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RITA *Office of Research, Development and Technology*

UTC Spotlight

University Transportation Centers Program

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Innovative Approaches to Educate Our Future Transportation Workforce

In April 2012, the Council of University Transportation Centers sponsored a National Transportation Workforce Summit to address the dynamic needs of the future transportation workforce. One stated objective was to promote greater visibility for transportation careers in industry, government, and academia.

Since then, Carnegie Mellon university's (CMU) Technologies for Safe and Efficient Transportation (T-SET), a U.S. Department of Transportation funded University Transportation Center (UTC), has developed a strategic approach. The approach includes exposing a multidisciplinary group of students to the world of transportation, demonstrating how their skills can be applied by providing real world transportation research projects, creating job opportunities by linking students with real world transportation partners, and exposing industry to innovative transportation research.

Tim Kelly

Stan Caldwell, Deputy Executive Director of T-SET, challenged elementary students to design their own Bus Rapid Transit (BRT) system in Pittsburgh, using a computer simulation program during National Engineers Week at the Carnegie Science Center.

The CMU T-SET UTC consortium, which is a partnership between CMU, the University of Pennsylvania (UPenn), and a companion initiative of the Heinz College's Traffic21 (primarily supported by the Hillman Foundation), does not have a traditional transportation-engineering program. Rather, it uses the lure of big data analytics and smart city design to attract a breadth of multidisciplinary students to careers in transportation. These disciplines include computer science, robotics, engineering, public policy, information systems, business, and design.

One example of the T-SET UTC's applied research projects is the story of Amy Silbermann (MSPPM), a CMU Heinz College alumna, who recently accepted a data analyst position with the Port Authority of Allegheny County. Ms. Silbermann was part of a Heinz College Capstone Systems Synthesis course: *Putting Intelligent Transportation Systems to Work in the New Fiscal Reality: A Port Authority System Analysis.* The team of 12 Masters of Public Policy students made operational recommendations using data analytics to improve service and increase cost efficiencies.

The policy capstone experience at Heinz opened the eyes of Ms. Silbermann and her team by demonstrating how they could have a significant, real world impact in the field of transportation. "I found it very rewarding to apply data-driven policy and systems education to a real-world problem impacting my community. Before this experience a career in transportation was not on my radar."

Furthermore, the capstone project provided Port Authority transit professionals with valuable analytical research. Wendy Stern, Assistant General Manager of Planning and Development for the Port Authority said, "Thanks to our partnership with CMU's UTC, we have a resource of interdisciplinary students with fresh ideas and perspectives for dealing with local transportation issues. In this case we were fortunate to recruit one of these students to join our team as well."

In addition, T-SET has started two Intelligent Transportation courses: *Growth with Intelligent Transportation* is a graduate-level course at the Heinz College, while *Introduction to Intelligent Transportation* has been adapted for the Pennsylvania Governor's School for the Sciences, which is focused towards talented high school students.

T-SET also launched a new faculty seminar series last semester, wherein faculty from computer science, robotics, engineering,

Stan Caldwell

During the PA Governor's School *Intro to Intelligent Transportation Course*, **high school students visited with T-SET faculty researcher, Christoph Mertz, in the NavLab.**

public policy, information systems, business and design bring their expertise to solve real world transportation problems. The first seminar series featured presentations on autonomous vehicle research and the deployment of robotic controlled traffic signals in Pittsburgh. The seminars were streamed live and attracted over 100 students each.

T-SET is also developing a program to place students in industry internships in partnership with 40 "real world" Consortium Members. The first was placed in the City of Pittsburgh's Department of Public Works to support UTC research deployment.

An effort to expose industry and transportation professionals to innovative research occurred this past April when T-SET Director Raj Rajkumar presented at the joint meeting of the Intelligent Transportation Society of Pennsylvania and The Mid-Atlantic Section of The Institute of Transportation Engineers on his autonomous vehicle work.

All of these efforts are designed to expose a multidisciplinary group of students to the multifaceted world of transportation and ultimately to shape the future transportation workforce in the United States.

About This Project