota*. Undergraduate award—**Paul Anderson**, civil engineering. Graduate awards—**Indrajit Saterjee**, civil engineering (advisor:

Gary Davis) and **Ravishankar Sivalingam**, mechanical engineering (advisor: **Nikos Papanikolopoulos**)

- *NCITE*. Undergraduate awards—**Joseph Devore** and **Greg Ashe**, civil engineering, and **Andrew Andrasko**, Minnesota State University Mankato, pre-civil engineering. Graduate award—**Nick Ollrich**, civil engineering (advisor: **Henry Liu**). Paper award: **Shaker Rabban**, Urban and Regional Planning Program (advisor: **Carissa Schively Slotterback**).

The conference concluded with a luncheon sponsored by NCITE featuring a presentation by **Steve Murphy**,

former member of the Minnesota Senate and chair of the Senate Transportation Committee. Murphy talked about his experience in office and his historical perspective on transportation in Minnesota.

ITSO is sponsored by CTS, the University's Department of Civil Engineering, and several professional organizations including WTS Minnesota, NCITE, ITS Minnesota, and the Minnesota Surveyors and Engineers Society.

Students interested in becoming involved in this organization may visit the ITSO website at <http://itso.wordpress.com>. **CTS**

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(transportation planner, Mn/DOT).

A veteran in the transportation sector, Grube emphasized that networking, such as joining a professional association, can go a long way to helping you land a job—"not only to get yourself started, but to

keep yourself going," he said.

Cleveland, who is just beginning her career at Mn/DOT, had some helpful advice on networking. "When I was starting out, the issue wasn't that I didn't think networking was important, it was that I thought it was terrifying.

So think about yourself and your personality and how you like to meet people," she said. She recommended that attendees think about ways that work for them to make connections with people, such as through organizations, mentorships, or doing informational interviewing through a career center.

Following the Q&A session with the panel, representatives from the 22 exhibitor booths

introduced themselves and said a few words about their organizations.

Many students brought their résumés and received suggestions from several volunteers including **Joe Barbeau** and **Christina Miller** from CTS. An exhibitor fair offered networking and employment-seeking opportunities with representatives from the public and private sectors and professional organizations.

The annual expo is sponsored by CTS, the Minnesota chapter of the Women's Transportation Seminar (WTS), the Minnesota Local Road Research Board, the Minnesota Local Technical Assistance Program, the Intelligent Transportation Systems (ITS) Institute, and the Council of Supply Chain Management Professionals. **CTS**



Students met with exhibitors at the career expo.

U of M research sparks interest at TechFest

The Intelligent Transportation Systems (ITS) Institute exhibited for the fourth year in a row at TechFest, a one-day event focusing on engineering, held at The Works, a hands-on science and technology museum for kids (and adults).

This year, the Institute's exhibit featured Scout reconnaissance robots developed by computer science and engineering professor **Nikos Papanikolopoulos** and graduate students **Jesse Purvey** and **Alex Hambrook** in the Center for Distributed Robotics, of which Papanikolopoulos is director. Scouts are robots roughly the size of a soda can that have multiple mobility modes (e.g., jumping, rolling) and carry a variety of sensors (e.g., camera, microphone).

In addition, kids and their parents tried



A TechFest attendee maneuvers a Scout reconnaissance robot.

their hand at managing traffic by playing Gridlock Buster, the Institute's traffic-control game. Other students staffing the exhibit were **Nick Ollrich** and **Xuan Di** with the Interdisciplinary Transportation Student Organization. About 2,000 people attended the event. **CTS**

CTS director featured in alumni magazine

CTS director **Laurie McGinnis** was featured in the Spring 2011 issue of *Minnesota*, a quarterly publication of the University of Minnesota Alumni Association. The article highlighted CTS research and the intersection of transportation research with issues such as climate change, driver behavior, and land-use planning. McGinnis also discussed how CTS research contributes to better transportation decision making and described her vision of making CTS a resource to the world. To read the article, please visit www.minnesotaalumni.org. **CTS**



Laurie McGinnis

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is also developing topic-based vision summaries and video clips that highlight major trends, possible future scenarios, and questions for Mn/DOT to consider when planning a 50-year vision.

Mn/DOT and CTS have partnered with the Citizens League to provide an online participation tool to engage the public in the visioning process. The tool, along with details about upcoming workshops, is on

the initiative's website: MinnesotaGO.org. In addition, the Citizens League is engaging high school students in the process through its ongoing Students Speak Out initiative. **CTS**

Upcoming events To see other events or publicize yours, visit www.cts.umn.edu/Events.

Apr. 17–21	National Association of County Engineers Annual Conference, Minneapolis. See www.countyengineers.org .	June 13–14	Symposium on Mileage-Based User Fees, Breckenridge, Colo. See http://utcm.tamu.edu .
Apr. 27–29	Minnesota Alcohol Traffic Safety Association Conference, St. Cloud, Minn. See www.matsa.us .	May 19	Northeast Minnesota Toward Zero Deaths (TZD) Workshop, Hermantown, Minn. See www.minnesotatzd.org .
May 19	Southwest Minnesota Toward Zero Deaths (TZD) Workshop, Redwood Falls, Minn. See www.minnesotatzd.org .	July 24–27	10th International Low-Volume Roads Conference, Lake Buena Vista, Fla. See www.trb.org/LowVolumeRoadsConference/LVR10.aspx .
May 19	Southeast Minnesota Toward Zero Deaths (TZD) Workshop, Rochester, Minn. See www.minnesotatzd.org .	July 28–30	World Symposium on Transport and Land Use Research, Whistler, British Columbia. See www.wstlur.org .
May 24–25	22nd Annual CTS Transportation Research Conference, Crowne Plaza, St. Paul. See www.cts.umn.edu/Events .	Aug. 16	Transportation Engineering and Road Research Alliance (TERRA) Innovation Series event, Albertville, Minn. See www.terraroadalliance.org .
<div style="border: 1px solid black; padding: 5px;"> <p>Submit or view transportation-related jobs: CTS website: www.cts.umn.edu/Education/Careers/JobPostings LinkedIn: www.linkedin.com/groups?gid=2316997&trk=hb_side_g</p> </div>			
		Oct. 6–7	AirTAP Fall Forum, Breezy Point, Minn. See www.airtap.umn.edu .
		Oct. 12–14	Minnesota Public Transit Conference, St. Paul. See www.mpta-transit.org/events/conference .
		Nov. 16–17	Minnesota Toward Zero Deaths (TZD) Annual Conference, Duluth, Minn. See www.minnesotatzd.org .