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CITSM ANNOUNCES 2010 AWARDS

CITSM | DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING WWW.CITSM.UMD.EDU

CITSM Announces 2010 Awards

Written by: Michael Paszkiewicz

CITSM's 2010 request for proposal process was the most successful yet. We received 20 proposals from researchers representing numerous disciplines spread across three different colleges, the Clark School of Engineering, the College of Computer, Math and Natural Sciences, and the School of Architecture, Planning & Preservation. Among the finalists were five of the multi-year projects.



Christopher Davis and Stuart Milner continue their development of automatic high definition networked video

Presentation

Integration

Data

cameras that are able to autonomously track and record incidents with their project entitled "Automated Traffic Analysis, Highway Surveillance, and First-Responder High Definition Wireless Networked Imaging." Researcher Mehdi Kalantari has moved into the third phase of development of his "Low Profile Wireless Traffic Sensors for Enhanced Vehicle Extraction." With this year's funding, Mehdi will be increasing the sensitivity and the ranges of his antenna as well as improving the sensor's abilities to measure data and vehicle signatures on multi-lane roads. Gerrit Knaap of the University's Smart Growth Center,

continues to improve the capabilities of his regional transportation modeling system with his project "Toward a Transportation Modeling System for the State of Maryland." This year's focus is to create a greenhouse gas emission model, and to use the model



to identify regional strategies to reduce greenhouse reduction targets. Paul Schonfeld continues with phase three of his study of "Intermodal Transfer Coordination in Freight Transportation Networks." His focus in this phase is a control policy and optimization

model for emergency operations in freight transportation networks recovering from major disruptions and dealing with large backlogs and an integrated model combining the models from all three phases. Also continuing into its third year is "Development of Advanced Applications using Bluetooth-Generated Traffic Flow Data," by CITSM Director Ali Haghani

and his students. This year the project continues to use data generated by Bluetooth devices to evaluate variable message signs. Additionally, they are developing procedures for

Traveler



distinguishing between motor vehicles and pedestrians in urbanized areas, as well as developing automatic incident detection procedures and the ability to predict the impacts of those incidents on travel time in real time. Finally, although not originally a multi-year project, researcher Catherine Plaisant was given additional funding to continue development new visualization tools for the Regional Integrated Traffic Information System (RITIS), housed

in Civil Engineering's CATT Lab through her project "Discovering and Communicating Temporal Patterns within Incident Data."

In addition to continuations of past projects, the CITSM also

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awarded five new projects. Researcher Lei Zhang is working on developing a a comprehensive quantitative approach for evaluating the impact of value pricing and innovative financing policies on transportation system performance, considering both the revenue generation and reinvestment stages for various transportation authorities in is project entitled "A Comprehensive Approach for Evaluating Value Pricing and Innovative Financing Policies." Lei also pairs up with Gang-Len Chang on another project "Development of an Integrated Multimodal Simulation System for the I-270 commuting Corridor." Professors Zhang and Chang aim to develop an integrated multimodal simulation system for Maryland's busy I-270 corridor, including the highway itself, as well as subway and rail lines the

complement it. Transportation professor Elise Miller-Hooks is working on techniques to support design and assembly of a cognitive and adaptive system for the management of crowds during large-scale public events or emergency evacuation in her project "A Cognitive



Systems Approach to Managing the Movement of Large Crowds." Cinzia Cirillo looks at the effects of time-ofday toll pricing in Maryland and its effect on departure timing as well as mode choice in her project "Departure time choice model in the presence of time-of-day toll pricing." Finally, new to the CITSM program, Qingbin Cui uses his background in infrastructure to develop an integrated framework for energy and carbon profiling



of highway infrastructure from a life-cycle perspective with his project "Energy and Carbon Profiling of Highway Infrastructure." Qingbin plans on working with representatives from the Maryland State Highway Administration to develop a

toolkit for for state highway agencies and transportation engineers that will help them evaluate different highway design options in terms of energy and climate implications over the life cycle of the transportation facilities.

BIOGRAPHY



faculty

QINGBIN CUI

r. Qingbin Cui is an Assistant Professor of Civil Engineering in the Department of Civil and Environmental Engineering and also serves as a consultant for Sain Associates in Birmingham, Alabama. He earned his Ph.D. in Civil Engineering from Perdue University and has written numerous publications including more recently co-authored the following peerreviewed articles: "Green Contracting in Highway Construction: State of Practice"Transportation Research Records; "Project Complexity under Carbon Regulation and Trading" Project Perspectives, Vol. 33, pp78-83, International Project Management Association; and "Public Private Partnerships in Transportation Projects: A Critical Review" American Society of Civil Engineers (ASCE) Journal of Management in Engineering

Currently Dr. Cui serves on the organizing committee for the Concrete Bridge Competition and the Graduate Committee (2010-2011) for the I-95 Corridor Coalition Fellowship review committee. He also belongs to the following professional societies American Society of Civil Engineers (ASCE) – Construction Research Council, International Code Council, Institute for Operations Research and Management Science (INFORMS), **IEEE Engineering Management** Society (2000-2001), Professional Risk Managers' International Association (PRIMA) and the International Council for Research and Innovation in Building and Construction (CIB) TG62 Built Environment Complexity Task Group.

In July RITA Administrator Peter Appel visited the Center for Integrated Transportation Systems Management along with Chief Council, Mr. Gregory Winfree. It was an exciting if not compact visit, spanning from breakfast to lunch. The visit started with a brief introduction of the program by the University's Acting Vice President for Research, Dr. Norma Allewell. Following Dr. Allewell's kind introduction, Administrator Appel had some brief but inspiring remarks about the past and future UTC program and a "callto-arms" for the researchers present at the discussion.

Dr. Ali Haghani, Chair of the Civil Engineering Department, and Director of CITSM introduced the presenters for the day. Due to the shorter visit, not all researchers were able to present their projects, but there was an excellent representation of new technologies demonstrated with Mehdi Kalantari's Wireless Sensor Network and Chris Davis and Stuart Milner's Automated HD Video Imaging System, applied technologies such as GL Chang's Ocean City Travel Time Prediction System and Gerrit Knaap's Maryland Transportation Modeling System, and policy and theoretical work demonstrated by Lei Zhang's work on Future Transportation Financing Options at Federal and State Levels and Elise Miller-Hooks' work on the Resilience of Freight Transportation Networks. Researchers were pleasantly surprised at the level of engagement Administrator Appel showed, frequently stopping the researchers to ask detailed questions, no matter the subject. There were also ample engaging

discussions about each project that lasted through lunchtime.

Following lunch, our visitors had a brief tour of the Department's CATT Lab where students work on visualizing traffic data as well as developing serious games aimed at training first responders and the Advance Traffic Safety and Operations Lab. The day closed with some kind remarks from Neil Pedersen, the Maryland State Highway Administration's Administrator, about the close continuing relationship between the SHA and the University. It was a productive day, and CITSM looks forward to the next visit!



RITA Administrator Peter Appel

Cumulative Impact of Developments on the Surronding Roadways' Traffic

UMD Transportation Seminar Series Tuesday, February 15, 2011 from 11am to 12:00noon Pepco Room (1105), Kim Engineering Building

Speaker: Dr. Mansoureh Jeihani joined the department of Transportation and Urban Infrastructure Studies at Morgan State University as an assistant professor in January 2007. Dr. Jeihani is interested in different research area such as transportation planning, traffic Safety, intelligent transportation systems, and traveler behavior. She is the faculty advisor of the ITE student chapter and a member of ASCE.

Seminar Abstract: An overview of different research activities at Morgan State University conducted by Dr. Jeihani and her team will be presented. She will then concentrate on her ongoing research with Maryland State Highway Administration, Cumulative Traffic Impact Study. In order to get permission to obtain access to a state highway facility for their development, developers are required to conduct a traffic impact study (TIS) and submit it to the appropriate county in which the development would be located. A TIS reviews the impact of the proposed development (and the approved projects) on the surrounding roadway system with consideration given to traffic capacity, signalization, and safety issues. Since the traffic impact of many of the proposed developments is not considered, roads might become more congested than the individual TIS projected.

The cumulative traffic impact study (CTIS) includes all potential, proposed and approved projects within a specified area as it has an effect on transportation system. The CTIS can affectively produce results that can help overcome unforeseen congestion resulting from only a single TIS projection.

This research investigates the cumulative effect of developments and quantifies the problem by forming two case studies using a travel demand model (TDM) software package such as TransCAD. The gap between TDM and TIS is calculated. Furthermore, the effect of providing a more detailed network and utilizing activity based modeling on the TDM and TIS is investigated.

University Transportation Center Technology & Policy Exhibition Wednesday, April 6, 2011 Rotunda of the Department of Transportation Headquarters, Washington, DC

The Center for Integrated Transportation Systems Management is partnering with the Department of Transportation's Research and Innovative Technology Administration (RITA) to host this exhibition on April 6, 2011 in the rotunda of the DOT's headquarters in Southeast Washington, DC.

For more information please contact Mike Paszkiewicz at paz@umd.edu or at 301.403.2069.

ABOUT CITSM

The Center for Integrated Transportation Systems Management (CITSM) at the University of Maryland College Park was established as a tier I university transportation center in 2008. The goal of the center is the Development of Advanced Technology, Improved Processes, and Enhanced Organizational Structures for the Integrated Management and Operation of Transportation Facilities and Corridors.

The CITSM focuses on the development of tools, processes and institutional relations that foster seamless management and operations of today's transportation infrastructure. Such seamless operations will be derived from concentrating on the overall mission of transportation agencies rather than the narrower objectives of individual institutions and facilities. Integrated operation of the transportation infrastructure as a system rather than a collection of individual resources, offers the potential for significant improvements in system efficiency as measured by reductions in travel time and congestion along with improvements in travel reliability. Integrated system operation will have a positive impact on the nation's economy, safety, air quality and energy consumption.

The theme of the Center is "Integrated Transportation Systems Management." The Center conducts research and provides education and technology transfer related to this theme. The objective of this research is to provide improved mobility and reduced congestion for travelers and shippers using the nation's transportation infrastructure. The emphasis of this work is on the integrated management of the transportation systems at all levels including planning, engineering, and operations. The University of Maryland has selected this theme because of its potential for significantly improving transportation system mobility and reliability, as demonstrated by numerous prior research projects conducted by its faculty and staff. A second, but equally important, objective of the Center is to educate the next generation of transportation engineers and planners with the tools needed for seamless management and operations of today's transportation infrastructure and the deep understanding of the benefits of such a fully integrated system.



Center for Integrated Transportation Systems Management

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