

Transportation Systems Engineering

CEEatGT
2016-2017
GRADUATE
STUDIES

THE Transportation Systems Engineering graduate program at the Georgia Institute of Technology provides students with in-depth knowledge of design and performance and encourages them to understand the environmental, institutional and societal context in which these systems operate. At the core of the program is the understanding that transportation systems engineering can promote a thriving economy and a high quality of life by ensuring the safe and efficient movement of information, people, goods and services. We also recognize that transportation systems affect the environment through construction, maintenance and operation of facilities, and through the travel behaviors they encourage. Students supplement the core technical transportation courses in urban transportation planning, traffic engineering, highway and transit facility design, administration and statistical analysis with technical electives from other academic units.

RESEARCH AREAS

Transportation faculty are involved in a wide range of research topics, including new planning methods for transportation investment, analyses of truck-only toll lanes, enhanced methods for monitoring and modeling travel behavior, analyses of driver safety in the conversion of carpool to high-occupancy toll lanes, analyses of airline passenger behavior, the application of advanced technologies in the transportation system, the development of new models for estimating vehicle emissions, improved concepts for intermodal transportation, sustainable development and transportation, application of geographic information systems in program management, and the development of decision support tools for infrastructure management.

Many of these projects are interdisciplinary in nature and involve faculty and students from other academic programs. Research facilities include a unique Traffic Signal Lab, Instrumented Vehicle Lab, and an Intelligent Transportation Systems Laboratory.

UNIVERSITY TRANSPORTATION CENTERS

Our nation's transportation system has achieved unprecedented levels of mobility and contributed to our economic health and the quality of life enjoyed by all residents. However, the United States faces critical infrastructure, funding, technology and demographic challenges to preserve and enhance its transportation system for future generations.

To address these challenges, Georgia Tech is home to the National Center for Transportation Systems Productivity and Management (NCTSPM), a U.S. Department of Transportation University Transportation Center. The NCTSPM works with local, state and regional agencies to provide leadership on research, education and technology transfer to address issues related to transportation system management and performance, state-of-good-repair, and economic competitiveness. Georgia Tech is also a partner on UC Davis' National Center for Sustainable Transportation and the Southeastern Transportation Research, Innovation, Development and Education Center at the University of Florida.

Georgia Tech is the lead institution for the Georgia Transportation Institute (GTI), which was established to coordinate and act as a focal point for transportation research in the state of Georgia. GTI-affiliated researchers are active in a broad range of topics including policy and planning, environmental issues, transportation technology, transportation infrastructure, safety, and traffic operations.

SELECTED COURSES

- Computer-Aided Site Engineering & Road Design
- Discrete Choice Analysis
- Environmental Impact Assessment
- Freight Planning and Analysis
- Geometric Design
- GIS in Transportation
- Infrastructure Management: IT Applications
- Infrastructure Systems
- Multimodal Transportation Systems
- Pavement Technology
- Signalized Intersections & Networks
- Simulation Models in Transportation
- Spatial Analysis
- Statistical Analysis of Travel Demand
- Traffic Engineering
- Traffic Flow Theory
- Transportation Administration & Policy Analysis
- Transportation Energy
- Transportation & Air Quality
- Transportation Energy Infrastructure Management
- Transportation Survey Methods
- Transit Systems Planning & Design
- Urban Transportation Planning

LEARN MORE

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FACULTY

ADJO A. AMEKUDZI-KENNEDY, PH.D. Associate Chair, Global Engineering Leadership and Research Development & Professor
Civil infrastructure/asset management, infrastructure decision support systems, sustainable infrastructure systems.

LAURIE GARROW, PH.D. Associate Professor
Travel behavior analysis, application and estimation of advanced discrete choice models, airline passenger behavior.

RANDALL GUENSLER, PH.D. Professor
Motor vehicle and personal activity monitoring, transportation planning, vehicle emissions, air quality modeling, sidewalk infrastructure management, environmental impact assessment, environmental policy analysis.

MICHAEL P. HUNTER, PH.D. Director, National Center for Transportation Systems Productivity and Management, Director, Georgia Transportation Institute & Associate Professor
Traffic operations and design, signal optimization, safety, transportation simulation.

JORGE LAVAL, PH.D. Associate Professor
Traffic flow theory and simulation, freeway operations, queueing theory, network modeling.

PATRICIA L. MOKHTARIAN, PH.D. Susan G. and Christopher D. Pappas Professor & Group Coordinator
Statistical, econometric, and psychometric methods applied to measuring and modeling travel-related attitudes and behavior.

MICHAEL O. RODGERS, PH.D. Director, Georgia Tech Air Quality Laboratory & Principal Research Scientist
Air quality and transportation, transportation modeling and simulation, mobile source emissions modeling, remote sensing of vehicle emissions, transportation statistics.

YI-CHANG (JAMES) TSAI, PH.D., P.E. Professor
Smart city infrastructure, optimization of spatial sensing and information technology, GPS/GIS, processing and analysis of image/laser/LiDAR data, infrastructure/asset management, pavement technology, safety, port logistics.

KARI E. WATKINS, PH.D., P.E. Frederick L. Olmsted Junior Professorship & Assistant Professor
Public transit planning and operations, complete street design, mode choice decision-making, information technology in transportation.

ADJUNCT FACULTY

JOHN D. LEONARD II, PH.D.
Advanced technology applications, intelligent transportation systems, traffic operations, traffic engineering, traffic safety, computer simulation, network modeling, computer programming, systems analysis.

JOHN Z. LUH, PH.D., P.E.
ITS design, traffic signal design, highway network evaluation, traffic engineering, transportation planning.

FRANK SOUTHWORTH, PH.D.
Freight and passenger transportation planning models and methods, public transit, evacuation planning, land use/transportation interaction, sustainable transportation systems.

RESEARCHERS

CHENGBO AI, PH.D. Research Engineer I
Remote sensing technologies for intelligent roadway asset/infrastructure/pavement management using mobile LiDAR, image processing and GPS/GIS.

GIOVANNI CIRCELLA, PH.D. Research Engineer II
Travel behavior, discrete choice modeling, travel demand modeling, land use/transportation interactions.

FRANKLIN GBOLOGAH, PH.D. Research Engineer II

ANGSHUMAN GUIN, PH.D. Senior Research Engineer
Freeway operations, Intelligent Transportation Systems (ITS), transportation safety, traffic simulation and data management.

OLGA KEMENOVA, PH.D. Research Engineer II
Transportation statistics, mobile source emissions modeling and analysis.

CHARLENE MINGUS, Research Engineer

ALEXANDER SAMOYLOV, PH.D. Research Scientist II
Vehicle remote sensing, motor vehicle emissions analysis, database applications.

YICHING WU, Research Engineer II
Infrastructure asset management, pavement technology, roadway safety, logistics, GPS/GIS technologies.

