Carnegie Mellon University

News

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Roadside Innovation

A shiny new Cadillac with a hidden talent — driving itself; headlights that can direct beams between snowflakes to improve visibility; a snowplow that projects on the windshield a clear-weather image of the terrain ahead, including lane markings and potentially dangerous obstacles; traffic signals that adapt to real-time road congestion; smartphone-based sensors that inspect road conditions.

These technological marvels are more than futuristic imaginings. They're in development at Carnegie Mellon University.

Long at the forefront of employing innovative technologies to address society's problems, CMU student and faculty researchers are using their talents to solve transportation challenges. They're bringing together multidisciplinary teams from top-ranked departments across the university, including computer science, engineering, design, business, public policy and information systems.

"We take all these different skills and apply them to real-world problems in transportation. That's the nature of CMU," said Stan Caldwell, executive director of the Traffic21 Institute (http://traffic21.heinz.cmu.edu/) and Technologies for Safe and Efficient Transportation (http://utc.ices.cmu.edu/utc/) (T-SET), a U.S. Department of Transportation National University Transportation Center in collaboration with the University of Pennsylvania.

These entities house many of the cutting-edge research efforts aimed at solving pressing transportation issues, using Pennsylvania as a test bed for technology deployment.

"When we were building this transportation system over the last 50 years, it was primarily civil engineering-focused," Caldwell continued. "Now, how do we optimize it? How do we look at mobility from a multi-modal, holistic view? You need these multidisciplinary skills to build the smart cities of the future."

Transportation leaders are listening. U.S. Secretary of Transportation Anthony Foxx recently visited CMU's National Robotics Engineering Center (http://www.nrec.ri.cmu.edu) (NREC) in connection with the DOT's Beyond Traffic (http://www.dot.gov/BeyondTraffic) initiative, a draft framework for the future of the U.S. transportation network.

Foxx sat down with CMU students working at the intersection of technology and transportation for a roundtable discussion covering topics from autonomous vehicles to the role of drones in shipment. While touring the NREC facility, he met with researchers who discussed the above projects and more.

"We are entering into a phase where the technology is becoming much smarter, much more capable of taking on tasks that human beings had previously taken on, all the way to the possibility of driverless vehicles," Foxx said during an address at the event.

"This is a watershed moment in transportation," Foxx said. "You are clearly focused on the future. That's what you're doing every single day here."

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