



MAUTC, a five-university consortium led by The Pennsylvania State University, seeks to attract talented researchers and students to the study of transportation, and to engage them in new approaches to the transportation issues of today and tomorrow. MAUTC's theme is Technology for Integrated Transportation Systems Operation and Performance.

Pietrucha Named Executive Director

Dr. Martin T. Pietrucha has been named Interim Director of The Thomas D. Larson Pennsylvania Transportation Institute (LTI) and Executive Director of MAUTC. He succeeds Dr. John M. Mason, Jr., who resigned to become the associate provost and vice president for research at Auburn University.



Dr. Pietrucha, Associate Professor of Civil and Environmental Engineering at Penn State, has over thirty years' experience in transportation engineering dealing with highway traffic operations, highway safety, and human factors issues for a variety of public and private institutions. Dr. Pietrucha has conducted research dealing with topics such as traffic signing, roadway delineation, pedestrian safety, highway geometric design, road safety audits and the visibility of commercial signing. A Fellow of the Institute of Transportation Engineers and a member of the American Society of Civil Engineers, Dr. Pietrucha teaches courses in transportation engineering, highway design, and highway safety. He joined the

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Damin is MAUTC Student of the Year


Yorktown Heights, N.Y. native **Stephen Joseph Damin**, a master's degree candidate in civil engineering and student researcher at the Larson Transportation Institute, was awarded the Mid-Atlantic Universities Transportation Center Student of the Year Award. Damin was honored for his accomplishments at the 12th Annual CUTC Awards Banquet, held in conjunction with the Transportation Research Board's (TRB) annual meeting, on January 10, 2009 in Washington, DC. Since earning a B.S. degree in civil engineering from Penn State in 2007, Damin's graduate studies



have focused on traffic operations, transportation planning, transportation safety, and roadside design and management. He is scheduled to receive his MSCE degree in May 2009.

Over the past year and a half, Damin has been an integral member of a team of student researchers working

on human factors in transportation safety and engineering research in the Transportation Operations Program of the Larson Institute. His involvement in research has included a pavement markings state-of-the-practice study, controlled field testing at the institute's test track to evaluate the effectiveness of non-standard color channelizing devices to delineate exit paths in lane closure work zones, full-scale assessment of in-service work zones across Pennsylvania, and evaluation of the effectiveness of internally versus externally illuminated on-premise commercial sign lighting on visibility and traffic safety.

"We've had Steve working on several complex projects, at times simultaneously, and he has shown an outstanding ability to balance that work with his class load," said Philip Garvey, a project director and research associate at LTI. "A lot of the graduate assistantship projects he has been involved in have included human subject testing in real-world conditions where he had to deal on the fly with temperamental equipment and weather conditions, as well as PennDOT crews, construction contractors and live traffic. He has always performed his duties with a calm assurance, professionalism, and creativity." 

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Hot Topics Highlight 14th TESC

Penn State's 14th annual transportation conference was held December 10-12, 2008, at The Penn Stater Conference Center Hotel on the University Park campus. Four pre-conference workshops were held: Current State of Traffic Signal Technology; Highway Occupancy Permits; Implementing FHWA's Work Zone Safety and Mobility Policy and The Land Development Process in Pennsylvania for Traffic Engineers.

Twenty eight sessions organized by tracks—safety, operations, design and planning—were offered. "Hot" topics included Conserving Energy via Traffic Signalization, Transition from ITS Regionalization to Integration, PennDOT's New Traffic

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TRB Student Showcase and Reception

Penn State's Larson Transportation Institute hosted a student poster showcase and reception on January 13 at TRB's annual meeting. Students from Penn State and Virginia Tech displayed posters illustrating their research funded by MAUTC as well as their respective state DOT agencies and other sponsors. This annual event is well-attended and provides students the opportunity to talk about their research with other students, professors, and federal and state DOT representatives. 🌀

TESC (from page 1)

Engineering Regulations, ADA—Applied, and HOP Program Gets Smart. Major sponsors of the conference included MAUTC, HNTB Corporation, Michael Baker Corporation, and Jacobs.



Dr. Adrian Lund, president of the Insurance Institute for Highway Safety and the Highway Loss Data Institute, was the keynote speaker. His presentation, "Highway Safety Isn't One Thing, It's Everything," reminded all in attendance that safety undergirds every aspect of research and implementation activity that deals with drivers, infrastructure and vehicles. "There's a wide variety of ways to look at motor vehicle crashes," said Lund, "how they happen and how you might intervene to break the chain." The presentation included a compelling video demonstration of some of the elements of safety being addressed through current crash testing research. 🌀

Pietrucha (from page 1)

Larson Institute as a faculty associate in 1990. He has also served as director of the institute's Transportation Operations Program and director of the University's Science, Technology & Society Program. Previously, Dr. Pietrucha was a program officer for the National Research Council's Transportation Research Board, a senior staff engineer for the human factors consulting firms the Center for Applied Research and BioTechnology, Inc., a senior engineer with the civil engineering consulting firm of Edwards and Kelcey, a faculty research assistant for the Transportation Studies Center at the University of Maryland, and a senior engineer with a New Jersey regional planning agency, the Hackensack Meadowlands Development Commission. He is a licensed Professional Engineer in New Jersey. 🌀

Research

A number of new research projects were initiated and final reports completed during the period from July 2008 through January 2009.

New Research Projects

Access Management Performance Measures, Phase 2, Lester Hoel, University of Virginia.

Calibrating Traffic Simulation Software Car-Following Models, Hesham Rakha, Virginia Tech.

Congestion on the Capital Beltway, G.L. Chang, University of Maryland.

Driver Route Selection and Response to Traveler Information, Hesham Rakha, Virginia Tech.

Evaluation of Lane-By-Lane Gap-out Feature for Actuated Traffic Signal Controller, Byungkyu (Brian) Park, University of Virginia.

Evaluation of Remote Sensing Aerial Systems In Existing Transportation Practices, Yu Gu, West Virginia University.

Evaluate Alternative Lane Management Strategies along I-81, Hesham Rakha, Virginia Tech.

Existing Right-Of-Way Plats Database Application (Phase I), Ali Hagani, University of Maryland.

Geocomposite Interlayer Testing, Ghassan Chehab, Penn State.

Improvement of Supervisory Control Intelligent Adaptive Module (SCIAM) for Intersection Safety and Efficiency, Montasir Abbas, Virginia Tech.

Integration of Off-Ramp and Arterial Signal Controls to Minimize the Recurrent Internal vs. External On-premise Sign Lighting: Visibility and Safety in the Real World, Philip Garvey, Penn State.

Investigating and Developing Alternative Transportation Safety Modeling Techniques, Hesham Rakha, Virginia Tech.

Investigation of Connectivity between Major Freight Handling Facilities, Michael Demetsky, University of Virginia.

Optimizing Vehicle Sharing Programs, Elise Miller-Hooks, University of Maryland.

Member Profile: University of Maryland

The **University of Maryland** transportation research effort benefits from new Intelligent Transportation Systems Laboratories in the recently completed state-of-the-art Engineering Research Building. The Kim Building provides space to the following new laboratories for Transportation research: Real-time Traffic Management Systems Research and Education Laboratory, Collaborative Decision-Making Laboratory for Large-Scale Distributed Dynamic Systems, Traffic Safety and Operations Laboratory, and Intelligent Transportation Systems Planning Laboratory. Direct connections exist from the various cameras and sensors installed along the freeway and highway system under the Maryland CHART traffic management center to provide live, quasi-continuous feeds to the ITS Laboratories. Access to all archived CHART traffic data is also available through the University of Maryland laboratories. The Collaborative Decision-Making Laboratory provides the unique capability to conduct interactive, simulation-based experiments with multi-agent transportation decision systems.

The Center's director, **Dr. Elise Miller-Hooks**, is an Associate Professor in the Department of Civil & Environmental Engineering.

Dr. Hooks's areas of interest and technical expertise include stochastic and dynamic network algorithms; optimization and mathematical modeling with applications in transportation; regional and building evacuation; emergency preparedness, response and recovery; freeway service patrols; transportation infrastructure vulnerability and protection; routing and scheduling, including hazardous materials routing; intermodal freight transport; concurrent flow lanes; reducing GHG emissions from transport sources; and collaborative and multi-objective decision-making. Dr. Hooks earned her B.S.C.E. degree from Lafayette College and M.S. and Ph.D. degrees from the University of Texas at Austin. In addition to her Center duties she also serves as chair-elect of the University Senate.



Undergraduate Opportunities

Transportation-related degree programs at the University of Maryland include two undergraduate tracks in Civil Engineering. The **Infrastructure Engineering Track** is designed for those students who wish to specialize in mechanics, structural engineering, or geotechnical/pavement engineering. The track stresses engineering




mechanics as well as analysis and engineering design. Students who complete this track will be well prepared for entry level engineering positions in industry or for graduate level work. The **Transportation and Systems Track** is designed for those students who wish to specialize in transportation systems, operations research, or engineering management. A heavy emphasis is placed on applied mathematics, optimization, and management science (uncertainty modeling, decision theory). Students who complete this track will be well prepared for entry level engineering positions in industry or for graduate level work.

Graduate Opportunities

UMD offers transportation-related graduate degree programs in three areas: mechanical engineering, civil engineering, and professional master of engineering.

The **Mechanical Engineering Department** offers graduate study leading to the Master of Science and Doctor of Philosophy degrees. In addition, students may pursue a Master of Engineering degree through the Professional Master's Program of the Office of Advanced Engineering Education. The Department's instruction and research are carried out through four divisions: Design and Reliability Systems; Electronic Products and Systems; Mechanics and Materials; and Thermal, Fluid and Energy Sciences.

The **Professional Master of Engineering program** is a practice-oriented part-time graduate program designed to assist engineers and technical professionals in the development of their careers and to provide the expertise needed in the rapidly changing business, government, and industrial environments. Late afternoon and evening classes are taught by the College Park faculty and experienced adjunct faculty at the College Park campus and designated learning centers in Maryland.

The **Department of Civil and Environmental Engineering** celebrated its 100th anniversary in 2008. The department offers graduate courses leading to the Master of Science and Doctor of Philosophy degrees. All programs are planned on an individual basis by the student and an adviser taking into consideration the student's background and special interests. Areas of concentration at both the master's and doctoral levels include: transportation engineering, environmental engineering, water resources engineering, structural engineering, geotechnical engineering, and project management. 

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The MAUTC Partners:

Penn State (lead)



University of Maryland



University of Virginia



Virginia Polytechnic Institute
and State University



West Virginia University

Strategic Alliances:

University of Delaware



Morgan State University



University of Pennsylvania



Research (from page 2)

Supply Chain Management in Disaster Response, Ali Hagani, University of Maryland.

Technology Evaluation on Characterization of the Air Void System in Concrete, Maria Lopez de Murphy, Penn State.

Recent Final Reports

Development of Archiving and Data Fusion Strategies for Travel Time Data, James Richardson and Brian L. Smith, University of Virginia; co-sponsor: VDOT.

Field Focused Superpave Validation, Mansour Solaimanian and Scott M. Milander, Penn State; co-sponsor: PennDOT.

Investigation of Speed Estimates Using Single Loop Detectors, Jianhua Gao, Jingxin Xiz and Brian Smith, University of Virginia; co-sponsor: VDOT.

Performance Evaluation of Dynamic Gap-Out Feature Using Stochastic Optimization Method and Software in the Loop Simulation, Seli James Agbolosu-Amison and Byungkyu “Brian” Park, University of Virginia; co-sponsor: VDOT.

Statewide Crash Analysis and Forecasting, Paul Jovanis, and Jonathan Aguero, Penn State; co-sponsor: PennDOT.

The Effects of Internally Illuminated On-premise Sign Brightness on Nighttime Sign Visibility and Traffic Safety, Philip M. Garvey, Martin T. Pietrucha and Ivette Cruzado, Penn State; co-sponsor: United States Sign Council.