Meet the Principal Investigator

Albert Gan, Deputy Director, Lehman Center for Transportation Research, Florida International University

Planning, designing, operating, and maintaining efficient and effective transportation systems require the analysis of massive amounts of data. FDOT uses transportation data to make informed decisions about how to maximize capacity, minimize congestion, and make roadways safer. Dr. Albert Gan, Deputy Director for the Florida International University's Lehman Center for Transportation Research, has been crafting solutions to data collection and analysis for over a decade. He has developed or assisted in the development of over a dozen desktop, web-based, and mobile software applications for FDOT in the areas of planning, public transit, and safety. His software systems have made transportation data easier to collect, access, and share.

To help meet the data and information needs of the Florida transportation modeling community, Gan and his team created the Florida Transportation Modeling Portal. Named FSUTMSOnline, the portal provides the transportation modeling community a central location for accessing and analyzing geographic data through the web. The website allows Florida's transportation modelers to exchange and share data, information, and ideas. The website allows for easy and frequent updates by designated administrators, and features modeling newsletters, training registration and management, web-based training, model documentation, research projects, and discussion forums. It also includes pages for transportation coordinators to post model and data files for easy data sharing. All of these capabilities have significantly enhanced the efficiency and effectiveness of transportation modeling in Florida.

Gan developed a computer based training program for users of the Florida Standard Urban Transportation Model Structure (FSUTMS). The FSUTMS model structure helps transportation planners to forecast travel demand and develop long-range plans. Gan's online training program provides an overview of the transportation planning process, travel demand forecasting methodologies, and FSUTMS models and data requirements. Participants learn how to execute FSUTMS, use the menu systems, interpret and create standard output results, and edit and create networks through a series of hands-on computer exercises. The online course allows those who cannot attend district workshops to learn the modeling individually online, and provides a means for all attendees to review course material.

To help fulfill FDOT's mission of providing a safe transportation system, Gan developed a database and analysis system called the Crash Reduction Analysis System Hub (CRASH). The CRASH application automatically calculates the cost-benefit ratio of each type of roadway safety improvement to help FDOT engineers make better decisions on selecting safety improvements projects.

Currently, Dr. Gan and his team are helping to meet the data needs of the new SafetyAnalyst software program. Developed by the Federal Highway Administration (FHWA), SafetyAnalyst provides state and local highway agencies with a comprehensive set of tools to improve their programming of site-specific highway safety improvements. A complementary, Florida-specific project is currently underway to identify Florida's crash analysis practices and needs and to avoid costly duplication of efforts in software development and maintenance.

Gan is also developing traffic management software for use with ramp signaling analysis. Ramp signaling, also called ramp metering, is a traffic management strategy that aims to improve the flow of traffic by controlling the rate at which vehicles enter freeways. Ramp signals currently are in use on I-95 in Miami-Dade County and are being considered at various other locations across the state. Although a year from completion, the software will allow district offices to access and analyze, in one web application, data from various databases to evaluate potential locations for ramp signaling. The software may also be used as a general tool to allow engineers to quickly retrieve data for specific project locations.

"Data preparation is usually a tedious process and often consumes more than half of the budget of a typical transportation study," says Gan. "Anytime you can make it easier for people to get their hands on the data you are likely to be of great help to them." ●