

CENTER FOR TRANSPORTATION STUDIES AND INTELLIGENT TRANSPORTATION SYSTEMS LABORATORY

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Summary of Research

A broad range of diverse technologies, known collectively as intelligent transportation systems (ITS), holds the answer to many of our society's transportation problems. ITS are comprised of existing and new technologies, including information processing, sensors, communications, control, and electronics. Combining these technologies in innovative ways and integrating them into our multimodal transportation system will save lives, time, and resources. Transportation is the backbone of our society—the movement of people and goods provides the foundation of our quality of life and economic prosperity. Fulfilling the need for a transportation system that is both economically sound and environmentally efficient requires a new way of looking at—and solving—our transportation problems. The strategy of adding more and more highway capacity neither solves our transportation problems, nor meets the broad national vision of an efficient, integrated transportation system. The work in the lab focuses on the integration and improvement of all modes—highway, transit, bicycle, pedestrian and freight. Traffic crashes and congestion take heavy tolls in lives, lost productivity, and wasted energy. ITS enables people and goods to move more safely and efficiently through a state-of-the-art, intermodal transportation system. A full description of my research can be found at: <http://www.its.pdx.edu>.

Potential for Commercialization and Job Creation

The research work performed in the Intelligent Transportation Systems Laboratory involves students who are critical to the transportation industry workforce. There is a currently a crisis in the transportation industry since up to 50% of the current staff in our nation's transportation agencies will be eligible for retirement in the next 10 years. As part of a nationwide capacity building program, the faculty and students are working to increase the number of transportation engineering and planning graduates who have multidisciplinary perspectives and experience working on multidisciplinary teams. In addition, our graduate programs allow current transportation industry employees to return to the university in order to re-tool and qualify for promotions within their own agencies with graduate degrees.

Total Research Funding

Since 2000, total research funding has exceeded \$2.2 million. Funding sources have included the National Science Foundation, U.S. Department of Transportation (Federal Highway Administration and Federal Transit Administration), Oregon Department of

Transportation, BMW Group, City of Portland, Federal Region 10 University Transportation Center (TransNow), and the National Cooperative Highway Research Program. Including other transportation faculty, total research funding since 1998 has exceeded \$6 million. A full description of my funding can be found at: http://web.pdx.edu/~bertini/psu_cv.htm.

Student Involvement

Students are integral to all of the work that done in the Intelligent Transportation Systems lab (see photos of lab student teams at www.its.pdx.edu). Since arriving at PSU in 2000, Dr. Bertini has supervised approximately 52 graduate and undergraduate students, including work on funded research projects and as advisor/committee member for Ph.D. dissertations, Masters theses, Masters projects, professional field area papers and as NSF Research Experience for Undergraduate (REU) participants. Dr. Bertini has supervised one undergraduate who is participating in the PSU Undergraduate Research funding program. Current student profiles are available at: <http://www.its.pdx.edu/people.html> while profiles of some of the alumni are shown at: <http://www.its.pdx.edu/alumni.html>. Students have won approximately 35 scholarships and awards through their work in the Intelligent Transportation Systems lab, and one former undergraduate student is currently a Presidential Fellow at the Massachusetts Institute of Technology. The students also attend national conferences and present peer-reviewed papers; students have functioned as co-authors on peer-reviewed publications with Dr. Bertini approximately 40 times since he arrived at PSU in 2000.

Website Information

Center for Transportation Studies: www.cts.pdx.edu

Intelligent Transportation Systems Laboratory: www.its.pdx.edu

Robert Bertini website: www.bertini.org

Christopher Monsere website: <http://www.cecs.pdx.edu/~monserec>

Jennifer Dill website: <http://web.pdx.edu/~jdill>

